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January 19, 2007

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Office of State and Federal Materials and Environmental Management Programs
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RE: **Final Status Survey for the former Ward Center for Nuclear Studies, Cornell University, NRC Docket Numbers 50-097 and 50-157**

Dear Mr. Hickman:

Enclosed with this letter are two bound copies, and one electronic copy on compact disc (CD), of the following document:

Final Status Survey Report for the Ward Center for Nuclear Studies, Cornell University, Ithaca, NY, U.S. NRC Facility Operating License Nos. R-80 and R-79.

This document, summarizing the successful completion of the decommissioning of the former Ward Center in accordance with our approved Decommissioning Plan and Final Status Survey Plan, is provided for your review and approval.

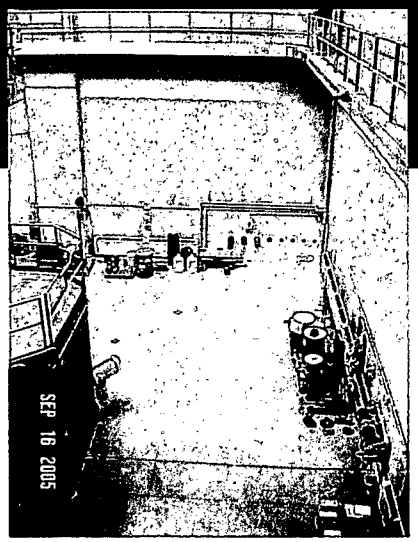
Thank you for your assistance with this process. I will contact you in about a week to see whether there is any other information or documentation you require in order for Cornell to obtain release from our facility operating licenses. In the interim you may contact Dr. Charles Fay at 607-255-5491 or you may contact me at 607-255-2946 should you have any questions or requests.

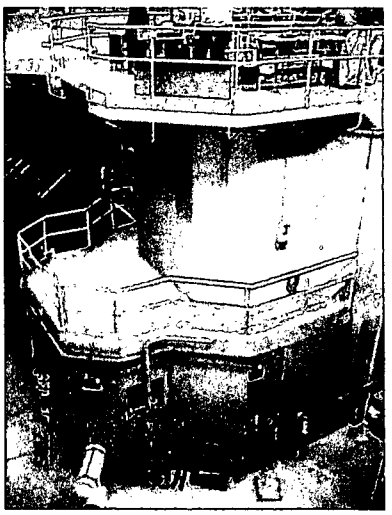
Very truly yours,
CORNELL UNIVERSITY

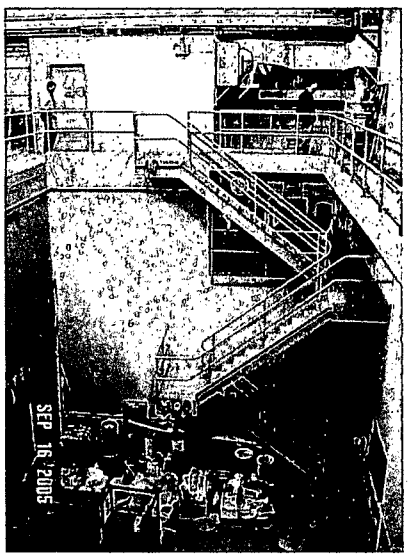
Steve Beyers, P.E.
Project Manager, Ward CNS Decommissioning

Cc: Dr. Charles Fay, Office of the Vice Provost for Research, Cornell University
Thomas J. McGiff, Radiation Safety Office, Cornell University

Final Status Survey Report
The Ward Center for Nuclear Studies
Cornell University, Ithaca, New York
U.S. NRC Facility Operating License Nos. R-80 and R-89
Document No. 82A9608







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ENERGY*SOLUTIONS*

FINAL STATUS SURVEY REPORT

THE WARD CENTER FOR NUCLEAR STUDIES
CORNELL UNIVERSITY, ITHACA, NEW YORK
U.S. NRC FACILITY OPERATING LICENSE NOS. R-80 AND R-89

Prepared for:
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January 2007

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REVISION LOG

Revision Number	Affected Pages	CRA Number	Approval

ACRONYMS AND ABBREVIATIONS

2x2	two-inch by two-inch
ALARA	as low as reasonably achievable
CFR	Code of Federal Regulations
CHP	Certified Health Physicist
cpm	counts per minute
CWF	Containerized Waste Facility (Energy*Solutions*, Clive, UT)
D&D	decontamination and decommissioning
dpm/100cm^2	disintegrations per minute per 100 square centimeters
DQO	data quality objective
EDE	effective dose equivalent
EH&S	Department of Environmental Health & Safety
FSS	final status survey
FSSP	Final Status Survey Plan
GEL	General Engineering Laboratories
HEPA	high-efficiency particulate air
LLRW	low-level radioactive waste
LSC	liquid scintillation counter
LTR	License Termination Rule
MARSSIM	*Multi-Agency Radiation Survey and Site Investigation Manual*
MDA	minimum detectable acitivity
MDC	minimum detectable concentration
mR/hr	milliroentgen per hour
mrem/hr	millirem per hour
mrem/yr	millirem per year
NaI	sodium iodide
NRC	U.S. Nuclear Regulatory Commission
pCi/g	picoCuries per gram
QA/QC	quality assurance and quality control
QAPP	quality assurance program plan
TEDE	total effective dose equivalent
TRIGA	Teaching Research Isotope General Atomic
University	Cornell University
Ward Center	Ward Center for Nuclear Studies, Cornell University
ZPR	Zero Power Reactor

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1.0 INTRODUCTION

As part of the decontamination and decommissioning (D&D) project at Cornell University's (University) Ward Center for Nuclear Studies (Ward Center), Energy*Solutions*, LLC conducted a final status survey (FSS) to demonstrate compliance with facility release criteria approved by the U.S. Nuclear Regulatory Commission (NRC) as provided in the final site Decommissioning Plan (Duratek 2003). The FSS presented in this report supports the termination of the two NRC licenses held by the University: License R-80 for the Teaching Research Isotope General Atomic (TRIGA) reactor and License R-89 for the Zero Power Reactor (ZPR).

All FSS activities and tasks were conducted in accordance with the FSS Plan (Energy*Solutions* 2006a) and other applicable Energy*Solutions* standard operating manuals, procedures, and project-specific plans. The FSS Plan was reviewed and approved by the NRC.

The FSS was developed following the guidance provided in NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)" (NRC 2000) to demonstrate compliance with the facility release criteria discussed in Section 2.4. The MARSSIM process emphasizes the use of data quality objectives (DQO), proper classification of survey units, a statistically-based survey and sampling approach, and an adequate quality assurance/quality control (QA/QC) program.

The FSS was performed in accordance with the FSS Plan by trained technicians experienced in performing FSSs. The technicians followed written procedures covering surveys and sampling, sample collection and handling, chain-of-custody, and recordkeeping. This FSS Plan defined survey and sampling locations, survey types, and analyses required.

This FSS Report summarizes the decontamination and decommissioning tasks performed by Energy*Solutions* and its subcontractors and presents the FSS data. Summary data are presented in Sections 4.1 through 4.6. Complete survey data packages presented in Appendices A through F. Copies of analytical reports from off-site independent laboratories on materials samples such as soil and concrete are provided in Appendices G and H. Appendices I and J provide additional information to support the quality and accuracy of the data.

1.1 SITE DESCRIPTION

The Ward Center is situated in the southwestern area of the Cornell campus off College Avenue just north of Cascadilla. The facility was constructed between 1959 and 1962. The land area is not well defined as there are no physical barriers between the Ward Center and other nearby engineering buildings.

The footprint of the three-level Ward Center building is about 10,000 square feet with about 26,000 square feet of floor space. The building contained the former Reactor Complex (which included the TRIGA reactor, the ZPR cell/pit, the gamma irradiation

facilities, fuel and isotope storage, etc.) and the Office and Laboratory Wing (mechanical and electrical rooms, laboratories, offices, etc.).

1.1.1 Reactor Complex

The primary purpose of the Reactor Complex was to house the TRIGA reactor and ZPR. Access to the former Reactor Complex is through doors from the Office and Laboratory Wing on the north side of the Complex on each of the three levels. Access on the basement level is also provided via a large sliding door on the western side of the Reactor Complex.

The former Reactor Complex contains three levels totaling about 6,000 square feet: the basement, the first floor, the second floor, and the three level-high open Reactor Bay (about 45 feet from floor to ceiling). The TRIGA reactor formerly occupied the basement along with the Reactor Equipment Room, the Isotope and Fuel Storage Room, and the Gamma Cell. The first floor of the Reactor Complex contained the ZPR Cell and the ZPR Control Room. The second floor contained the Isotope Handling Room, the TRIGA Control Room, the Observation Room, a small laboratory, work area on top of the reactor bioshield, and a catwalk around the Reactor Bay.

1.1.2 Office and Laboratory Wing

The Ward Center Office and Laboratory Wing surround the Reactor Complex on the northern, eastern, and western sides. The northern, eastern, and western sections consist of a basement and first floor while the northern section also has a second floor. The basement of the Office and Laboratory Wing contained the Gamma Irradiation Facility and still contains the mechanical and electrical rooms, a transformer vault, a liquid waste storage tank room (tank removed), a machine shop, and laboratory space. The first floor of the Office and Laboratory Wing contains eight laboratory and office spaces, including the former ZPR Laboratory, several storage areas, a conference room, lobby, and restrooms. The second floor of the Office and Laboratory Wing contains only six office/laboratory spaces.

1.2 SUMMARY OF D&D ACTIVITIES

D&D activities were performed in accordance with an approved Work Plan (Energy*Solutions* 2006b). The primary D&D tasks involved the removal of the internal TRIGA reactor components and the demolition of the reactor bioshield. These components and materials were disposed of as low-level radioactive waste (LLRW) at Energy*Solutions'* Clive, Utah disposal facility. The ZPR was also removed and disposed of as LLRW along with legacy waste stored around the Reactor Complex. The reactor pool water was sampled and released to the sanitary sewer system prior to demolition.

The internal TRIGA reactor components were removed June 23, 2006 and shipped to Energy*Solutions* LLRW disposal facility. Due to the high dose rates (more than 500 millirem per hour [mR/hr] on contact) from the activated aluminum and stainless steel in the reactor assembly, the reactor assembly was shipped to the disposal sites' Containerized Waste Facility (CWF). The B-25 waste container containing the reactor assembly also contained the reactor grid plates and three control rod guide tubes. A second B-25 waste container containing the four bellows assemblies that connected the reactor assembly to the experimental beam tubes was also sent to the CWF because of high dose rates from activated stainless steel fasteners on the bellows. These containers were shipped to the CWF under the Energy*Solutions* mobile Waste Certification Profile Record Number EC-98210.

Prior to removal of the TRIGA reactor assembly and bellows, the reactor pool was partially drained. The water was sampled and discharged according to a procedure approved by the Department of Environmental Health & Safety (EH&S) (Energy*Solutions* 2006c). Once the pool was partially drained to a level where the water still provided sufficient shield from the activated reactor assembly, the reactor assembly and other reactor components were removed. After these components were removed, the pool was completely drained. None of the water sampled from the pool indicated the presence of radioactive contamination above sewer release criteria. Data from water sampling was provided to the Cornell EH&S and is not presented in this report.

Demolition of the TRIGA reactor bioshield began with separating the reactor pool walls (east and west) from the northern wall of the Reactor Complex. A diamond wire saw, operated by Cutting Edge, LLC, was used to cut the concrete wall from ground level to the top of the pool wall. The cut-lines were first surveyed to ensure that the area was free of contamination. The cuts were performed successfully with minimal secondary waste generated. Approximately 300 gallons of waste water were generated from the cutting activities. The water was solidified with concrete in 55-gallon drums and disposed of as LLRW.

Once the diamond wire cuts were made, a containment structure was installed around the reactor bioshield. Plastic sheeting was hung from the reactor bay rafters and portable high-efficiency particulate air (HEPA) filter systems were installed to contain the non-radiological dust from the bioshield demolition. The demolition of the bioshield began on July 26, 2006 using a hydraulic demolition hammer mounted on an excavator. Water was sprayed from the reactor bay catwalk to suppress dust during demolition. Much of the water spray quickly evaporated due to the heat in the reactor bay during demolition or it was absorbed by the concrete (ilmenite) rubble and dust resulting in little secondary waste water from the spray.

Along with the ilmenite concrete from the bioshield, the demolition waste also included the aluminum casing of the thermal column and the activated graphite blocks that were installed in the reactor thermal column. Components embedded in the bioshield were removed, as they were exposed during demolition. These included the experimental

beam ports, steel shadow shields, mounting brackets, rebar, and other hardware. The beam ports were activated and the shadow shields were activated near the interface with the beam ports. About 300 cubic feet of concrete from directly below the position of the reactor was removed to expose the shale below the Reactor Bay floor. Prior to demobilization, the resulting pit, which was 4 feet deep, was filled with clean gravel to eliminate the safety hazard caused by the open pit.

All bioshield rubble, rebar, and embedded objects were disposed of as LLRW at the Energy*Solutions* Bulk Waste Facility in Clive, Utah. Waste was loaded into roll-off containers and shipped by truck to Alaron, Inc. in Wampum, Pennsylvania. There, the containers were staged until they were loaded onto flat-bed rail cars for shipment to Utah. A total of 51 roll-off containers containing 164,543 cubic feet of waste from the bioshield demolition were shipped from the Ward Center. The last shipment left the Ward Center on October 9, 2006. All structural materials were disposed of as radioactive waste.

Energy*Solutions* surveyed and released approximately 5 tons of lead that was removed from in and around the reactor bioshield. The release criteria established in the NRC's Regulatory Guide 1.86 for release of materials from decommissioning nuclear facilities of 5,000 dpm/100cm^2 for total beta-gamma activity and 1,000 dpm/100cm^2 for removable activity were used. Approximately 3.5 tons of lead could not be released. This lead was shipped to Energy*Solutions* mixed waste treatment and disposal facility in four 55-gallon drums.

2.0 FINAL STATUS SURVEY PROCESS

The FSS provided data and supporting information to demonstrate that the release criteria presented in the FSS Plan were satisfied. The survey design was intended to ensure data of sufficient quantity and quality was obtained to determine the status of survey units with regard to the release criteria. The survey measurement process included scans and fixed point measurements for total alpha and beta surface contamination, removable contamination surveys, gamma scans, and dose rate surveys.

Survey data was reviewed and validated by the Project Health Physicist. The validation process involved verification of instrument operability on days the instruments were used, verification of proper instrument efficiencies, and verification of activity calculations. The data review verified that the surveys were completed as designed and identified unexpected or outlier data points. The complete survey data packages are provided in Appendices A through F.

2.1 RELEASE CRITERIA

For the Ward Center decommissioning, the release criteria were:

- Effective dose rate (EDE) of 0.05 mrem/hr above background at 1 cm from any surface
- Removable levels less than 100 dpm/100 cm^2 (β-γ)
- Fixed plus removal less than established MDC of 5,000 dpm/100cm^2 (Energy*Solutions* 2006b)

These criteria were well below the dose-based release criteria, which are required by the NRC's License Termination Rule (LTR) (10 CFR 20, Subpart E). This rule requires that residual radioactivity distinguishable from background radiation results in a total effective dose equivalent (TEDE) to an average member of the critical group that does not exceed 25 mrem per year (mrem/yr). The rule also requires that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). The NRC has published License Termination Screening Values for isotopes of concern that can be used for license termination provided that the exposure conditions are similar to those used to derive the screening values (NRC 1998). Table 2-1 provides the building surface screening criteria for the primary radionuclides of concern at Ward Center (Energy*Solutions* 2006a) in units of disintegrations per minute per 100 square centimeter (dpm/100cm^2).

TABLE 2-1
LICENSE TERMINATION SCREENING CRITERIA FOR BUILDING SURFACE CONTAMINATION

Radionuclide	Total Activity Screening Criteria (dpm/100 cm^2)
Tritium	120,000,000
Carbon-14	3,700,000
Sodium-22	9,500
Manganese-54	32,000
Iron-55	4,500,000
Cobalt-60	7,100
Nickel-63	1,800,000
Strontium-90	8,700
Cesium-137	28,000
Europium-152	12,700
Europium-154	11,500

The NRC also provides screening criteria for soil contamination in units of picocuries per gram (pCi/g) that was applied to soil below the facility as provided in Table 2-2 as follows:

TABLE 2-2
LICENSE TERMINATION SCREENING CRITERIA FOR SOIL CONTAMINATION

Radionuclide	Soil Screening Criteria (pCi/g)
Tritium	110
Carbon-14	12
Sodium-22	4.3
Manganese-54	15
Iron-55	10,000
Cobalt-60	3.8
Nickel-63	2,100
Strontium-90	1.7
Cesium-137	11
Europium-152	8.7
Europium-154	8.0

2.2 RADIOLOGICAL CLASSIFICATION OF AREAS

Classification is the process by which an area or survey unit is categorized based on its potential for residual contamination. Survey measurement requirements are based on the classification. In classifying areas, those that have no reasonable potential for residual contamination are classified as non-impacted areas. These areas have no radiological impact from site operations and are typically identified early in the decommissioning.

Areas with some potential for residual radioactivity or that have known contamination are classified as impacted areas. Impacted areas are subdivided into one of three classifications. To properly perform and document the final status survey the entire area of interest must be partitioned into properly classified survey units of appropriate physical area.

The Ward Center was divided into multiple survey units with a class designation of Class 1, 2, or 3. Initial survey unit classifications, as provided in the FSS Plan (Energy*Solutions* 2006a), were conducted according to MARSSIM protocols based on characterization surveys, scoping surveys performed by Energy*Solutions,* and the potential for residual radioactive contamination to be present in the survey unit following D&D activities. Due primarily to the age of the facility and the range of activities that occurred in the facility, all of the interior areas of the Ward Center are considered as impacted.

Areas with a potential for contamination above the release criteria, based on site operating history, and areas with contamination above the release criteria prior to decontamination were assigned as Class 1 survey units.

Class 2 survey units were areas where direct characterization data or extrapolated final status survey data indicated that residual radioactivity levels may be present but are expected to be within the endpoint criteria. Typically Class 2 areas are adjacent to Class 1 areas such as upper walls and ceilings in a room where the floor has been classified as Class 1.

Areas designated as Class 3 survey units were impacted areas not expected to contain any residual radioactivity.

Tables 2-3, 2-4 and 2-5 list the survey units for the second floor, first floor, and basement respectively as surveyed as part of the FSS. Table 2-6 lists miscellaneous survey units or survey records. The survey units and records identification numbers range from x-x-001 through x-x-074. The first number in the identification number represents the location of the survey unit: S = second floor, F = first floor, B = basement, and M = miscellaneous. The second number identifies the survey unit class while the third number is a sequential number from 001 through 074.

TABLE 2-3
WARD CENTER 2ND FLOOR SURVEY UNITS
(Numbers S-x-051 through S-x-067)

Rooms/Area	Description	Survey Unit/Survey Record	Class
201 202 203 204 205 206 Hallway	Floors of rooms and hallway connecting the rooms	S-3-053 (floor)	3
Corridor	Floor between Reactor Complex and Lab Complex hallway	S-2-051 (floor)	2
Stairway	Main Stairway (all levels)	S-3-054 (floor)	3
Elevator	Elevator car	S-3-052 (floor and walls)	3
2R01	Laboratory	S-1-055 (floor, walls, and ceiling)	1
2R02	Isotope Handling Room	S-1-056 (floor, walls, and ceiling)	1
2R03	Observation Room	S-3-057 (ceiling) S-1-058 (floor and lower walls) S-2-059 (upper walls)	3 1 2
2R05	TRIGA Control Room	S-3-060 (ceiling) S-1-061 (floor and lower walls) S-2-062 (upper walls)	3 1 2
200CB	Top of ZPR Room	S-1-063 (floor and lower walls)	1
Catwalk	Reactor Bay Catwalk	S-1-064 (floor and railings)	1
Upper Reactor Bay	Areas in the reactor bay above the catwalk	S-3-065 (ceiling) S-2-066 (overhead crane) S-2-067 (upper walls)	3 2 2

TABLE 2-4
WARD CENTER 1ST FLOOR SURVEY UNITS
(Numbers F-x-033 through F-x-049)

Room/ Area	Description	Survey Unit/Survey Record	Class
	Vestibule		
100	Lobby		
101	Health Physicist's Office		
102	Supervisor's Office		
103	Stock & Storage Room #2		
104	Stock & Storage Room #1	F-3-035 (floors)	3
105	Staff Lab Office No. 1		
106	Staff Office		
107	Men's Toilet		
108	Women's Toilet		
Hallway	Hallway connecting rooms		
109	Reading/Conference Room	F-3-036 (floor)	3
112	Staff Lab Office No. 2		
114	Pantry		
116	Staff Lab Office No. 3	F-3-040 (floors)	3
118	Class Room		
Hallway	Hallway connecting rooms		
110	Janitor's Closet	F-2-034 (floor and lower walls)	2
Corridor	Corridor outside Rooms 109 and 111	F-2-033 (floor)	2
111	ZPR Laboratory	F-3-037 (ceiling) F-2-038 (upper walls) F-1-039 (floor and lower walls)	3 2 1
1R01/113	ZPR Control Room	F-3-047 (ceiling) F-2-048 (upper walls) F-1-049 (floor and lower walls)	3 2 1
1R03/117	ZPR Tank Room ZPR Tank Room ZPR Upper Level ZPR Upper Level ZPR hallway	F-1-041 (ceiling and S, E, W walls) F-1-042 (floor and N wall) F-1-043 (ceiling, S, E, W walls) F-1-044 (floor and N wall) F-1-045 (floor and walls)	1 1 1 1 1
1R07	Top of Gamma Cell	F-1-046 (floor and lower walls)	1

TABLE 2-5
WARD CENTER BASEMENT SURVEY UNITS
(B-x-001 – B-x-018, B-x-023 – B-x-026, B-x-028 – B-x-032, B-1-050, and B-2-072)

Room/ Area	Description	Survey Unit/Survey Record	Class
B01 B03 B04 Hallway	Introductory Lab No. 2 Dark Room Introductory Lab No. 1 Hallway connecting rooms	B-3-006 (floors)	3
B06A B06B B06C Hallway	Machine Shop Misc. rooms Hallway connecting rooms	B-3-005 (floors)	3
B06D	Storage Room	B-3-011 (floor)	3
B07	Laboratory	B-2-072 (floor and lower walls)	2
B07 B09 B11 B17 Hallway	Laboratory Electrical Room Mechanical Equipment Room Transformer Room Hallway connecting rooms	B-3-004 (floor)	3
B05	Counting Room	B-2-001 (floor and lower walls)	2
Corridor	Corridor from Reactor Bay to B13 (Men's Room) and hallway	B-2-002 (floor)	2
B13	Men's toilet and shower	B-3-003	3
B15	Waste Storage Tank Room	B-1-015 (floor/walls/ceiling)	1
B08	Chemistry Laboratory	B-1-012 (ceiling and W wall) B-1-013 (floor and S wall) B-1-014 (N and E walls)	1 1 1
B08A	Chemistry Laboratory Storage	B-1-023 (ceiling and W wall) B-1-024 (N and E walls) B-1-025 (floor and S wall) B-1-026 (under floor tiles)	1 1 1 1
BR01	Isotope and Fuel Storage	B-1-050 (floor/walls/ceiling)	1
BR03	Reactor Equipment Room	B-3-016 (ceiling) B-1-017 (floor and lower walls) B-2-018 (upper walls)	3 1 2
BR05	ZPR Pit	*See 1st Floor ZPR Tank Room*	1
BR02A	Cold Work Area	B-1-007 (ceiling and W wall) B-1-008 (floor and S and E walls)	1 1
BR02B	Set-Up Room	B-1-009 (floor/walls/ceiling)	1
BR02C	Gamma Cell	B-1-010 (floor/walls/ceiling)	1
BR10	Reactor Bay	B-1-028 (floor 1) B-1-029 (floor 2) B-1-030 (floor 3) B-1-031 (lower N and E walls) B-1-032 (lower S and W walls)	1 1 1 1 1

TABLE 2-6
MISCELLANEOUS SURVEY UNITS AND SURVEY RECORDS

Room/ Area	Description	Survey Unit/Survey Record	Class
Reactor Bay	Floor Drains	M-1-019	1
	Plug storage tubes (east walls)	M-1-022	1
	Fuel storage pits (reactor pool)	M-1-027	1
	Excavation hole (gamma only)	M-1-073	1
Outside	Driveway	M-3-020	3
	Manhole	M-1-021	1
	Ward Center Perimeter	M-3-074	3
BR03	Sump	M-1-068	1
Facility-wide	Ventilation	M-3-069	3
		M-3-070	3
		M-3-071	3

2.2.1 Survey Coverage

Survey units designated as **Class 1** were no greater than 100 m^2 in area. Class 1 survey units required a 100% surface scan and direct measurements at survey points located on a systematic random-start grid. The minimum number of direct measurements, 13, was determined according to MARSSIM protocols (Energy*Solutions* 2006a). A removable contamination smear was taken at each direct measurement location.

Survey units designated as **Class 2** were no greater than 1,000 m^2 in area. Class 2 survey units required a 50% surface scan and direct measurements at survey points located on a systematic random-start grid. The minimum number of direct measurements was also 13 in Class 2 survey units. A removable contamination smear was taken at each direct measurement location.

Survey units designated as **Class 3** were not limited in size. Class 3 survey units required minimum scan survey coverage of 25%. The minimum number of direct measurements was also 13 in Class 3 survey units. The locations of the survey points in Class 3 survey units was either systematic or biased or a combination thereof.

2.2.2 Survey Unit Controls

The following criteria were met for a survey unit to be designated as ready for isolation and control:

- All planned decontamination activities in the survey unit were complete;

- Planned decontamination activities in areas adjacent to the area to be isolated, or that could otherwise affect it, were complete or the area was isolated to eliminate the impact; and
- All transit paths to or through the area, except those required to support final survey activities, were eliminated or rerouted.

Once the area met the isolation and control criteria, isolation and control were achieved through:

- Personnel training, physical barriers and postings, as appropriate, to prevent unauthorized access to an isolated area; and
- Measures to prevent the introduction of radioactive or other material by persons authorized to enter the area.

During active decontamination or demolition activities, measures were taken to prevent the introduction of radioactive material by persons entering an isolated area. These actions included personnel frisking stations and "sticky pads" at the exits of the decontamination areas. Once final status survey activities were completed in an area during active demolition, areas with completed final status surveys were sealed with security seals to prevent inadvertent entry by unauthorized persons.

2.2.3 Background Measurements

The one-sample statistical test (Sign Test) described in Section 5.5.2.3 of MARSSIM was planned for use to evaluate survey units at the Ward Center (Energy*Solutions* 2006a). The Sign Test does not require that background reference areas be established. However, if a measurement's net activity was greater than the MDA (> MDA) using the background measured during the daily instrument check, the net activity may have been adjusted using a surface-specific background measured in a non-impacted campus building. Such adjustments were made only if the surface-specific background and the daily background varied significantly.

The daily background was replaced with a surface-specific background for measurements made on glazed ceramic tiles found in the restrooms at the Ward Center. The background measurements were made on the same type of ceramic tiles found in near-by Thurston/Kimball Hall.

Often survey unit measurements were less than the daily background measurement because of either low ambient background in the survey unit, or low background on the surface. For example, direct beta activity measurements on metal surfaces were generally lower than the daily background measurements. However, measurements on concrete or floor tiles could be as low as or lower than measurements made on metal in the same survey unit. Therefore, no

adjustments were made to reduce the background or to reduce the number of measurements reported as less than background. All measurements less than the daily background measurement are reported as "< MDA."

2.3 SURVEY IMPLEMENTATION AND DATA COLLECTION

2.3.1 Survey Methods

Direct Gross Activity Measurements

Direct gross activity measurements were made by placing the detector in a fixed position and collecting a measurement for one minute. Direct measurements were made using Ludlum Model 2360 data logging rate meters with Model 43-93 probes. The probes are 100 cm^2 α/β phoswich scintillators and when coupled with the 2360, they recorded both total alpha and beta activity. While there are no alpha-emitting radionuclides of concern, both the alpha and beta measurements were recorded by the 2360 rate meter.

The beta count rates were converted to activity in dpm/100cm2 and the results are presented in the survey packages in Appendices A through D. The alpha measurements [in counts per minute (cpm)] are presented in Appendix E.

Scanning

The FSS Plan (Energy*Solutions* 2006a) required that Class 1, Class 2, and Class 3 survey units be scanned for radiations of concern. The percentage of the scan area was based on the survey unit classification. A Class 1 survey unit received a 100% scan. Class 2 survey units received a 50% scan. Class 3 areas received a 25% scan. ScanMDCs were not greater than the 5,000 dpm/100 cm^2.

Surface scans were made using Ludlum Model 2360 data logging rate meters with Model 43-93 probes or equivalent. The internal memory of the Model 2360 is insufficient to efficiently log scan data; therefore, it was not logged by the detector. The maximum and average beta count rates in the scan area surrounding a survey point were visually observed on the rate meter and recorded by the health physics technician. The beta count rates were converted to activity in dpm/100cm^2 and the results are presented in the survey packages in Appendices A through D

Removable Contamination Surveys

To demonstrate compliance with removable contamination limits, one removable contamination smear was collected at each direct measurement survey location. The smears were collected using moderate pressure while wiping an area of approximately 100 cm^2. Smears were analyzed in a Wallac Model 1409 liquid

scintillation counter (LSC) located in the Cornell EH&S office building. Analysis was performed for tritium, carbon-14, iodine-125, and total beta.

Analysis of the removable contamination smears in the LSC not only addressed the isotopes of concern associated with the TRIGA decommissioning but also other common radioisotopes used in research laboratories such as phosphorus-32, sulfur-35, cobalt-57, iron-59, zinc-65, selenium-75, and iodine-129.

Dose Rate Measurements

One of the administrative release criteria is that the gamma dose rate at 1 cm from any surface shall not exceed 0.05 mrem/hr (50 μrem/hr) effective dose equivalent (EDE) above background. Energy*Solutions* verified compliance with this criterion by measuring gamma external dose rates at each direct measurement location at 1 cm from the survey unit surface. For the purpose of the dose rate evaluation, an exposure rate of 1 mR/hr is assumed equivalent to dose rate of 1 mrem/hr.

Dose rate measurements were made using a Ludlum Model 19 μR exposure rate meter. It has been noted that μR exposure rate instruments may over respond at low energies; however, since Energy*Solutions'* primary goal was to remove all residual radioactivity, the fact that the μR instrument tends to over respond (at low energies), was not a problem in verifying that the release criterion was met.

The FSS Plan (Energy*Solutions* 2006a) also showed how compliance with the 5,000 dpm/100cm^2 surface contamination criterion also demonstrates that the dose rate criterion can not be exceeded. The FSS Plan showed that if a high-energy beta emitter, such as strontium/ytttrium-90, were present at 5,000 dpm/100cm^2, the contact dose would be only 0.0035 mrem/hr at the surface.

Gamma Surveys

Energy*Solutions* conducted scanning surveys using two-inch by two-inch (2x2) sodium iodide (NaI) gamma scintillation detectors to identify the presence of gamma-emitting isotopes that may be present below the surfaces scanned using the phoswich detectors. These surveys include the floors in Class 1 areas, the paved area outside the reactor bay sliding exterior door, and the excavated pit in the reactor bay floor. Special attention was given to cracks in the floor, floor/wall joints, and other areas where contamination may likely accumulate. If the gamma count rate exceeded 1.5 times the background level, Energy*Solutions* investigated the area further by taking direct beta-gamma measurements and removable contamination measurements. All gamma surveys were documented on standard survey forms giving the instrument information, a diagram of the area, and the gamma count rates measurements. The survey forms are provided in Appendix F.

2.3.2 Radiological Survey Instrumentation

The FSS consisted primarily of direct surface activity measurements, surface scans, and removable contamination smears. The instruments used during the FSS and their applications are provided in Table 2-7.

TABLE 2-7
FSS INSTRUMENTS

Application	Primary Instrument
Direct measurements and scanning	Ludlum 2360 data logging rate meter w/ 43-93 probe (100 cm^2 α/β phoswich scintillator)
Scanning equipment and smaller items	Ludlum 2221/2220 rate meter w/ 44-9 probe (15 cm^2 GM pancake probe)
Removable tritium, carbon-14, and other β activity	Wallac Model 1409 liquid scintillation counter (LSC)
Gamma exposure rates	Ludlum Model 19 uR exposure rate meter
Gross gamma activity	Ludlum 2221 rate meter w/ 44-10 probe (2x2 NaI gamma scintillator)

Daily instrument check logs are provided in Appendix I. Instrument calibration records are provided in Appendix J.

All instruments were response checked to ensure they were working properly and that performance (precision and accuracy) was maintained. The instruments were checked daily. Additionally, whenever components were replaced or whenever inappropriate responses were observed, additional source checks were made.

Detector minimum detectable concentrations (MDC) were determined using the protocols provided in Energy*Solutions*' "General Radiological Survey and Air Sampling Procedure" (Energy*Solutions* 2006d). The equations for the ScanMDC and direct measurement MDC are provided in Table 2-8.

TABLE 2-8
MDC CALCULATION EQUATIONS

Factors	Equations	Variables
Minimum Detectable Count Rate (MDCR)	$MDCR = d'\sqrt{b_i} \times (60/i)$ $b_i = b(i/60)$	b = Background count rate (cpm) i = observation interval = 1 sec. d' = detectability value = 1.38
ScanMDC	$ScanMDC = \dfrac{MDCR}{\sqrt{p} \times \varepsilon_S \times \varepsilon_i \times \dfrac{probe.area}{100cm^2}}$	p = surveyor efficiency (0.5) ε_s = surface efficiency (0.5 for beta and 0.25 for alpha) ε_i = intrinsic (2-pi) efficiency
MDC (direct counts)	$MDC = \dfrac{3 + 3.29\sqrt{R_B t_S (1 + t_S / t_B)}}{\varepsilon_S \times \varepsilon_i \times t_S \times \dfrac{probe.area}{100cm^2}}$	R_B = Background count rate (cpm) t_S = Sample count time (min) t_B = Background count time (min) ε_s = surface efficiency (0.5 for beta and 0.25 for alpha) ε_i = intrinsic (2-pi) efficiency
MDC (100 cm^2 smears - LSC)	$MDC = \dfrac{3 + 3.29\sqrt{R_B t_S (1 + t_S / t_B)}}{\varepsilon_i \times t_S}$	R_B = Background count rate (cpm) t_S = Sample count time (min) t_B = Background count time (min) ε_i = instrument efficiency

3.0 SOIL SAMPLING

Soil/shale samples were collected from the pit excavated in the reactor bay floor and in unpaved areas around the Ward Center. Soil samples were analyzed off-site by General Engineering Laboratories (GEL) of Charleston, SC for analysis of isotopes of concern (see Table 2-2). The analytical reports are presented in Appendix G. (Note: There is a separate report for strontium-90 analysis.) Table 3-1 provides a summary of the analytical results. No background soil samples were collected. Reported activities include contributions from all sources natural and artificial.

3.1 SAMPLING SOIL BELOW THE REACTOR

Project plans called for the concrete slab and foundation below the reactor to be completely removed exposing the underlying earth. In areas where all of the concrete was removed, the remaining soil and shale was scanned using 2x2 NaI gamma scintillation detector (Survey Record B-1-073). Scans were made and seven measurements recorded throughout the pit. Three samples of the underlying soil/shale with sample identification numbers FSO-14, FSO-15, and FSO-16 were collected and sent to GEL for analysis. The results of the analyses are provided in Table 3-1.

3.2 SAMPLING SOIL OUTSIDE THE WARD CENTER

Outside areas of the Ward Center were designated as a Class 3 survey unit and only judgmental surface soil samples were collected from the non-paved areas around the facility. To have a statistically valid data set, the number of samples was equal to the number of samples determined using MARSSIM protocols. The results of the analysis performed by GEL on exterior soil samples with identification numbers FSO-1 though FSO-13 are provided in Table 3-1. Judgmental surface scans using 2x2 NaI detectors were performed on the driveway outside the reactor bay (Survey Record B-3-020).

TABLE 3-1
SUMMARY OF SOIL/SHALE SAMPLES

Sample ID	H-3	C-14	Mn-54	Fe-55	Ni-63	Co-60	Sr-90	Nb-94	Cs-137	Eu-152	Eu-154
Building Perimeter Soil Samples											
FSO-1	< MDC	< MDC	< MDC	< MDC	< MDC	0.133	< MDC	< MDC	< MDC	< MDC	< MDC
FSO-2	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.141	< MDC	< MDC
FSO-3	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC
FSO-4	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.268	< MDC	< MDC
FSO-5	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.176	< MDC	< MDC
FSO-6	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.121	< MDC	< MDC
FSO-7	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC
FSO-8	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.187	< MDC	< MDC
FSO-9	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.0676	< MDC	< MDC
FSO-10	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.0967	< MDC	< MDC
FSO-11	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.144	< MDC	< MDC
FSO-12	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.101	< MDC	< MDC
FSO-13	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	< MDC	0.0714	< MDC	< MDC
Soil/Shale Sample From Excavation Below Reactor											
FSO-14	< MDC	< MDC	< MDC	< MDC	< MDC	1.77	< MDC	< MDC	< MDC	< MDC	< MDC
FSO-15	< MDC	< MDC	< MDC	< MDC	< MDC	1.03	< MDC	< MDC	< MDC	< MDC	< MDC
FSO-16	< MDC	< MDC	< MDC	< MDC	< MDC	0.773	< MDC	< MDC	< MDC	0.202	< MDC

GEL reporting limits for data less than MDC ("U" qualified):

H-3:	6 pCi/g
C-14:	2 pCi/g
Mn-54:	0.1 pCi/g
Fe-55	20 pCi/g
N-63:	4 pCi/g
Co-60:	0.1 pCi/g
Sr-90	2 pCi/g
Nb-94	1 pCi/g
Cs-137	0.1 pCi/g
Eu-152	0.2 pCi/g
Eu-154	0.5 pCi/g

4.0 ASSESSMENT

Sections 4.1 through 4.6 provide summaries of the FSS data colleted as part of the Ward Center FSS. Complete data packages are provided in the Appendices. Sections 4.7 and 4.8 provide assessments of data uncertainty and data quality.

4.1 DIRECT MEASUREMENTS

Alpha and beta activity counts from direct measurements were stored in the internal memory of the Ludlum Model 2360 data logging rate meters using Ludlum 43-93 100 cm^2 dual phosphor scintillation probes. Data from the Ludlum Model 2360 was downloaded at least daily. Direct beta measurements are reported on the data sheets titled "Final Status Survey Results" provided with the data packages. Raw alpha data (in counts per minute) are provided in Appendix F. Since there were no alpha emitting radionuclides of concern noted in the FSSP, this data is provided as supporting evidence that there was no impact from alpha-emitting radionuclides at the Ward Center.

The two-page data sheets provide the beta direct count rate based on one-minute direct counts and the calculated net surface activity in dpm/100 cm^2 on the second page. The reported activity value is presented on the first page. Measurements that are less than the survey MDC are reported as "<MDC." The MDC for the direct measurement is provided on the first page of the survey data sheets.

Table 4-1 provides a summary of the direct measurements collected during the Ward Center FSS. The maximum activity reported was measured on the floor in the Reactor Equipment Room (Survey Unit B-1-017).

TABLE 4-1
SUMMARY OF FSS DIRECT MEASUREMENTS

Number of Measurements	877
Number of Survey Units	62
Average Detector Background	288 cpm
Background Standard Deviation	19 cpm
Background Range	266 cpm – 341 cpm
Average Detector MDC	475 dpm/100cm^2
Number of Measurements > MDC	73 (8.3%)
Average Activity > MDC	665 dpm/100cm^2
Standard Deviation > MDC	175 dpm/100cm^2
Maximum Activity Measured	1,363 dpm/100cm^2

When compared directly to the surface contamination release criterion of 5,000 dpm/100cm^2, it is evident that all direct measurements in all survey units meet the release criteria. As described earlier, the Sign Test was be used to evaluate data against the

release criteria. However, since all data points in each survey unit are less than the release criteria, the Sign Test will always conclude that the survey unit does not exceed the release criterion (NRC 2000). Therefore, no statistical evaluations were necessary to demonstrate compliance with the release criterion.

Measurements not included in the summary table above include measurements from the eleven miscellaneous survey units listed in Table 2-6. None of these measurements showed activity in any of the support systems (drain, ventilation, etc.) and environs above the prescribed release criteria. As a result, no statistical tests were performed on this data.

The majority of the direct measurements with residual activity greater than the MDC were from the Reactor Equipment Room (BR03) and the Reactor Bay. However, in each survey unit, the average activity was less than 600 dpm/100 cm^2 and all values were less than 1,500 dpm/100 cm^2. Table 4-2 provides a summary of the maximum residual activity measurements in these areas. As described in Section 4.3, there was no measurable removable contamination in either of these areas. Therefore, these low levels of activity could be a result of elevated radon daughters or natural radioactivity in construction materials.

TABLE 4-2
SUMMARY OF RESIDUAL ACTIVITY > MDC
IN REACTOR EQUIPMENT ROOM AND REACTOR BAY

Survey Unit	Description	Number of Measurements	Maximum Activity Values (dpm/100cm^2)	Average Activity [a] (dpm/100cm^2)
Reactor Equipment Room (BR03)				
B-3-016	Ceiling	14 (7 > MDC)	923 699 606	458
B-1-017	Floor and Lower Walls	15 (9 > MDC)	1,363 1,046 861	588
Reactor Bay				
B-1-028	Floor Unit 1	15 (7 > MDC)	1,002 894 747	488
B-1-029	Floor Unit 2	15 (4 > MDC)	809 654 593	388
B-1-030	Floor Unit 3	15 (7 > MDC)	917 855 724	489
S-3-065	Ceiling	16 (8 > MDC)	751 674 650	530
S-2-067	Upper Walls	15 (2 > MDC)	1,005 566	368

Note: [a] Average calculated with "<MDC" results replaced with reported MDC.

4.2 SCAN MEASUREMENTS

Beta activity scan measurements were recorded as maximum and average count rates (in cpm) for each scan area while observing the display on the Ludlum Model 2360 coupled to Ludlum 43-93 probes. A "scan area" is the area around the correspondingly numbered direct measurement. For Class 1 areas, scans comprised of 100% of the surface area. For Class 2 and 3 areas, the scan coverage was 50% and 25% respectively. The gross average and maximum scan count rate and net activity data are presented on the second page of the survey data sheets. The reported activity is presented on the first data page. Measurements that are less than the ScanMDC are reported as "<MDC." The ScanMDC is provided on the survey data sheet.

No average or maximum scan measurements were reported as greater than the ScanMDC. Therefore, since the ScanMDCs were typically around 1,800 dpm/100cm^2, no scan data indicates that the presence of surface contamination above the 5,000 dpm/100cm^2 release criterion.

4.3 REMOVABLE CONTAMINATION MEASUREMENTS

Removable beta activity was assessed by collecting removable contamination smears and analyzing them in the LSC located in Cornell's EH&S office. The LSC reported tritium, carbon-14, iodine-125, and total beta activity in cpm. The total beta counts were converted to dpm using an efficiency based on the measured quench factor (SQPE) for the sample. The efficiency/quench relationship was determined using a set of tritium quench standards.

Since the calibration was performed using tritium standards, the efficiency only directly applies to tritium analysis and is conservative for estimating activity for beta-emitting isotopes with beta energies greater than the tritium beta energies (i.e., provides an overestimate) of non-tritium activity.

The typical MDC for the total beta activity was about 100 dpm/100cm^2. However, as stated in the previous paragraph, this is a conservative estimate for carbon-14 and other beta-emitting isotopes with beta energies greater than the tritium energies. No total beta removable contamination measurements were reported as greater than the MDC. This indicates that there are no beta-emitting isotopes present in the form of removable contamination greater than 100 dpm/100cm^2. This would include those isotopes listed in Table 2-1 as well as other common isotopes used in research laboratories such as phosphorus-32, sulfur-35, cobalt-57, iron-59, zinc-65, selenium-75, and iodine-129. Most other common laboratory isotopes have half-lives on the order of a couple of months or less and would have decayed to levels below detection limits if they were once an on-site contaminant.

4.4 DOSE RATE MEASUREMENTS

To demonstrate compliance with the 0.05 mrem/hr (50 μr/hr) dose rate release criterion, dose rates at direct measurements locations are presented on the final survey data sheets in units of μR/hr as measured with a Ludlum Model 19 exposure rate meter at 1 centimeter from the surface. In general, survey unit gross exposure rates ranged from 10 to 20 μR/hr with an average background of 12 uR/hr. The maximum gross exposure rate measured was 35 uR/hr in Survey Unit B-1-009 (Room BR02B, the room adjacent to the Gamma Cell). This measurement was made on the ceiling of the room.

The gamma exposure rate measurements, therefore, demonstrate compliance with the dose rate release criterion. As described in Section 2.5.1 of the FSSP, the fact that all direct beta measurements were less than 5,000 dpm/100cm^2 also demonstrates compliance with the dose rate release criterion. (Section 2.5.1 of the FSSP shows that a

surface activity of 5,000 dpm/100cm^2 for strontium/yttrium-90 would result an EDE of only 0.0035 mrem/hr at the surface from the most limiting potential beta-emitting isotope).

4.5 GAMMA SCANS

Gamma scans were performed around the Ward Center following the surface activity scans and measurements to verify that elevated levels of contamination did not go undetected. For these surveys, Ludlum Model 2221 detectors were used with Ludlum Model 44-10 2x2 NaI probes. These measurements focused on areas most likely to trap contamination such as cracks in the floors, floor-wall joints, etc. Appendix F contains the survey records for the gamma surveys numbered GS-001 through GS-018. The gamma scan data reported are instantaneous count rates read off of the Ludlum 2221 while operated in ratemeter mode with detector in the position indicated on the survey record.

The background measurement is reported as 14,221 cpm. The survey records report gamma count rates from 7,115 cpm in the Reactor Equipment Room (Survey Report GS-011) to 16,901 in the ZPR room (Survey Report GS-018). The action level for further investigation, which was 1.5 times the background level or 21,332 cpm, was never exceeded.

4.6 CONCRETE SAMPLES

At the conclusion of the FSS effort, six concrete samples were collected from the Reactor Bay floor for analysis of hard to detect isotopes and gamma spectroscopy at GEL. The hard to detect isotopes included tritium, carbon-14, iron-55, and nickel-63. All isotopes of concern were less than the detection limits for all six samples. The complete analytical report is provided in Appendix H.

While these samples did nothing to support the assumptions made in the FSS Plan regarding the mix of isotopes expected in contamination at the Ward Center, the samples did demonstrate that hard to detect isotopes were not a significant concern and that the direct measurements and scan surveys were sufficient for demonstrating that the release criteria had been met.

4.7 MEASUREMENT UNCERTAINTY

Each measurement presented in the attached data sets has an error associated with the instrument count rate. The error comes from both the background measurement and the survey unit measurement. This is referred to as the statistical counting uncertainty and it can be calculated using the following formula:

$$\sigma_n = \sqrt{\frac{C_{s+b}}{T_{s+b}^{\ 2}} + \frac{C_b}{T_b^{\ 2}}}$$

Where:

σ_b = standard deviation of the net count rate results
C_{s+b} = number of gross counts for the survey unit measurement
T_{s+b} = gross count time for the survey unit measurement (1 minute)
C_b = number of background counts
T_b = background count time (10 minutes)

The actual statistical counting uncertainty is not calculated for each data point provided in the appendices since most were less than the MDC and all were less than the release criterion. However, Table 4-3 provides the expected error as a function of the average background beta measurement of 288 cpm for a range of direct measurement results.

TABLE 4-3
STATISTICAL COUNTING UNCERTAINTY

Beta Measurement Gross Count Rate (cpm)	Counting Uncertainty - σ_b (cpm)	Beta Activity Uncertainty (dpm/100cm^2)
300	18	140
350	19	150
400	21	160
450	22	169
456[a]	22	170

Note: [a] Maximum measured count rate giving an activity of 1,363 ± 170 dpm/100cm^2.

In Table 4-2, the counting uncertainty is converted to an activity uncertainty using the 2-pi detector efficiency of 25.92% for the survey instrument most commonly used during the FSS. The MDC for the direct beta measurements were typically greater than 400 dpm/100cm^2. Therefore, the beta measurement uncertainty is less than the MDC and less than 5% of the 5,000 dpm/100cm^2 release criteria. The statistical counting uncertainty included with the maximum measured count rate results in an activity of 1,363 ± 170 dpm/100cm^2.

There are also uncertainties associated with the detector efficiency but they were not provided by the detector calibration facility and, therefore, they were not propagated into the activity calculations. The efficiency used for the beta activity calculations was the efficiency reported by the calibrations facility for technetium-99. Technetium-99 has a slightly lower beta energy than cobalt-60, the primary isotope of concern at the Ward Center, and even lower than the other detectable isotopes of concern. Therefore, using the technetium-99 efficiency, the reported activities are conservatively over estimated if isotopes with higher beta energies are present.

Measurements made with the LSC also contain uncertainty that can be calculated in the manner described above. A typical counting uncertainty is about 10 cpm. Since no smear collected as part of the FSS showed removable activity above the typical total beta MDC of about 100 dpm, the uncertainty associated with the removable activity measurement is insignificant.

The reported LSC activity is based on the detector's efficiency for tritium, the isotope measured with the least efficiency by the detector. Therefore, the total beta activity reported is a conservative estimate of the activity since the true efficiency may be higher if more energetic betas are being detected. However, as stated in the previous paragraph, all removable contamination measurements collected as part of the FSS were less than MDC and uncertainties are insignificant.

4.8 QUALITY ASSURANCE

Surveys were conducted in accordance with the project Quality Assurance Program Plan (QAPP) (Energy*Solutions* 2006e). Only instruments calibrated according to Energy*Solutions* procedures (Energy*Solutions* 2006f) were used to collect final status survey data. Calibration certificates are provided in Appendix J. To ensure that instruments are operating properly and reporting precise data, QA measurements were performed on a daily basis. Daily instrument check logs are provided in Appendix I. Instrument precision was measured by collecting daily source check measurements in a low background area and ensuring that the measurements did not vary by more than two standard deviations from the mean source measurement determined early in the FSS process.

Energy*Solutions* calibrated the LSC located at the Cornell EH&S office using NIST-traceable tritium standards. The calibration resulted in a quench/efficiency curve that provided a relationship between quench and efficiency. The efficiency of each measurement was calculated separately using the LSC-reported quench (SQPE value).

All survey data was reviewed and approved by the Project Health Physicist who was a Board Certified Health Physicist (CHP).

5.0 CONCLUSIONS

The Ward Center FSS data summarized in this report and provided in detail in its appendices supports the plans of Cornell University to release all of the interior areas of the Ward Center and its surrounding environs for unrestricted release. The FSS data demonstrates that there are no locations within the facility that contain residual surface contamination in excess of 5,000 dpm/100cm^2. As demonstrated in the FSS Plan, if residual activity were present at this level, the resulting dose rate would be no greater than 17.6 mrem/yr.

In fact, the highest average residual activity in a single survey unit was 664 dpm/100 cm^2. This average was calculated in Survey Unit B-1-017 (the Reactor Equipment Room floor) with the "< MDC" values replaced with the reported MDC of 468 dpm/100cm^2. Assuming all of this activity is from cobalt-60 (the most conservative assumption), the resulting dose would be 2.3 mrem/yr assuming a consistent building occupancy exposure scenario as used to calculate the NRC's 7,100 dpm/100cm^2 25 mrem/yr screening criteria for cobalt-60 (NRC 1998). Therefore, it is concluded that the interior areas of the Ward Center meet the conditions for termination of NRC licenses R-80 and R-89 as provided by 10 CFR 20, Subpart E.

The six confirmation concrete samples support the assumptions made in the FSS Plan that hard to detect isotopes such as tritium, carbon-14, iron-55, and nickel-63 have no impact on the dose. None of these isotopes were detected in the confirmatory samples indicating that dose from these isotopes, if present, would not significantly contribute to the total dose such that it would exceed 25 mrem/yr to the future occupant.

Table 5-1 demonstrates that the soil around and beneath the Ward Center is also acceptable for unrestricted release. The table calculates the sum of the fractions of either the laboratory reporting limit or the maximum reported activity in the data set (see Table 3-1) to the NRC screening criteria (NRC 1998). Since the sum of the fractions (0.75) is less than 1.0, the soil survey unit is acceptable for free release and the exterior surroundings of the Ward Center meet the conditions for termination of NRC licenses R-80 and R-89 as provided by 10 CFR 20, Subpart E.

TABLE 5-1
DEMONSTRATION OF SOIL FREE RELEASE

Radionuclide	Soil Screening Criteria (pCi/g)	Maximum Detected Value or Reporting Limit (pCi/g)	Fraction of Soil Screening Criteria
Tritium	110	6.23 [a]	0.057
Carbon-14	12	1.57 [a]	0.131
Manganese-54	15	0.0843 [a]	0.006
Iron-55	10,000	14.3 [a]	0.001
Cobalt-60	3.8	1.77	0.466
Nickel-63	2,100	3.27 [a]	0.002
Niobium-94	5.8	0.069 [a]	0.012
Cesium-137	11	0.268	0.024
Europium-152	8.7	0.202	0.023
Europium-154	8.0	0.225 [a]	0.028
Sum of the Fraction			**0.749**

Note: [a] Maximum laboratory MDC ("DL" in laboratory reports).

Strontium-90 was not included in the list of isotopes in Table 5-1. The analytical method used for strontium-90 in soil had a typical detection limit of about 30 to 50 percent of the soil screening criteria of 1.7 pCi/g as provided in Table 2-2. Because the detection limit is not significantly less than the release criteria, including strontium-90 in the sum of the fractions analysis provided in Table 5-1would result in a sum greater than one. For this reason, the isotope was removed from the sum of the fractions calculations. The facts that there was no detectable strountium-90 in either the soil or the concrete samples and that there were no identifiable strontium-90 contamination sources at the Ward Center, the FSS supports the conclusion that strontium-90, like the other isotopes in Table 5-1, will not contribute to the dose of a future site occupant such that the dose exceeds 25 mrem/yr.

6.0 REFERENCES

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Energy*Solutions*. 2006c. Reactor Tank Water Discharge Procedure. Document No. 82A9591. May.

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APPENDIX A

BASEMENT SURVEY UNIT DATA REPORTS

ENERGYSOLUTIONS

Final Sta[illegible]vey Results
Ward Center[illegible]rnell University

Room #:	B05 - Counting Room - Floors, Walls, and Ceiling	Survey Unit:	B-2-001
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L 2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	184941	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200125	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2968	Background Reading (counts)	124.8	Background Reading (counts)	2968		
BKG (cpm)	296.8	BKG (cpm)	62.4	BKG (cpm)	296.8		
MDC (dpm/100cm2)	1806	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	482		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L 2360	
S/N	193629		S/N	Unknown		S/N	184941	
R_B	296.8	cpm	R_B	62.4	cpm	R_B	296.8	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1806	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	482	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	118	12	<MDC	Tile
2	<MDC	<MDC	<MDC	100	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	103	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	12	<MDC	Metal
6	<MDC	<MDC	<MDC	87	10	<MDC	Metal
7	<MDC	<MDC	<MDC	94	10	<MDC	Metal
8	<MDC	<MDC	<MDC	94	10	<MDC	Metal
9	<MDC	<MDC	<MDC	91	10	<MDC	Metal
10	<MDC	<MDC	<MDC	107	10	603.09	Metal
11	<MDC	<MDC	<MDC	90	12	<MDC	Metal
12	<MDC	<MDC	<MDC	91	12	<MDC	Metal
13	<MDC	<MDC	<MDC	89	12	<MDC	Metal

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results μR/hr	Direct Reading Results CPM	dpm/100cm²
1	260	-283.95	280	-129.63	59.3	-13.35	12	264	-253.09
2	200	-746.91	220	-592.59	55.9	-23.69	10	214	-638.89
3	220	-592.59	240	-438.27	58.8	-13.51	10	294	-21.60
4	220	-592.59	240	-438.27	52.2	-34.74	10	299	16.98
5	240	-438.27	260	-283.95	61.9	-1.62	12	226	-546.30
6	240	-438.27	250	-361.11	54.1	-26.37	10	291	-44.75
7	240	-438.27	260	-283.95	52.3	-34.62	10	308	86.42
8	260	-283.95	280	-129.63	61.8	-2.05	10	290	-52.47
9	260	-283.95	280	-129.63	48.9	-44.80	10	253	-337.98
10	260	-283.95	280	-129.63	48.4	-54.49	10	362	503.09
11	240	-438.27	260	-283.95	60.5	-6.22	12	298	9.26
12	240	-438.27	260	-283.95	55.1	-24.30	12	306	70.99
13	240	-438.27	260	-283.95	58.8	-11.70	12	301	32.41

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers Serial #	Probe #	2360 Cal Due Dates
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

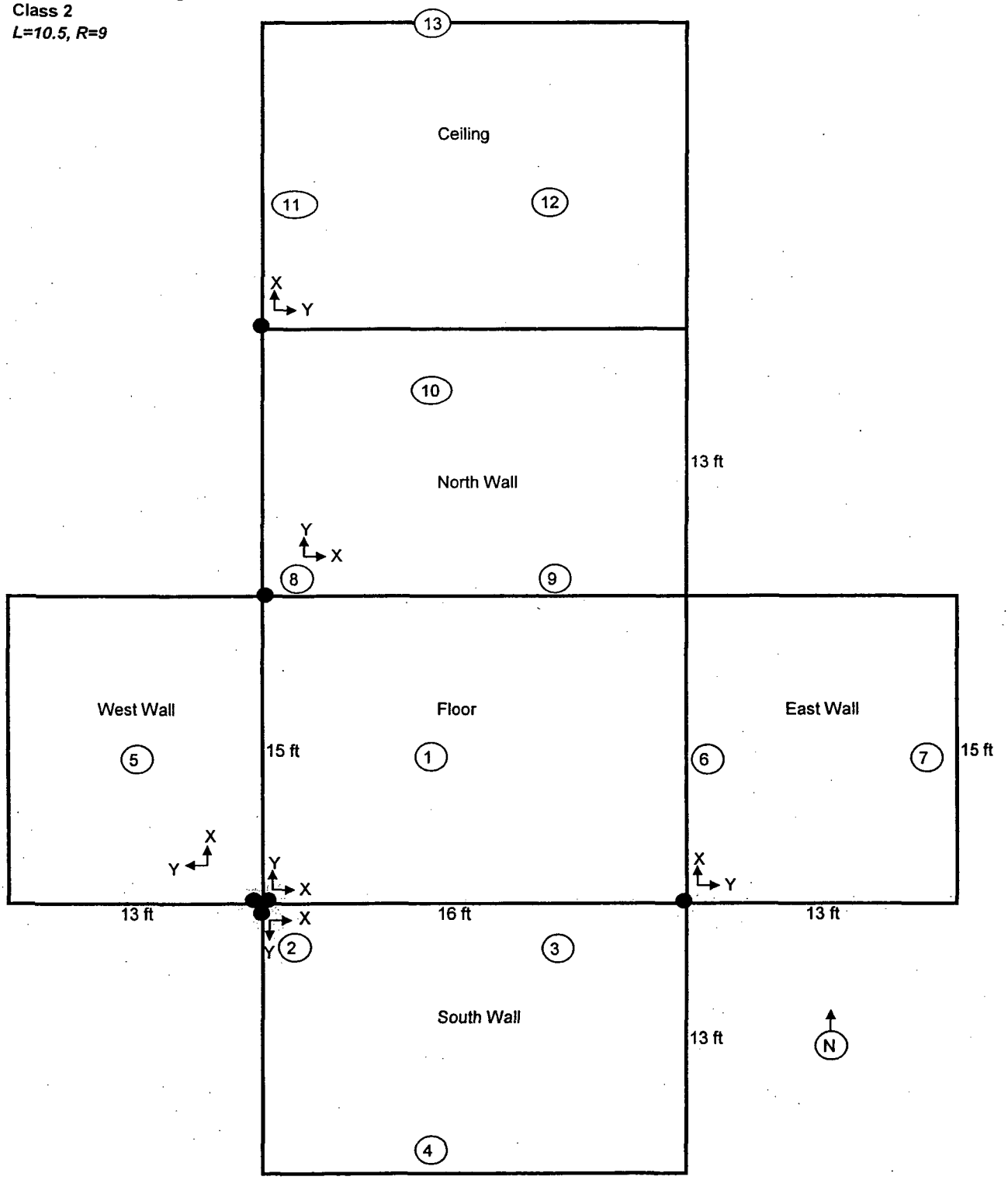
	from EH&S LSC	Standards (on std bottles) dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	59.3	267418.4	708.74	23.22%
2	55.9	267418.4	732.93	27.43%
3	58.8	267418.4	728.67	26.65%
4	52.2	267418.4	743.06	29.36%
5	61.9	267418.4	750.52	30.84%
6	54.1	267418.4	753.68	31.48%
7	52.3	267418.4	742.12	29.18%
8	61.8	267418.4	742.56	29.26%
9	48.9	267418.4	747	30.13%
10	48.4	267418.4	723.31	25.69%
11	60.5	267418.4	749.13	30.56%
12	55.1	267418.4	746.56	30.05%
13	58.8	267418.4	750.14	30.76%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-2-001

Room B05 - Counting Room
Class 2
L=10.5, R=9



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-2-001

Room B05 - Counting Room

Class 2
L=10.5, R=9

Number	X	Y	Direct	uR/hr	Smear?	Material
Floor (Starting SW Corner)						
1	6	7				
South (Starting BOTTOM W Corner)						
2	0.75	2				
3	11.25	2				
4	6	11				
West Wall (Starting BOTTOM S Corner)						
5	6	4.5				
East Wall (Starting BOTTOM S Corner)						
6	6	0.5				
7	6	11				
North Wall (Starting BOTTOM W Corner)						
8	0.75	1				
9	11.25	1				
10	6	10				
Ceiling (Starting SW Corner)						
11	0.75	6				
12	11.25	6				
13	6	15				

ENERGYSOLUTIONS

Room #:	Basement Corridor Outside Reactor Bay	Survey Unit:	B-2-002
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2968	Background Reading (counts)		124.8	Background Reading (counts)		2968		
BKG (cpm)		296.8	BKG (cpm)		62.4	BKG (cpm)		296.8		
MDC (dpm/100cm2)		1806	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		482		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	296.8	cpm	R_B	62.4	cpm	R_B	296.8	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	25%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1806	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	482	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	110	12	<MDC	Tile
2	<MDC	<MDC	<MDC	112	10	<MDC	Tile
3	<MDC	<MDC	<MDC	110	10	<MDC	Tile
4	<MDC	<MDC	<MDC	107	10	<MDC	Tile
5	<MDC	<MDC	<MDC	105	10	<MDC	Tile
6	<MDC	<MDC	<MDC	137	10	<MDC	Tile
7	<MDC	<MDC	<MDC	104	10	<MDC	Tile
8	<MDC	<MDC	<MDC	112	10	<MDC	Tile
9	<MDC	<MDC	<MDC	114	10	<MDC	Tile
10	<MDC	<MDC	<MDC	119	10	<MDC	Tile
11	<MDC	<MDC	<MDC	101	10	<MDC	Tile
12	<MDC	<MDC	<MDC	108	10	<MDC	Tile
13	<MDC	<MDC	<MDC	92	10	<MDC	Tile

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	200	-746.91	240	-438.27	55.1	-29.32	12	268	-222.22
2	240	-438.27	260	-283.95	60.3	-8.58	10	222	-577.16
3	220	-592.59	240	-438.27	62.4	0.00	10	207	-692.90
4	200	-746.91	220	-592.59	56.5	-22.91	10	219	-600.31
5	180	-824.07	220	-592.59	55	-28.39	10	224	-561.73
6	260	-283.95	290	-52.47	51.5	-54.29	10	252	-345.68
7	230	-515.43	260	-283.95	57.7	-17.83	10	236	-469.14
8	250	-361.11	270	-206.79	61.9	-2.04	10	227	-538.58
9	240	-438.27	260	-283.95	66	14.96	10	263	-260.80
10	240	-438.27	260	-283.95	66.1	16.07	10	211	-662.04
11	200	-746.91	220	-592.59	57.6	-17.59	10	231	-507.72
12	240	-438.27	260	-283.95	58.7	-14.52	10	263	-260.80
13	240	-438.27	260	-283.95	52	-34.90	10	227	-538.58

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

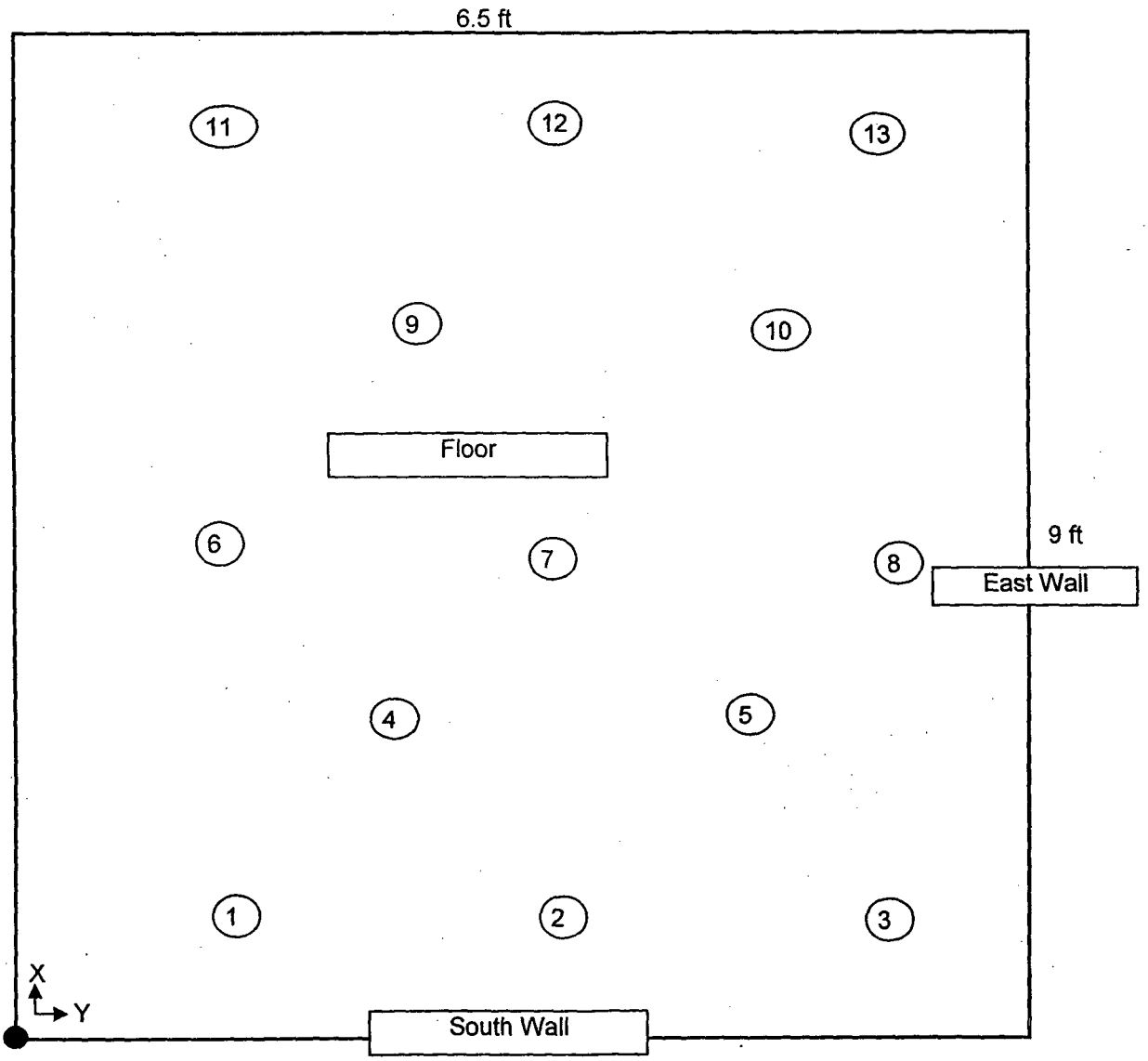
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	55.1	267418.4	718.76	24.90%
2	60.3	267418.4	716.3	24.48%
3	62.4	267418.4	719.62	25.05%
4	56.5	267418.4	723.62	25.75%
5	55	267418.4	725.4	26.06%
6	51.5	267418.4	688.47	20.08%
7	57.7	267418.4	727.07	26.36%
8	61.9	267418.4	716.36	24.49%
9	66	267418.4	713.84	24.06%
10	66.1	267418.4	707.52	23.02%
11	57.6	267418.4	732.18	27.30%
12	58.7	267418.4	722.14	25.49%
13	52	267418.4	745.31	29.80%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-2-002**

Basement Corridor Outside Rx Bay
Class 2
L=2.25, R=1.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-2-002

Basement Corridor Outside Rx Bay

Class 2

L=2.25, R=1.75

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
Floor (Start in SW Corner)							
1	0.75	0.5					
2	3	0.5					
3	5.25	0.5					
4	1.75	2.5					
5	4	2.5					
6	0.75	4.25					
7	3	4.25					
8	5.25	4.25					
9	1.75	6.25					
10	4	6.25					
11	0.75	8.25					
12	3	8.25					
13	5.25	8.25					

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center[illegible]hell University

Room #:	BR 13 Basement Bathroom	Survey Unit:	B-3-003
Surveyor:	LeRoy Cuneo (Print)	Sign	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		26.92%	Efficiency (%)		See Below	Efficiency (%)		26.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		1	Background Time (min)		2	Background Time (min)		1		
Background Reading (counts)	(Bath tiles)	577.1	Background Reading (counts)		124.8	Background Reading (counts)	(Bath tiles)	577.1		
BKG (cpm)		577.1	BKG (cpm)		62.4	BKG (cpm)		577.1		
MDC (dpm/100cm2)		2518	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		886		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	577.1	cpm	R_B	62.4	cpm	R_B	577.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	1	minutes	t_b	2	minutes	t_b	1	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	2518	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	886	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	96	10	<MDC	Bath tile
2	<MDC	<MDC	<MDC	87	10	<MDC	Bath tile
3	<MDC	<MDC	<MDC	94	10	<MDC	Bath tile
4	<MDC	<MDC	<MDC	99	10	<MDC	Bath tile
5	<MDC	<MDC	<MDC	98	10	<MDC	Bath tile
6	<MDC	<MDC	<MDC	86	10	<MDC	Bath tile
7	<MDC	<MDC	<MDC	86	10	<MDC	Bath tile
8	<MDC	<MDC	<MDC	86	10	<MDC	Bath tile
9	<MDC	<MDC	<MDC	86	10	<MDC	Bath tile
10	<MDC	<MDC	<MDC	95	10	<MDC	Bath tile
11	<MDC	<MDC	<MDC	101	10	<MDC	Bath tile
12	<MDC	<MDC	<MDC	91	10	<MDC	Bath tile
13	<MDC	<MDC	<MDC	101	10	<MDC	Bath tile

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	500	-594.91	530	-363.43	54.6	-26.82	10	506	-548.51
2	500	-594.91	520	-440.59	51.6	-34.28	10	498	-610.34
3	480	-749.23	520	-440.59	59.3	-10.56	10	517	-463.73
4	480	-749.23	520	-440.59	61.9	-1.80	10	493	-648.92
5	490	-672.07	530	-363.43	59.9	-8.94	10	516	-471.45
6	490	-672.07	530	-363.43	63.8	4.37	10	515	-479.17
7	490	-672.07	530	-363.43	56.4	-18.64	10	496	-625.77
8	540	-286.27	560	-131.94	67	14.38	10	544	-255.40
9	520	-440.59	540	-286.27	53.7	-27.11	10	538	-301.70
10	520	-440.59	540	-286.27	58.5	-13.47	10	527	-386.57
11	520	-440.59	540	-286.27	63.4	3.67	10	535	-324.85
12	520	-440.59	540	-286.27	64.5	6.98	10	513	-494.60
13	530	-363.43	560	-131.94	47.3	-55.53	10	494	-641.20

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

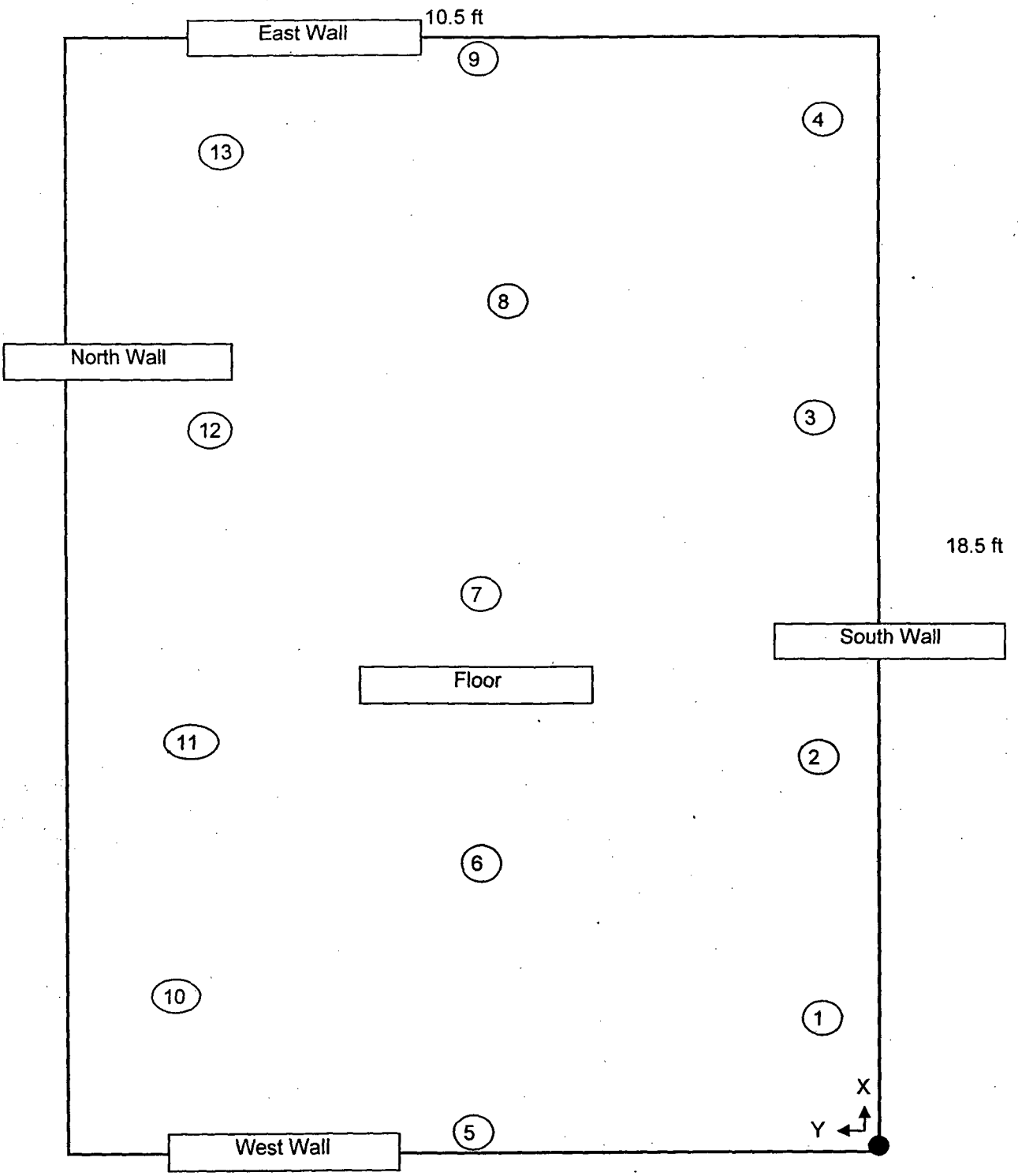
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	54.6	267418.4	741.62	29.08%
2	51.6	267418.4	753.8	31.50%
3	59.3	267418.4	743.06	29.36%
4	61.9	267418.4	735.1	27.84%
5	59.9	267418.4	735.72	27.95%
6	63.8	267418.4	756.53	32.07%
7	56.4	267418.4	757.1	32.19%
8	67	267418.4	756.15	31.99%
9	53.7	267418.4	756.66	32.09%
10	58.5	267418.4	741	28.96%
11	63.4	267418.4	731.76	27.22%
12	64.5	267418.4	746.68	30.07%
13	47.3	267418.4	731.63	27.19%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-3-003**

BR 13 Basement Bathroom
Class 3
L=4, R=3.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-3-003**

BR 13 Basement Bathroom
Class 3
L=4, R=3.5

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Floor (start SW Corner)								
1	3.25	0.5						
2	7.25	0.5						
3	11.25	0.5						
4	15.25	0.5						
5	1.25	4						
6	5.25	4						
7	9.25	4						
8	13.25	4						
9	17.25	4						
10	3.25	7.5						
11	7.25	7.5						
12	11.25	7.5						
13	15.25	7.5						

ENERGYSOLUTIONS

Final Stat[illegible]ey Results
Ward Center, Cornell University

Room #:	Rooms B 07, 09, 11, and Hall	Survey Unit:	B-3-004
Surveyor:	LeRoy Cuneo (Print)	Sign	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2968	Background Reading (counts)	124.8	Background Reading (counts)	2968		
BKG (cpm)	296.8	BKG (cpm)	62.4	BKG (cpm)	296.8		
MDC (dpm/100cm2)	1806	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	482		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	296.8	cpm	R_B	62.4	cpm	R_B	296.8	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1806	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	482	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	116	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	122	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	117	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	131	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	110	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	105	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	118	10	<MDC	Tile
8	<MDC	<MDC	<MDC	121	10	<MDC	Tile
9	<MDC	<MDC	<MDC	96	10	<MDC	Tile
10	<MDC	<MDC	<MDC	108	10	<MDC	Metal
11	<MDC	<MDC	<MDC	116	12	<MDC	Tile
12	<MDC	<MDC	<MDC	109	10	<MDC	Tile
13	<MDC	<MDC	<MDC	114	10	<MDC	Tile

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	320	179.01	340	333.33	57.5	-20.47	10	354	441.36
2	240	-438.27	260	-283.95	46.2	-71.65	12	312	117.28
3	300	24.69	320	179.01	51.5	-46.26	12	307	78.70
4	320	179.01	340	333.33	52	-49.51	10	330	256.17
5	320	179.01	340	333.33	66.2	15.26	10	335	294.75
6	320	179.01	340	333.33	53	-35.76	10	322	194.44
7	360	487.65	300	24.69	61.1	-5.49	10	273	-183.64
8	280	-129.63	300	24.69	53	-41.54	10	277	-152.78
9	280	-129.63	300	24.69	58.4	-13.99	10	265	-245.37
10	230	-515.43	250	-361.11	64.5	8.28	10	206	-700.62
11	280	-129.63	300	24.69	58	-18.43	12	267	-229.94
12	280	-129.63	300	24.69	53.2	-36.51	10	258	-299.38
13	280	-129.63	300	24.69	57.2	-21.54	10	253	-337.96

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

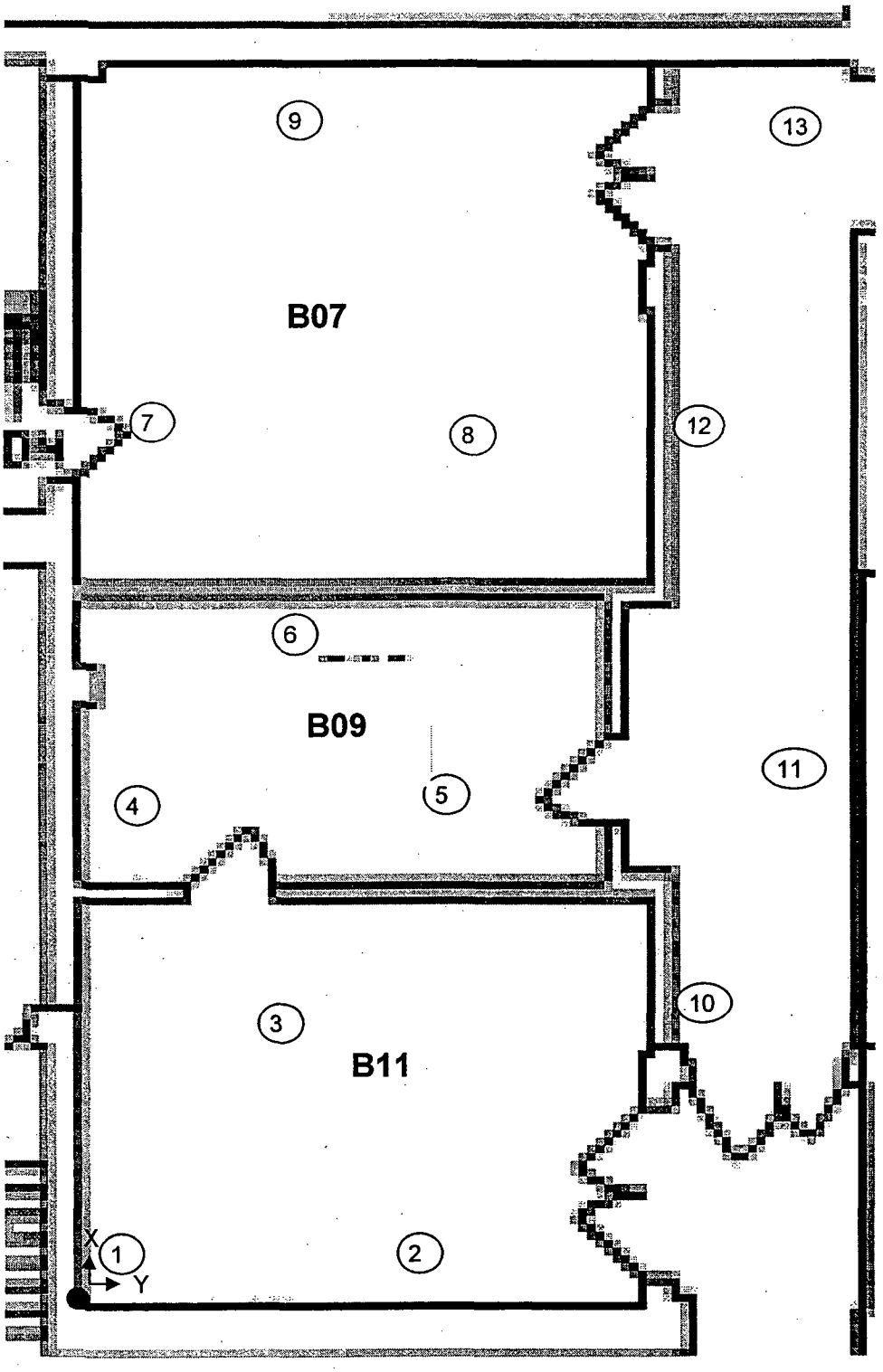
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	57.5	267418.4	713.1	23.94%
2	46.2	267418.4	705	22.61%
3	51.5	267418.4	710.83	23.56%
4	52	267418.4	694.71	21.01%
5	66.2	267418.4	718.76	24.90%
6	53	267418.4	726.63	26.28%
7	61.1	267418.4	711.51	23.67%
8	53	267418.4	705.12	22.63%
9	58.4	267418.4	739.07	28.59%
10	64.5	267418.4	721.4	25.36%
11	58	267418.4	712.74	23.88%
12	53.2	267418.4	720.46	25.20%
13	57.2	267418.4	714.33	24.14%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-3-004

Rooms B 07, 09, 11, and Hallway
Class 3
L=9.5, R=8.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-3-004

Rooms B 07, 09, 11, and Hallway
Class 3
L=9.5, R=8.5

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
BR7 (start in SW corner)							
1	0.5	0.25					
2	10	0.25					
3	5.25	8.25					
BR9 (start in SW corner)							
4	0.5	1.5					
5	10	1.5					
6	5.25	9.75					
BR11 (start in SW corner)							
7	0.5	8					
8	10	8					
9	5.25	16.25					
BRHall (start in SW corner)							
10	5	7.5					
11	1	15.75					
12	5	24					
13	1	32.25					

ENERGYSOLUTIONS

Room #:	Rooms B06, B06A, B06B, B06C - Floors	Survey Unit:	B-3-005
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	26.92%	Efficiency (%)	See Below	Efficiency (%)	26.92%	BKG (uR/hr)	20
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2968	Background Reading (counts)	124.8	Background Reading (counts)	2968		
BKG (cpm)	296.8	BKG (cpm)	62.4	BKG (cpm)	296.8		
MDC (dpm/100cm2)	1806	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	482		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	296.8	cpm	R_B	62.4	cpm	R_B	296.8	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1806	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	482	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	20	557.10	Concrete
2	<MDC	<MDC	<MDC	91	20	<MDC	Tile
3	<MDC	<MDC	<MDC	81	20	<MDC	Tile
4	<MDC	<MDC	<MDC	81	20	<MDC	Tile
5	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
7	<MDC	<MDC	<MDC	92	20	<MDC	Concrete
8	<MDC	<MDC	<MDC	85	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
10	<MDC	<MDC	<MDC	92	20	<MDC	Tile
11	<MDC	<MDC	<MDC	90	20	<MDC	Tile
12	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
13	<MDC	<MDC	<MDC	83	20	<MDC	Concrete
14	<MDC	<MDC	<MDC	80	20	<MDC	Concrete
15	<MDC	<MDC	<MDC	88	0	<MDC	Tile
16	<MDC	<MDC	<MDC	85	0	<MDC	Tile

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	350	410.49	370	564.81	56.3	-20.69	20	369	557.10
2	220	-592.59	230	-515.43	56.1	-20.89	20	217	-615.74
3	220	-592.59	240	-438.27	65.5	9.11	20	233	-492.28
4	200	-746.91	220	-592.59	54.2	-24.17	20	217	-615.74
5	340	333.33	360	487.65	58.1	-14.20	20	350	410.49
6	340	333.33	360	487.65	67.9	18.24	20	347	387.35
7	340	333.33	360	487.65	51.6	-36.24	20	334	287.04
8	320	179.01	340	333.33	63.9	4.66	20	318	163.56
9	340	333.33	370	564.81	66	11.94	20	344	364.20
10	240	-438.27	280	-129.63	53.6	-29.31	20	241	-430.56
11	240	-438.27	260	-283.95	53.9	-27.81	20	232	-500.00
12	310	101.85	340	333.33	58	-14.55	20	297	1.54
13	320	179.01	340	333.33	55.6	-20.49	20	332	271.60
14	300	24.69	320	179.01	62.4	0.00	20	325	217.59
15	260	-283.95	280	-129.63	52.5	-31.78	21	267	-229.94
16	240	-438.27	270	-206.79	50.4	-37.28	22	233	-492.28

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

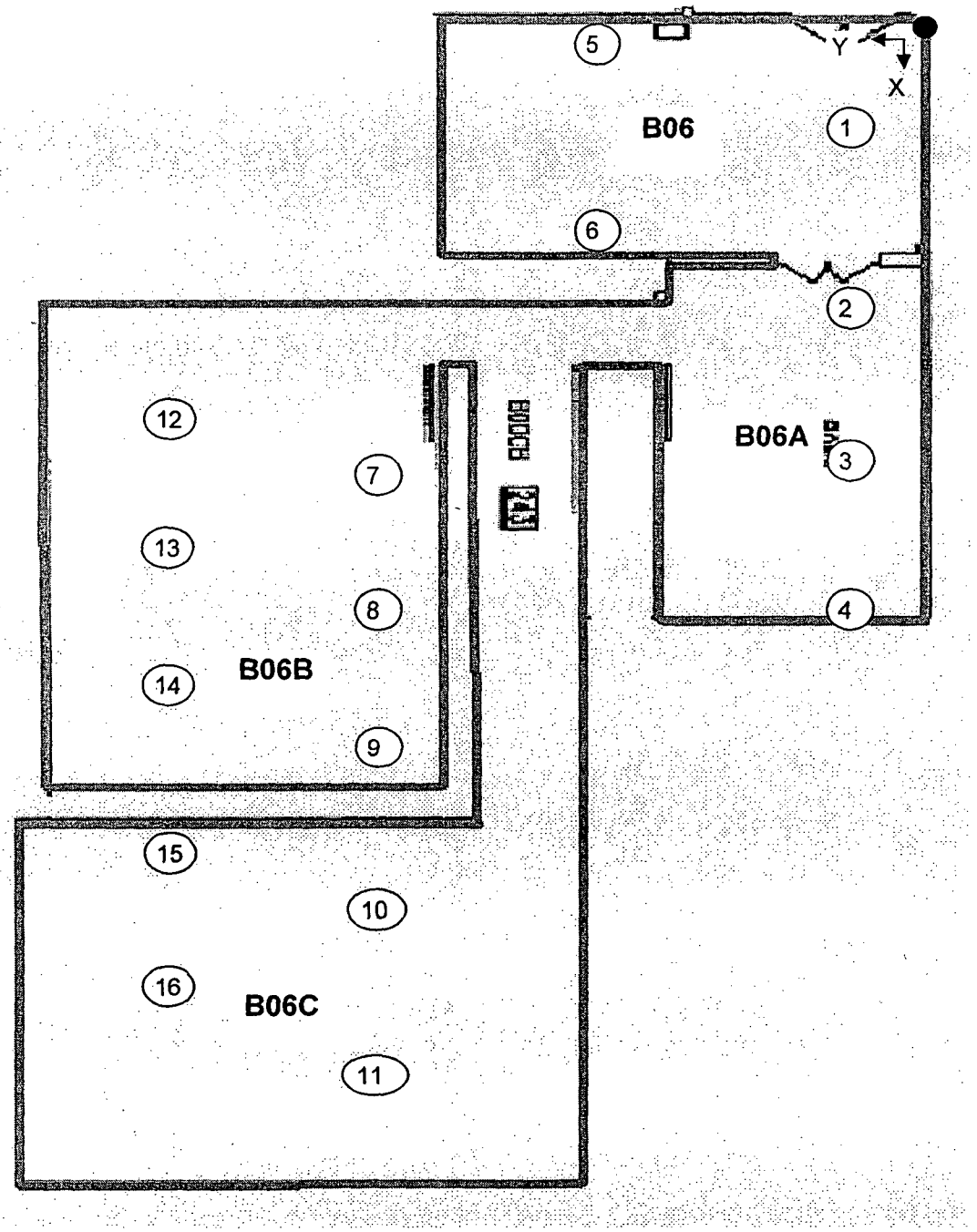
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.3	267418.4	743.68	29.48%
2	56.1	267418.4	747.12	30.16%
3	65.5	267418.4	765.79	34.03%
4	54.2	267418.4	765.34	33.93%
5	58.1	267418.4	747.75	30.28%
6	67.9	267418.4	747.12	30.16%
7	51.6	267418.4	745.31	29.80%
8	63.9	267418.4	757.04	32.17%
9	66	267418.4	747.12	30.16%
10	53.6	267418.4	746.43	30.02%
11	53.9	267418.4	749.19	30.57%
12	58	267418.4	747.5	30.23%
13	55.6	267418.4	761.89	33.19%
14	62.4	267418.4	766.37	34.16%
15	52.5	267418.4	752.09	31.16%
16	50.4	267418.4	757.1	32.19%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-3-005

Room B06, B06A, B06B, B06C, and Hall
Class 3
L=13.31, R=11.53



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-3-005**

Room B06, B06A, B06B, B06C, and Hall
Class 3
L=13.31, R=11.53

Number	X (ft)	X (in)	Y (ft)	Y (in)	Direct (cpm	uR/hr	Material
1	8	11.0	4	0.4			
2	22	2.7	4	0.4			
3	35	6.4	4	0.4			
4	48	10.1	4	0.4			
5	2	3.1	15	6.7			
6	15	6.8	15	6.7			
7	35	6.5	27	1.0			
8	48	10.2	27	1.0			
9	62	1.9	27	1.0			
10	75	5.6	27	1.0			
11	88	9.4	27	1.0			
12	28	10.6	38	7.3			
13	42	2.3	38	7.3			
14	55	6.0	38	7.3			
15	68	9.7	38	7.3			
16	80	4.1	38	7.3			

ENERGYSOLUTIONS

Final Statu[illegible]y Results
Ward Center, Cornell University

Room #:	Rooms B01, B03, B04, and Hallway outside rooms	Survey Unit:	B-3-006
Surveyor:	LeRoy Cuneo (Print)	Sign	Date: 9/12/2006
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	Date: 10/3/2006

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3120	Background Reading (counts)	124.8	Background Reading (counts)	3120		
BKG (cpm)	312	BKG (cpm)	62.4	BKG (cpm)	312		
MDC (dpm/100cm2)	1851	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	493		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_G	312	cpm	R_G	62.4	cpm	R_G	312	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1851	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	493	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	18	<MDC	Tile
2	<MDC	<MDC	<MDC	85	18	<MDC	Tile
3	<MDC	<MDC	<MDC	109	18	<MDC	Tile
4	<MDC	<MDC	<MDC	105	18	<MDC	Tile
5	<MDC	<MDC	<MDC	97	18	<MDC	Tile
6	<MDC	<MDC	<MDC	99	18	<MDC	Tile
7	<MDC	<MDC	<MDC	95	18	<MDC	Tile
8	<MDC	<MDC	<MDC	92	18	<MDC	Tile
9	<MDC	<MDC	<MDC	90	18	<MDC	Tile
10	<MDC	<MDC	<MDC	109	18	<MDC	Tile
11	<MDC	<MDC	<MDC	97	18	<MDC	Tile
12	<MDC	<MDC	<MDC	93	18	<MDC	Linoleum
13	<MDC	<MDC	<MDC	92	18	<MDC	Linoleum

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Cent[illegible]nell University

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	230	-632.72	260	-401.23	59.3	-10.10	18	253	-455.25
2	290	-169.75	300	-92.59	71.7	28.88	18	268	-354.94
3	240	-555.56	260	-401.23	67.6	20.64	18	276	-277.78
4	260	-401.23	290	-169.75	62.9	1.90	18	247	-501.54
5	260	-401.23	280	-246.91	57	-19.15	18	230	-632.72
6	280	-246.91	300	-92.59	58.2	-15.06	18	278	-262.35
7	260	-401.23	290	-169.75	56.4	-20.78	18	263	-378.09
8	270	-324.07	300	-92.59	69	22.18	16	254	-447.53
9	280	-401.23	280	-246.91	58.2	-13.68	16	244	-524.69
10	240	-555.56	280	-246.91	63.9	5.95	18	257	-424.38
11	260	-401.23	280	-246.91	59.8	-9.13	16	244	-524.69
12	280	-401.23	280	-246.91	58.8	-12.18	16	274	-293.21
13	250	-478.40	280	-246.91	52.7	-32.63	16	243	-532.41

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

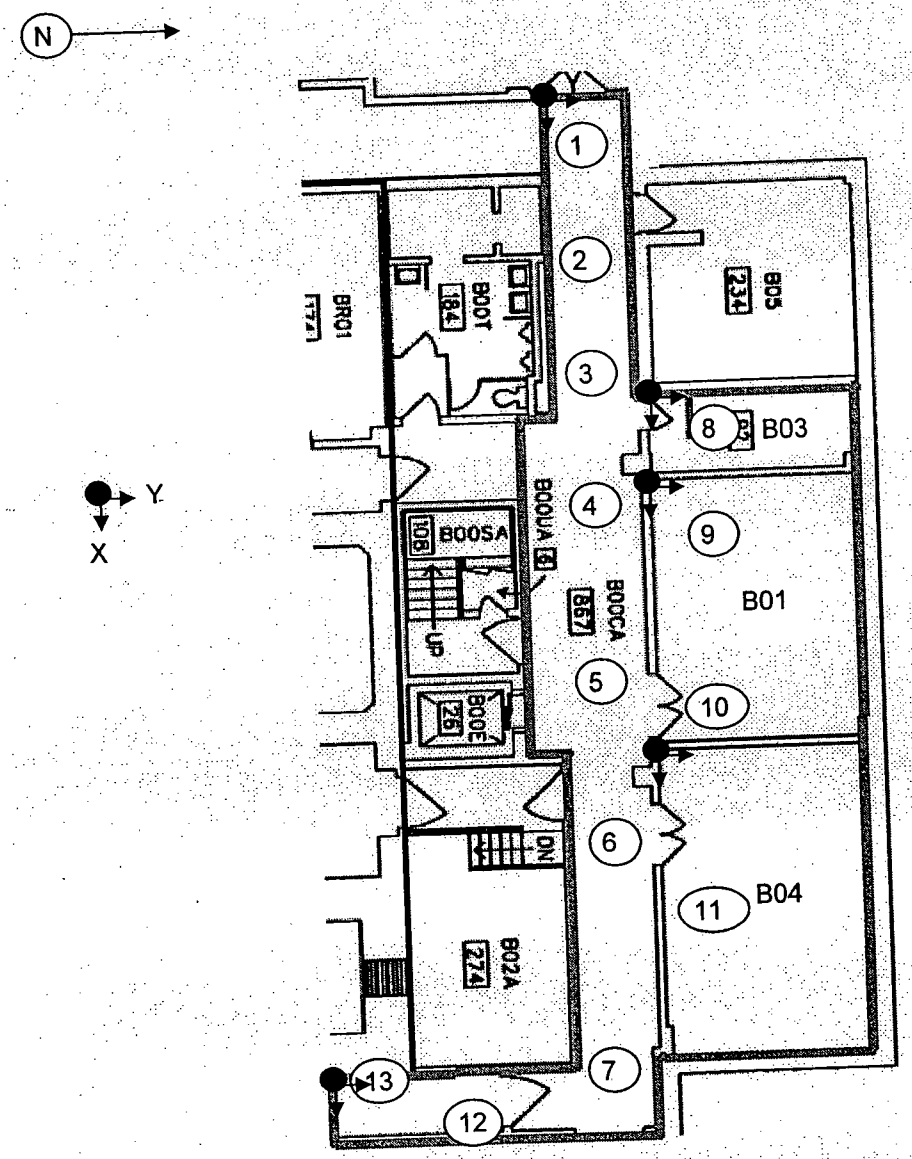
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	59.3	267418.4	749.76	30.68%
2	71.7	267418.4	757.17	32.20%
3	67.6	267418.4	720.48	25.20%
4	62.9	267418.4	726.7	26.30%
5	57	267418.4	737.02	28.20%
6	58.2	267418.4	735.41	27.90%
7	56.4	267418.4	740.57	28.88%
8	69	267418.4	745.06	29.75%
9	58.2	267418.4	749.89	30.71%
10	63.9	267418.4	720.66	25.23%
11	59.8	267418.4	738.51	28.48%
12	58.8	267418.4	744.06	29.55%
13	52.7	267418.4	744.93	29.72%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-3-006

Rooms B03, B01, B04, and Hallway
Class 3
L=12, R=10.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-3-006**

Rooms B03, B01, B04, and Hallway
Class 3
L=12, R=10.5

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Hallway 1 (Starting SW Corner)								
1	4.75	5.75						
2	16.75	5.75						
3	28.75	5.75						
4	40.75	5.75						
5	52.75	5.75						
6	64.75	5.75						
7	76.75	5.75						
Rm B03 (Starting SW Corner)								
8	2.75	9						
Rm B01 (Starting SW Corner)								
9	10.75	9						
10	22.75	9						
Rm B04 (Starting SW Corner)								
11	12.75	9						
Hallway 2 (Starting NW Corner)								
12	3.75	4.5						
13	3.75	15						

ENERGYSOLUTIONS

Final Statu[illegible]y Results
Ward Center, [illegible]ell University

Room #:	BR02A - Ceiling and Western Wall	Survey Unit:	B-1-007
Surveyor:	LeRoy Cuneo (Print)	Sign	9/7/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	Sign	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 6
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	201695
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	11/18/2006
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		26.92%	Efficiency (%)		See Below	Efficiency (%)		26.92%	BKG (uR/hr)	20
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2779	Background Reading (counts)		111.8	Background Reading (counts)		2779		
BKG (cpm)		277.9	BKG (cpm)		55.9	BKG (cpm)		277.9		
MDC (dpm/100cm2)		1747	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		467		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	277.9	cpm	R_B	55.9	cpm	R_B	277.9	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1747	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	467	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91.44	15	<MDC	Cinder Block
2	<MDC	<MDC	<MDC	85.27	15	<MDC	Cinder Block
3	<MDC	<MDC	<MDC	88.05	20	594.91	Concrete
4	<MDC	<MDC	<MDC	86.18	20	<MDC	Concrete
5	<MDC	<MDC	<MDC	85.62	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	86.40	20	<MDC	Concrete
7	<MDC	<MDC	<MDC	86.43	20	<MDC	Cinder Block
8	<MDC	<MDC	<MDC	85.33	20	<MDC	Cinder Block
9	<MDC	<MDC	<MDC	83.97	20	<MDC	Cinder Block
10	<MDC	<MDC	<MDC	88.24	30	<MDC	Concrete
11	<MDC	<MDC	<MDC	88.86	20	<MDC	Concrete
12	<MDC	<MDC	<MDC	88.42	20	486.88	Concrete
13	<MDC	<MDC	<MDC	87.55	20	<MDC	Concrete

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	100	-1372.69	120	-1218.36	49	-24.18	15	200	-601.08
2	100	-1372.69	120	-1218.36	56	0.33	15	196	-631.94
3	300	170.52	320	324.85	60.3	14.84	20	355	594.91
4	320	324.85	340	479.17	57.5	5.28	20	287	70.22
5	300	170.52	310	247.69	48.3	-24.93	20	278	0.77
6	300	170.52	330	402.01	45.2	-35.42	20	329	394.29
7	100	-1372.69	120	-1218.36	51.7	-13.91	20	197	-624.23
8	120	-1218.36	130	-1141.20	63.5	24.85	20	203	-577.93
9	100	-1372.69	130	-1141.20	56.5	1.93	20	193	-655.09
10	120	-1218.36	140	-1064.04	48.8	-24.00	30	264	-107.25
11	200	-601.08	220	-446.76	59.8	13.28	20	319	317.13
12	200	-601.08	230	-369.60	68	40.99	20	341	486.88
13	200	-601.08	230	-369.60	66	33.88	20	306	216.82

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

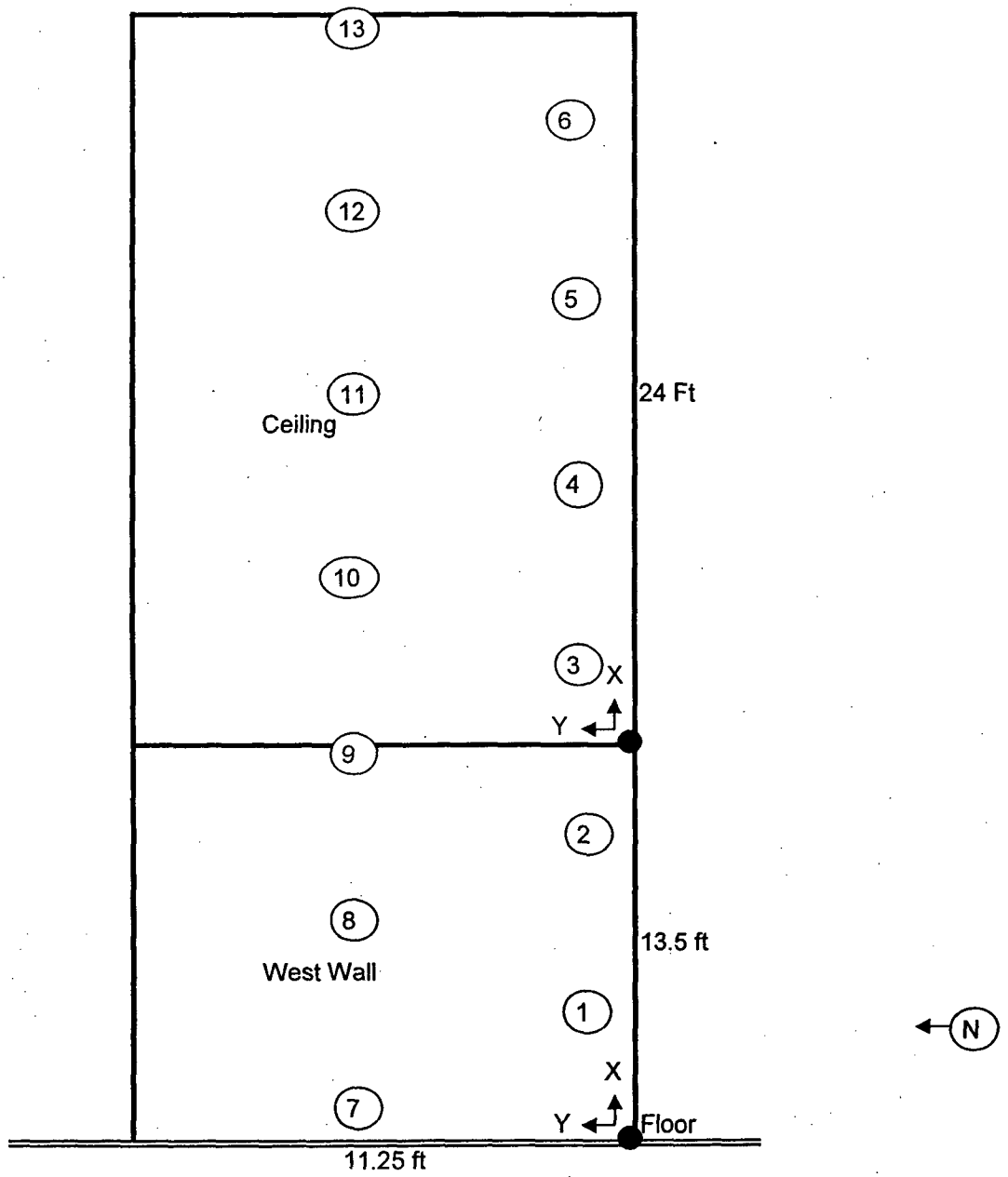
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	49	267418.4	738.82	28.54%
2	56	267418.4	749.38	30.61%
3	60.3	267418.4	744.5	29.64%
4	57.5	267418.4	747.75	30.28%
5	48.3	267418.4	748.75	30.48%
6	45.2	267418.4	747.37	30.21%
7	51.7	267418.4	747.31	30.19%
8	63.5	267418.4	749.26	30.58%
9	56.5	267418.4	751.72	31.08%
10	48.8	267418.4	744.18	29.58%
11	59.8	267418.4	743.12	29.37%
12	68	267418.4	743.87	29.52%
13	66	267418.4	745.37	29.81%

ENERGYSOLUTIONS

Final Status Suvey Map
Ward Center, Cornell University

Survey Unit: B-1-007

Room: BR02A - Ceiling and Western Wall
Class 1
L=6, R=5.2



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-1-007

Room: BR02A - Ceiling and Western Wall
Class 1
L=6, R=5.2

Number	X	Y	Direct	uR/hr	Smear?	Material
West Wall (Bottom S Corner)						
1	4	1				
2	10	1				
Ceiling (SW Corner)						
3	2.5	1				
4	8.5	1				
5	14.5	1				
6	20.5	1				
West Wall (Bottom S Corner)						
7	1	6.25				
8	7	6.25				
9	13	6.25				
Ceiling (SW Corner)						
10	5.5	6.25				
11	11.5	6.25				
12	17.5	6.25				
13	23.5	6.25				

ENERGYSOLUTIONS

Room #:	BR02B: All surfaces	Survey Unit:	B-1-009
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/7/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 5
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	201696
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	11/18/2006
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	20
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2779	Background Reading (counts)		111.8	Background Reading (counts)		2779		
BKG (cpm)		277.9	BKG (cpm)		55.9	BKG (cpm)		277.9		
MDC (dpm/100cm2)		1747	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		467		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	277.9	cpm	R_B	55.9	cpm	R_B	277.9	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	25%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1747	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	467	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	30	571.76	Concrete
2	<MDC	<MDC	<MDC	88	30	<MDC	Concrete
3	<MDC	<MDC	<MDC	92	35	471.46	Concrete
4	<MDC	<MDC	<MDC	95	30	<MDC	Concrete
5	<MDC	<MDC	<MDC	96	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	127	20	<MDC	Concrete
7	<MDC	<MDC	<MDC	124	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	112	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	106	10	<MDC	Metal
10	<MDC	<MDC	<MDC	90	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	91	15	<MDC	Cast Iron
13	<MDC	<MDC	<MDC	87	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	96	20	<MDC	Concrete
15	<MDC	<MDC	<MDC	86	20	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	160	-909.72	180	-755.40	57.9	6.78	30	352	571.76
2	360	633.49	380	787.81	58.3	8.05	30	296	139.66
3	200	-601.08	210	-523.92	55.3	-2.12	35	339	471.45
4	160	-909.72	180	-755.40	74.4	67.27	30	320	324.85
5	160	-909.72	190	-678.24	51.5	-16.27	20	294	124.23
6	180	-755.40	200	-601.08	39.6	-79.59	20	300	170.52
7	360	633.49	370	710.65	45.2	-50.89	10	291	101.08
8	340	479.17	360	633.49	48.7	-30.90	20	293	116.51
9	220	-446.76	250	-215.28	54.5	-5.68	10	180	-755.40
10	380	787.81	390	864.97	58.9	10.39	10	284	47.07
11	400	942.13	420	1096.45	52.7	-10.77	10	179	-763.12
12	80	-1527.01	120	-1218.36	58.8	10.07	15	133	-1118.06
13	380	787.81	400	942.13	55.1	-2.67	10	162	-894.29
14	400	942.13	420	1096.45	69.8	51.28	20	307	224.54
15	360	633.49	380	787.81	63.7	25.72	20	283	39.35

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
!	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

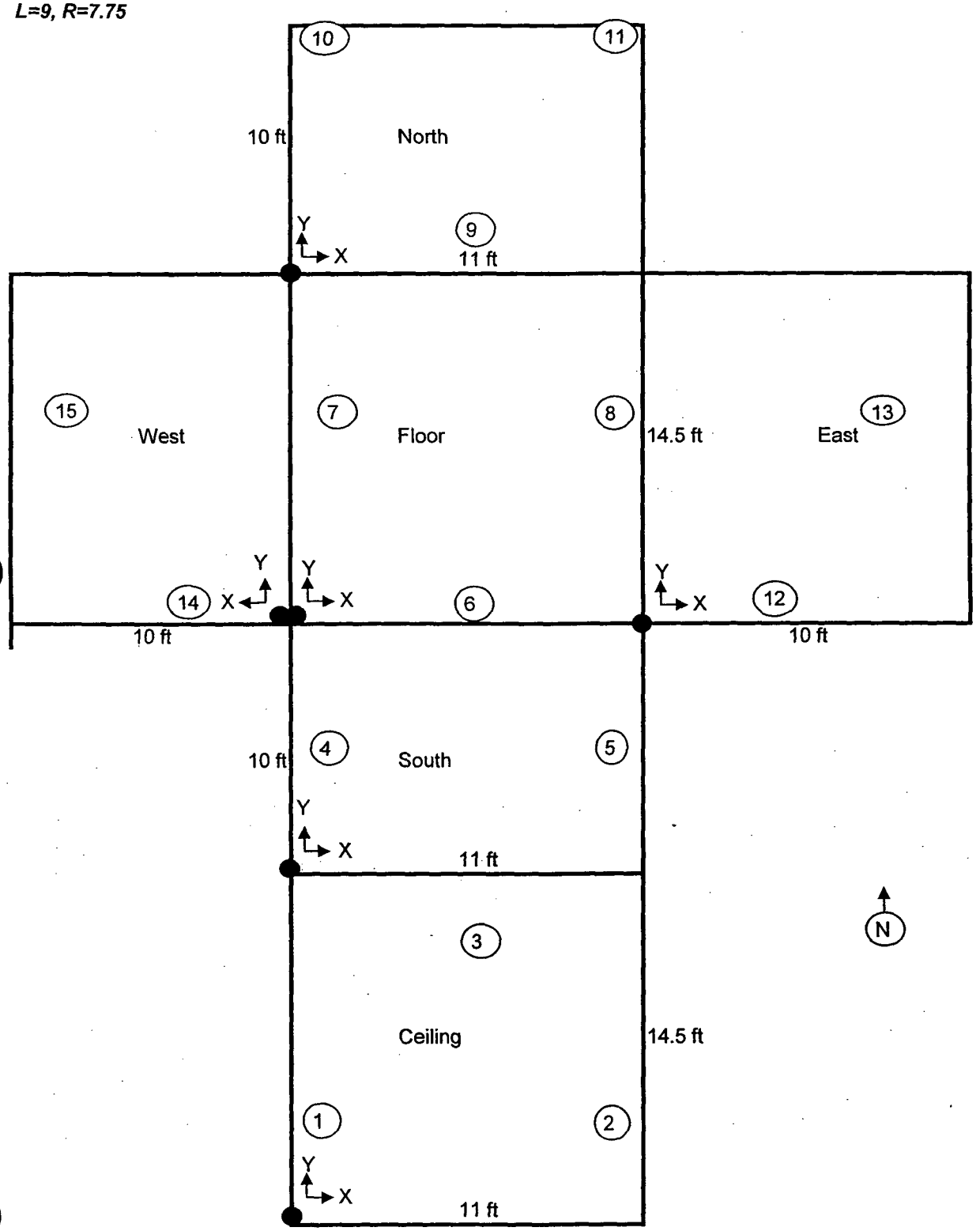
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	57.9	267418.4	743.87	29.52%
2	58.3	267418.4	745.37	29.81%
3	55.3	267418.4	737.33	28.26%
4	74.4	267418.4	733.3	27.50%
5	51.5	267418.4	730.83	27.05%
6	39.6	267418.4	691.19	20.48%
7	45.2	267418.4	694.84	21.03%
8	48.7	267418.4	709.24	23.30%
9	54.5	267418.4	717.4	24.67%
10	58.9	267418.4	740.57	28.88%
11	52.7	267418.4	744.81	29.70%
12	58.8	267418.4	740.13	28.79%
13	55.1	267418.4	746.12	29.96%
14	69.8	267418.4	731.14	27.10%
15	63.7	267418.4	748	30.33%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-009**

Room BR02B: All surfaces
Class 1
L=9, R=7.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-1-009

Room BR02B: All surfaces
Class 1
L=9, R=7.75

Number	X	Y	Direct	uR/hr	Smear?	Material
Ceiling (Starting NW Corner)						
1	1.5	4				
2	10.5	4				
3	6	11.75				
South (Starting TOP W Corner)						
4	1.5	5				
5	10.5	5				
Floor (Start in SW Corner)						
6	6	0.5				
7	1.5	8.25				
8	10.5	8.25				
North (Start BOTTOM in W Corner)						
9	6	1.5				
10	1.5	9.5				
11	10.5	9.5				
East (Start in BOTTOM S Corner)						
12	4.25	0.5				
13	11.75	8.25				
West (Start in BOTTOM S Corner)						
14	3	0.5				
15	7.5	8.25				

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	BR02C: All surfaces	Survey Unit:	B-1-010
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/6/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #	L2360		Meter Model #	Wallac 1400		Meter Model #	L 2360		Meter Model #	L 5
Meter Serial #	193629		Meter Serial #	Unknown		Meter Serial #	193629		Meter Serial #	201695
Probe Serial #	200130		Probe Serial #	NA		Probe Serial #	200130		Cal Due	11/16/2006
Cal Due	11/19/2006		Cal Due	NA		Cal Due	11/19/2006		Type	beta/gamma
Efficiency (%)	25.92%		Efficiency (%)	See Below		Efficiency (%)	25.92%		BKG (uR/hr)	10
Type	beta/gamma		Type	beta/gamma		Type	beta/gamma		Guideline (mR/hr)	NA
Sample Time (min)	1		Sample Time (min)	2		Sample Time (min)	1		Action Level (mR/hr)	NA
Background Time (min)	10		Background Time (min)	2		Background Time (min)	10			
Background Reading (counts)	2892		Background Reading (counts)	111.5		Background Reading (counts)	2892			
BKG (cpm)	289.2		BKG (cpm)	55.9		BKG (cpm)	289.2			
MDC (dpm/100cm2)	1782		MDC (dpm/100cm2)	See Below		MDC (dpm/100cm2)	476			
Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA			
Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA			
Instrument	L2360		Instrument	Wallac 1400		Instrument	L 2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	289.2	cpm	R_B	55.9	cpm	R_B	289.2	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1782	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	476	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	111	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	172	10	<MDC	Stainless Steel
7	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	98	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	90	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	94	10	<MDC	Cast iron
13	<MDC	<MDC	<MDC	89	10	<MDC	Concrete

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	60	-1768.52	100	-1459.88	59:4	11:85	10	144	-1120.37
2	80	-1614.20	160	-996.91	55:1	2:70	10	138	-1166.67
3	120	-1305.56	200	-688.27	57:9	6:94	10	103	-1436.73
4	160	-996.91	220	-533.95	50:9	-21:28	10	143	-1128.09
5	140	-1151.23	240	-379.63	53	-10:39	10	128	-1243.83
6	80	-1614.20	140	-1151.23	52	-25:77	10	130	-1228.40
7	80	-1614.20	140	-1151.23	43:2	-44:59	10	114	-1351.85
8	80	-1614.20	120	-1305.56	61:3	18:35	10	137	-1174.38
9	160	-996.91	220	-533.95	41:6	-53:77	10	129	-1236.11
10	80	-1614.20	160	-996.91	58:7	9:60	10	129	-1236.11
11	80	-1614.20	140	-1151.23	68	41:56	10	127	-1251.54
12	180	-842.59	240	-379.63	45:7	-36:69	10	142	-1135.80
13	80	-1614.20	160	-996.91	58:3	8:20	10	110	-1382.72

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

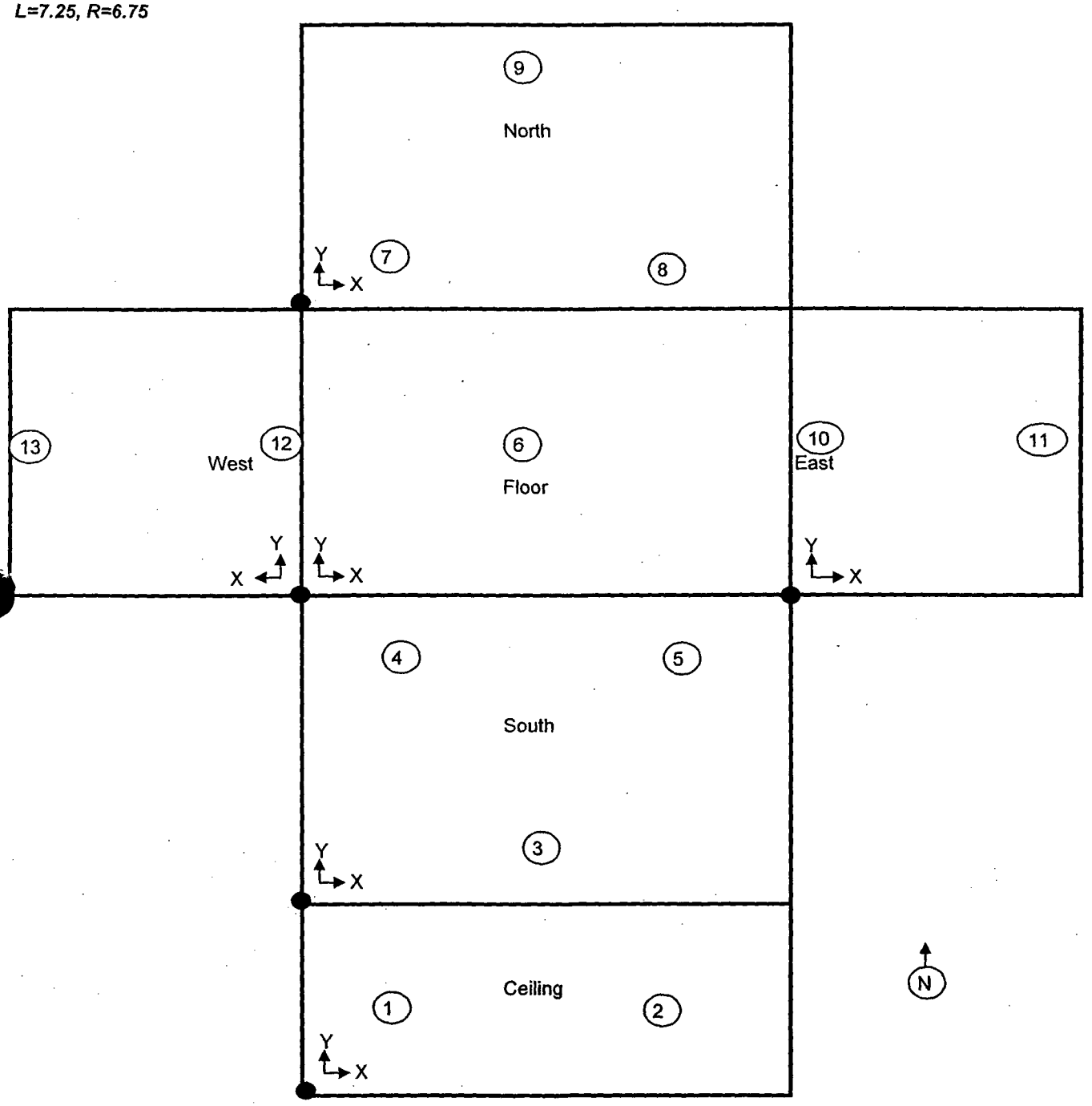
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	59:4	267418.4	743.93	29.53%
2	55:1	267418.4	744.43	29.63%
3	57:9	267418.4	740.25	28.82%
4	50:9	267418.4	710.46	23.50%
5	53	267418.4	735.47	27.91%
6	52	267418.4	650.66	15.13%
7	43:2	267418.4	738.51	28.48%
8	61:3	267418.4	743.43	29.43%
9	41:6	267418.4	728.36	26.60%
10	58:7	267418.4	742.12	29.18%
11	68	267418.4	741.81	29.12%
12	45:7	267418.4	734.91	27.80%
13	58:3	267418.4	742.56	29.26%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-1-010

Room: BR02C: All surfaces
Class 1
L=7.25, R=6.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-010**

Room: BR02C: All surfaces
Class 1
L=7.25, R=6.75

Number	X	Y	Direct	uR/hr	Smear?		Material
Ceiling (Starting Top NW Corner)							
1	1.25	6.5					
2	8.5	6.5					
South (Starting TOP SW Corner)							
3	4.75	3.75					
4	1.25	10					
5	8.5	10					
Floor (Starting in the SW Corner)							
6	4.75	3.75					
North (Starting in BOTTOM W Corner)							
7	1.25	1					
8	8.5	1					
9	4.75	7					
Eastv(Starting in BOTTOM S Corner)							
10	3.25	3.75					
11	10.25	3.75					
West (Starting in BOTTOM S Corner)							
12	2.25	3.75					
13	9.5	3.75					

ENERGYSOLUTIONS

Room #:	Room B06D: Floor	Survey Unit:	B-3-011
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2883	Background Reading (counts)	96.2	Background Reading (counts)	2883		
BKG (cpm)	288.3	BKG (cpm)	48.1	BKG (cpm)	288.3		
MDC (dpm/100cm2)	1780	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	288.3	cpm	R_B	48.1	cpm	R_B	288.3	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ϵ_s	0.5		ϵ_s	1		ϵ_s	0.5	
ϵ_i	25%		ϵ_i	See Below		ϵ_i	25%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1780	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	83	12	<MDC	Concrete
2	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	86	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	95	12	553.24	Concrete
5	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
6	<MDC	<MDC	<MDC	87	12	761.67	Concrete
7	<MDC	<MDC	<MDC	87	12	738.43	Concrete
8	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	94	12	491.51	Concrete
10	<MDC	<MDC	<MDC	94	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	93	12	<MDC	Concrete

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	300	90.28	340	398.92	49.6	5.11	12	344	429.78
2	300	90.28	340	398.92	54.7	23.16	12	329	314.04
3	300	90.28	340	398.92	44.5	-12.77	12	348	460.65
4	310	167.44	350	476.08	58	38.56	12	360	553.24
5	330	321.76	350	476.08	58.6	38.42	12	338	383.49
6	320	244.60	340	398.92	51	10.34	12	387	761.57
7	340	398.92	350	476.08	58.5	37.13	12	384	738.43
8	330	321.76	350	476.08	50.4	8.04	12	331	329.46
9	350	476.08	370	630.40	48.9	3.09	12	352	491.51
10	350	476.08	370	630.40	57.6	36.77	12	346	445.22
11	350	476.08	370	630.40	50.8	9.90	12	327	298.61
12	350	476.08	370	630.40	52.7	17.06	12	333	344.91
13	350	476.08	370	630.40	47.7	-1.53	12	330	321.76

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers Serial #	Probe #	2360 Cal Due Dates
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

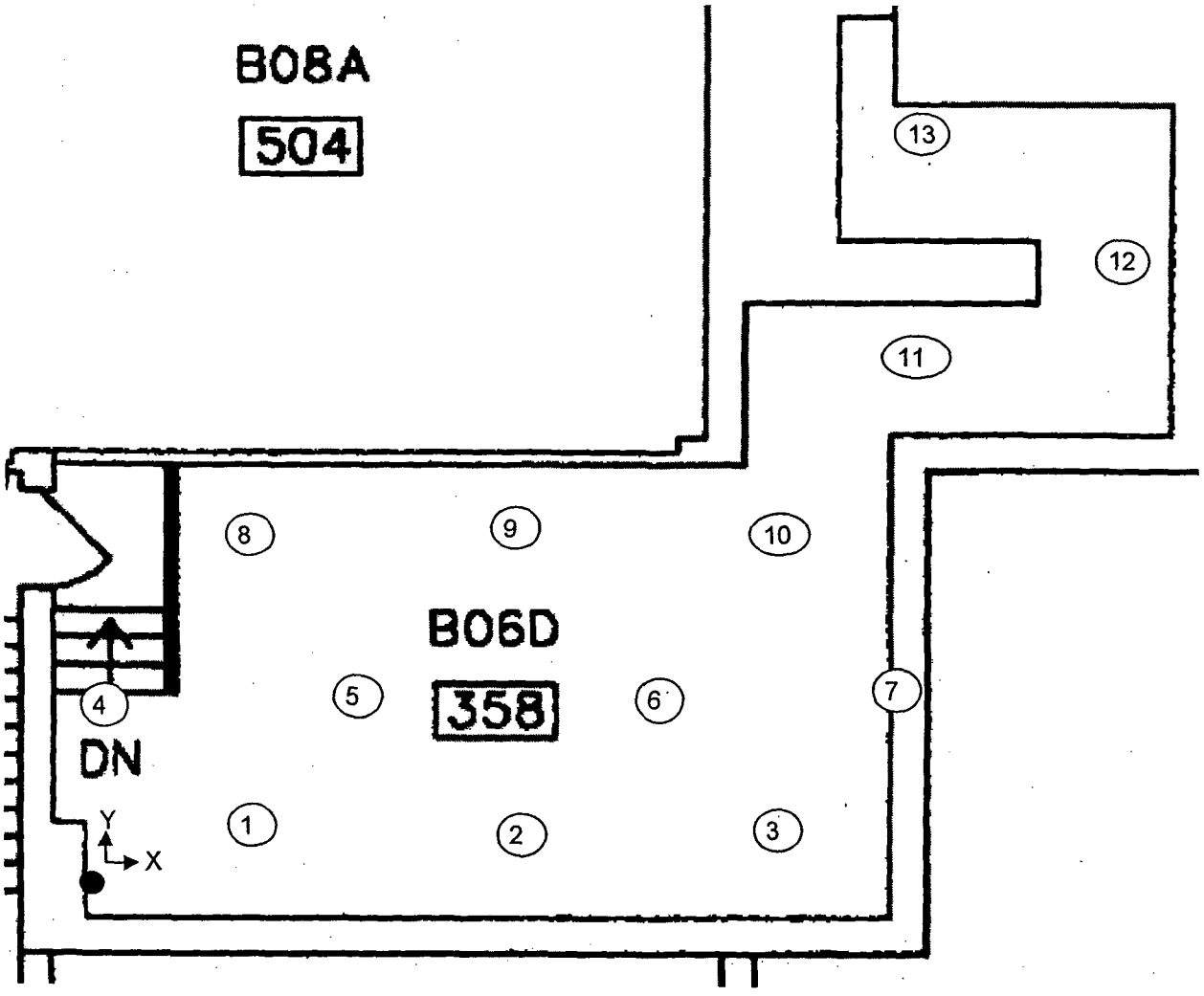
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	49.6	267418.4	743.18	29.38%
2	54.7	267418.4	738.58	28.50%
3	44.5	267418.4	737.02	28.20%
4	58	267418.4	723.19	25.67%
5	58.6	267418.4	732.38	27.33%
6	51	267418.4	736.22	28.05%
7	58.5	267418.4	736.03	28.01%
8	50.4	267418.4	739.2	28.61%
9	48.9	267418.4	724.54	25.91%
10	57.6	267418.4	724.11	25.84%
11	50.8	267418.4	732.01	27.26%
12	52.7	267418.4	730.4	26.97%
13	47.7	267418.4	725.83	26.14%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-3-011

Room: B06D - Floor
Class 3
L=6.5, R=5.25



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-3-011**

Room: B06D - Floor
Class 3
L=6.5, R=5.25

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
1	5.25	2.25					
2	11.75	2.25					
3	18.75	2.25					
4	2	8					
5	8.5	8					
6	15	8					
7	21.5	8					
8	5.25	13.5					
9	11.75	13.5					
10	18.75	13.5					
11	21.5	20					
12	24	26.5					
13	21.5	33					

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, Cornell University

Room #:	B08: Chemistry Laboratory - Ceiling and West Wall	Survey Unit:	B-1-012
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	202415	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	193917	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	12/13/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	13.28%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	1511	Background Reading (counts)	124.8	Background Reading (counts)	2883		
BKG (cpm)	151.1	BKG (cpm)	62.4	BKG (cpm)	288.3		
MDC (dpm/100cm2)	2515	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	202415		S/N	Unknown		S/N	193629	
R_B	151.1	cpm	R_B	62.4	cpm	R_B	288.3	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	13%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	2515	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	85	6	<MDC	Concrete
2	<MDC	<MDC	<MDC	90	6	<MDC	Concrete
3	<MDC	<MDC	<MDC	100	6	<MDC	Concrete
4	<MDC	<MDC	<MDC	91	6	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	95	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	96	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	97	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	96	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	95	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	97	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	103	10	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	120	-468.37	200	736.45	44.7	-54.95	6	192	-743.06
2	120	-468.37	200	736.45	49.3	-42.66	6	188	-773.92
3	140	-167.17	200	736.45	54.5	-28.84	6	178	-851.08
4	120	-468.37	200	736.45	58.8	-11.93	6	194	-727.62
5	120	-468.37	200	736.45	53.9	-27.52	10	192	-743.06
6	120	-468.37	220	1037.65	50.7	-40.45	10	193	-735.34
7	120	-468.37	220	1037.65	49.9	-43.63	10	223	-503.86
8	120	-468.37	220	1037.65	56.7	-20.17	10	219	-534.72
9	140	-167.17	220	1037.65	50.9	-40.04	10	176	-866.51
10	140	-167.17	220	1037.65	47.5	-51.30	10	255	-256.94
11	120	-468.37	220	1037.65	53	-33.13	10	231	-442.13
12	120	-468.37	200	736.45	48.4	-48.12	10	189	-766.20
13	120	-468.37	220	1037.65	50.2	-41.90	10	188	-773.92
14	120	-468.37	220	1037.65	58.2	-15.80	10	198	-696.76

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

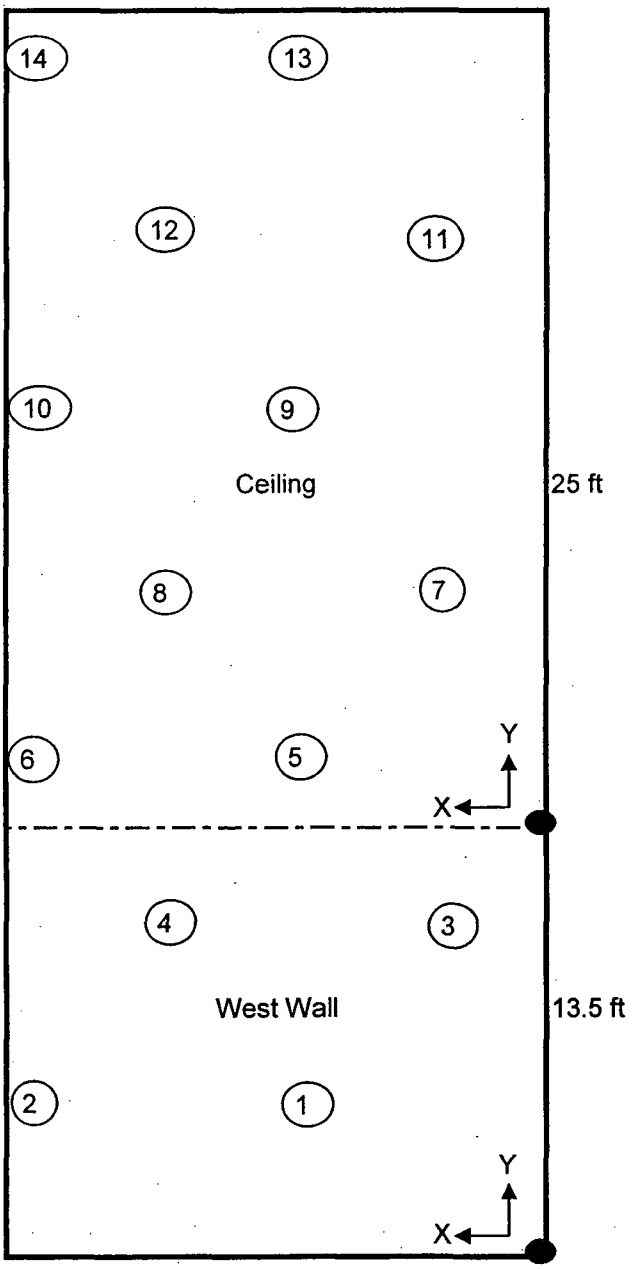
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	44.7	267418.4	757.23	32.21%
2	49.3	267418.4	749.89	30.71%
3	54.5	267418.4	732.69	27.39%
4	58.8	267418.4	747.25	30.18%
5	53.9	267418.4	750.77	30.89%
6	50.7	267418.4	740.82	28.92%
7	49.9	267418.4	739.38	28.65%
8	56.7	267418.4	737.33	28.25%
9	50.9	267418.4	739.76	28.72%
10	47.5	267418.4	741.44	29.04%
11	53	267418.4	737.95	28.38%
12	48.4	267418.4	741.69	29.09%
13	50.2	267418.4	741.81	29.12%
14	58.2	267418.4	728.3	26.59%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-012**

Room BR08: Chemistry Laboratory - Ceiling and West Wall
Class 1
L=6.25, R=5.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-1-012

Room BR08: Chemistry Laboratory - Ceiling and West Wall
Class 1
L=6.25, R=5.5

Number	X	Y	Direct	uR/hr	Smear?	Material
West Wall (Starting BOTTOM N Corner)						
1	5	4.5				
2	11.25	4.5				
3	2	10				
4	8.25	10				
Ceiling (Starting NW Corner)						
5	5	2				
6	11.25	2				
7	2	7.25				
8	8.25	7.25				
9	5	12.75				
10	11.25	12.75				
11	2	18				
12	8.25	18				
13	5	23.5				
14	11.25	23.5				

ENERGYSOLUTIONS

Room #:	B08: Chemistry Laboratory - Floor and South Wall	Survey Unit:	B-1-013
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2883	Background Reading (counts)	124.8	Background Reading (counts)	2883		
BKG (cpm)	288.3	BKG (cpm)	62.4	BKG (cpm)	288.3		
MDC (dpm/100cm2)	1780	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	288.3	cpm	R_B	62.4	cpm	R_B	288.3	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1780	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	105	10	<MDC	Linolium
2	<MDC	<MDC	<MDC	97	10	<MDC	Linolium
3	<MDC	<MDC	<MDC	99	10	<MDC	Linolium
4	<MDC	<MDC	<MDC	97	10	<MDC	Linolium
5	<MDC	<MDC	<MDC	99	10	<MDC	Linolium
6	<MDC	<MDC	<MDC	97	10	<MDC	Linolium
7	<MDC	<MDC	<MDC	96	10	<MDC	Linolium
8	<MDC	<MDC	<MDC	102	8	<MDC	Drywall
9	<MDC	<MDC	<MDC	106	8	<MDC	Drywall
10	<MDC	<MDC	<MDC	97	8	<MDC	Drywall
11	<MDC	<MDC	<MDC	99	10	<MDC	Drywall
12	<MDC	<MDC	<MDC	104	10	<MDC	Drywall
13	<MDC	<MDC	<MDC	100	10	<MDC	Drywall
14	<MDC	<MDC	<MDC	105	10	<MDC	Drywall

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	300	90.28	330	321.76	50.9	-43.99	10	313	190.59
2	300	90.28	320	244.60	51.1	-39.94	10	281	-56.33
3	300	90.28	320	244.60	53.9	-30.67	10	260	-64.04
4	300	90.28	320	244.60	60.8	-5.66	10	319	236.88
5	300	90.28	320	244.60	50.5	-42.73	10	316	213.73
6	300	90.28	330	321.76	51.9	-36.89	10	303	113.43
7	320	244.60	340	398.92	54.6	-27.27	10	309	159.72
8	240	-372.69	260	-218.36	50.2	-45.32	8	227	-472.99
9	260	-218.36	260	-218.36	58.5	-15.05	8	248	-310.96
10	240	-372.69	260	-218.36	58.9	-12.30	8	245	-334.10
11	240	-372.69	240	-372.69	57.7	-16.95	10	256	-249.23
12	240	-372.69	260	-218.36	54.6	-29.48	10	227	-472.99
13	240	-372.69	260	-218.36	55	-26.93	10	211	-596.45
14	220	-527.01	260	-218.36	59.6	-10.70	10	210	-604.17

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

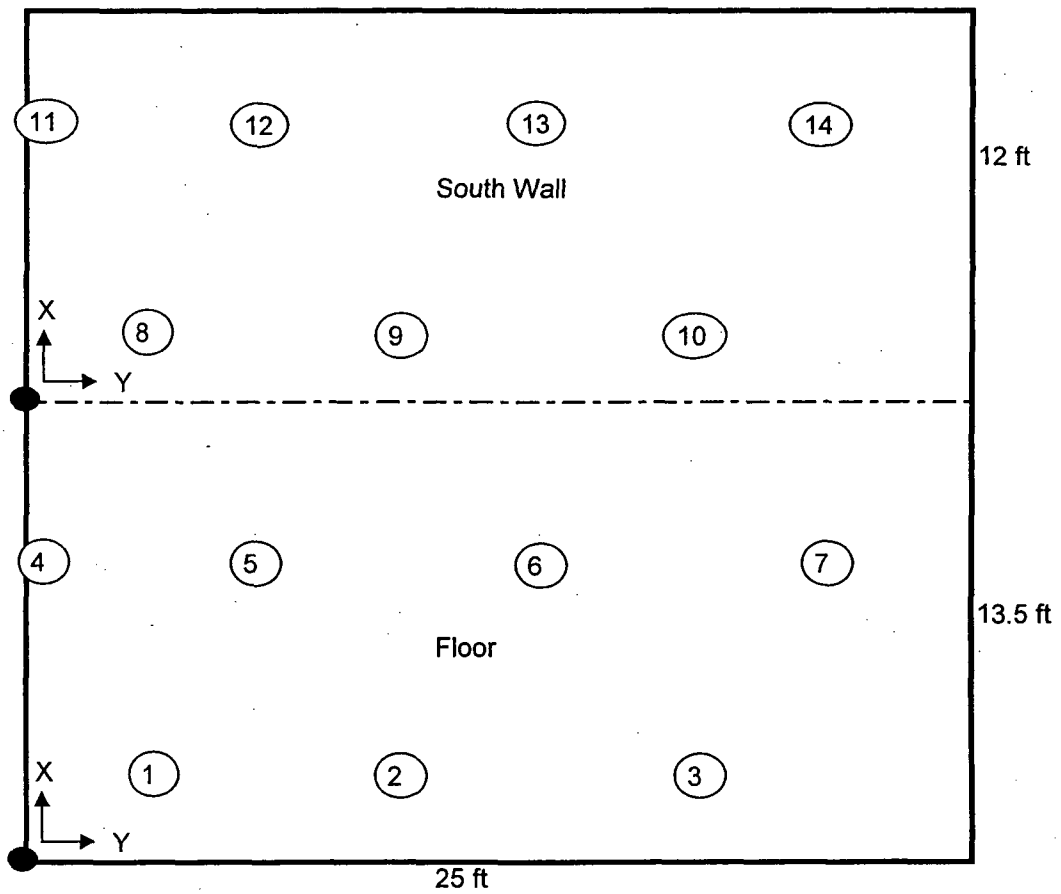
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	50.9	267418.4	725.83	26.14%
2	51.1	267418.4	737.52	28.29%
3	53.9	267418.4	734.42	27.71%
4	60.8	267418.4	737.46	28.28%
5	50.5	267418.4	735.16	27.85%
6	51.9	267418.4	738.39	28.46%
7	54.6	267418.4	739.14	28.60%
8	50.2	267418.4	730.15	26.92%
9	58.5	267418.4	724.54	25.91%
10	58.9	267418.4	738.33	28.45%
11	57.7	267418.4	734.48	27.72%
12	54.6	267418.4	727.62	26.46%
13	55	267418.4	733.18	27.48%
14	59.6	267418.4	725.96	26.16%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-013**

Room: BR08: Chemistry Laboratory - Floor and South Wall
Class 1
L=7.5, R=6.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-013**

Room: BR08: Chemistry Laboratory - Floor and South Wall
Class 1
L=7.5, R=6.5

Number	X	Y	Direct	uR/hr	Smear
Floor (Starting NE Corner)					
1	3	2.5			
2	10.5	2.5			
3	18	2.5			
4	0.5	9			
5	6.75	9			
6	14.25	9			
7	22	9			
South Wall (Starting BOTTOM E Corner)					
8	3	2			
9	10.5	2			
10	18	2			
11	0.5	8.5			
12	6.75	8.5			
13	14.25	8.5			
14	22	8.5			

ENERGYSOLUTIONS

Room #:	Room B08: Chemistry Laboratory - North and East Wall	Survey Unit:	B-1-014
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2883	Background Reading (counts)	124.8	Background Reading (counts)	2883		
BKG (cpm)	288.3	BKG (cpm)	62.4	BKG (cpm)	288.3		
MDC (dpm/100cm2)	1780	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		
Instrument	L2360	Instrument	Wallac 1400	Instrument	L2360		
S/N	193629	S/N	Unknown	S/N	193629		
R_B	288.3 cpm	R_B	62.4 cpm	R_B	288.3 cpm		
t_s	1 minutes	t_s	2 minutes	t_s	1 minutes		
t_b	10 minutes	t_b	2 minutes	t_b	10 minutes		
ε_s	0.5	ε_s	1	ε_s	0.5		
ε_i	26%	ε_i	See Below	ε_i	26%		
probe area	100 cm^2	probe area	NA cm^2	probe area	100 cm^2		
MDC	1780 dpm/100cm^2	MDC	See Below dpm/100cm^2	MDC	475 dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	96	10	<MDC	Cinderblock
2	<MDC	<MDC	<MDC	101	10	<MDC	Cinderblock
3	<MDC	<MDC	<MDC	91	10	<MDC	Cinderblock
4	<MDC	<MDC	<MDC	93	10	<MDC	Cinderblock
5	<MDC	<MDC	<MDC	97	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	112	10	<MDC	Cinderblock
7	<MDC	<MDC	<MDC	94	10	<MDC	Cinderblock
8	<MDC	<MDC	<MDC	95	10	<MDC	Cinderblock
9	<MDC	<MDC	<MDC	95	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	93	10	<MDC	Cinderblock
12	<MDC	<MDC	<MDC	94	10	<MDC	Cinderblock
13	<MDC	<MDC	<MDC	98	10	<MDC	Cinderblock
14	<MDC	<MDC	<MDC	96	10	<MDC	Cinderblock
15	<MDC	<MDC	<MDC	98	10	<MDC	Concrete

ENERGYSOLUTIONS

Final Statu[illegible]rvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm^2	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm^2	LSC Smear Results CPM	LSC Smear Results dpm/100cm^2	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm^2
1	240	-372.69	260	-218.36	67.6	18.22	10	243	-349.54
2	200	-681.33	240	-372.69	66.6	15.38	10	201	-673.61
3	260	-218.36	260	-218.36	54.4	-26.48	10	245	-334.10
4	200	-681.33	240	-372.69	65.5	11.09	10	223	-503.86
5	260	-218.36	280	-64.04	50.7	-41.23	10	241	-364.97
6	200	-681.33	240	-372.69	55.7	-27.34	10	248	-310.96
7	260	-218.36	260	-218.36	58.8	-12.30	10	320	244.60
8	200	-681.33	220	-527.01	63.8	4.83	10	228	-465.28
9	260	-218.36	280	-64.04	64.3	6.54	10	292	28.55
10	300	90.28	300	90.28	64.4	6.72	10	307	144.29
11	260	-218.36	240	-372.69	62.4	0.00	10	296	59.41
12	200	-681.33	240	-372.69	55.7	-23.01	10	227	-472.99
13	220	-527.01	240	-372.69	59.3	-11.02	10	257	-241.51
14	220	-527.01	240	-372.69	60.8	-5.61	10	225	-488.43
15	300	90.28	300	90.28	65.3	10.32	10	297	67.13

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

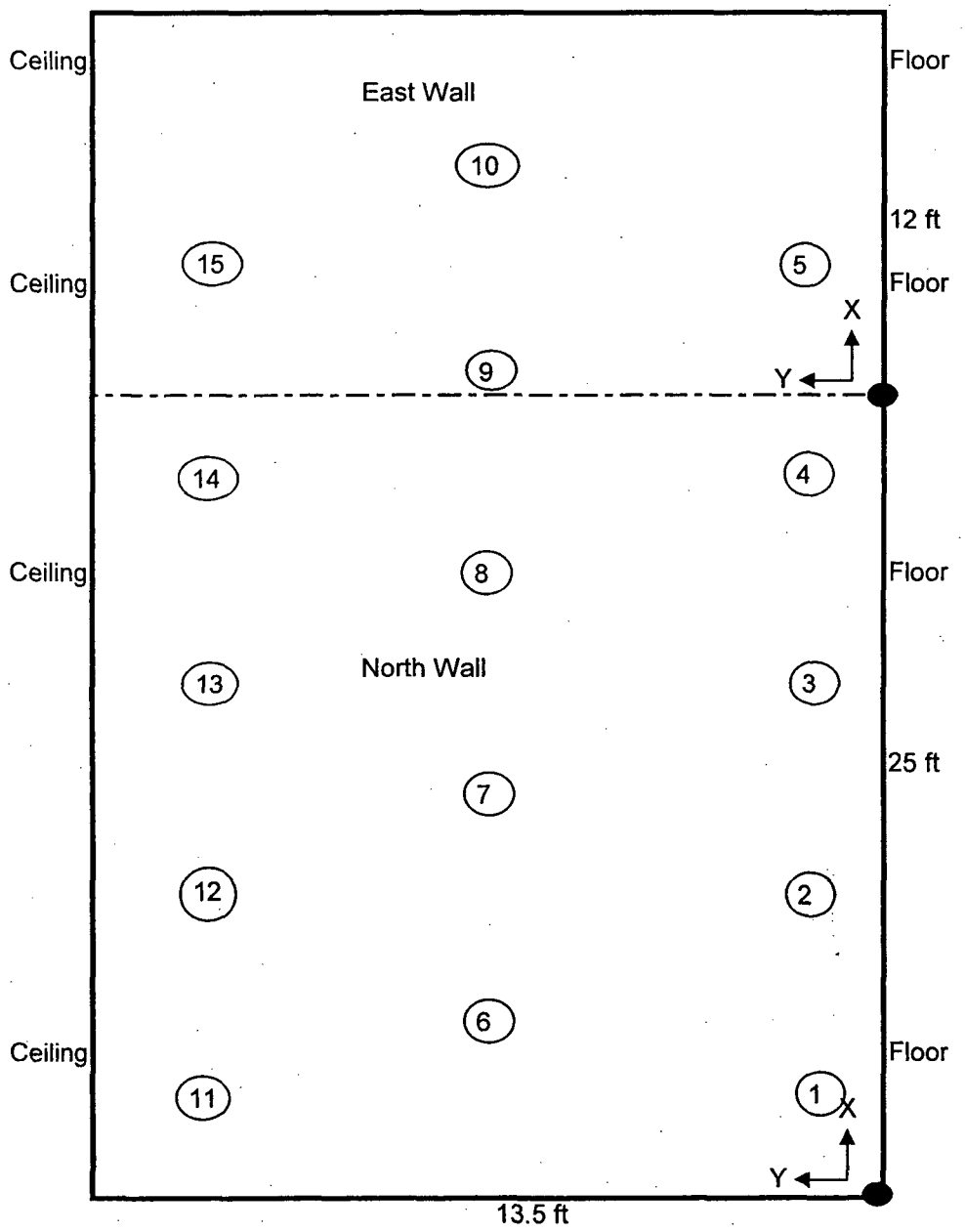
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	67.6	267418.4	738.82	28.54%
2	66.6	267418.4	732.25	27.31%
3	54.4	267418.4	747.37	30.21%
4	65.5	267418.4	735.66	27.94%
5	50.7	267418.4	737.95	28.38%
6	55.7	267418.4	716.48	24.51%
7	58.8	267418.4	742.62	29.27%
8	63.8	267418.4	741.06	28.97%
9	64.3	267418.4	741.44	29.04%
10	64.4	267418.4	745.18	29.77%
11	62.4	267418.4	744.25	29.59%
12	55.7	267418.4	741.81	29.12%
13	59.3	267418.4	736.71	28.14%
14	60.8	267418.4	738.76	28.53%
15	65.3	267418.4	736.53	28.11%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-014**

Room: B08: Chemistry Laboratory - North and East Walls
Class 1
L=5.25, R=4.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-1-014

Room: B08: Chemistry Laboratory - North and East Walls
Class 1
L=5.25, R=4.5

Number	X	Y	Direct	uR/hr	Smear?		Material
North Wall (Starting BOTTOM W Corner)							
1	3	1					
2	9.5	1					
3	16	1					
4	22.5	1					
6	6.25	6.5					
7	12.75	6.5					
8	19.25	6.5					
11	3	12.25					
12	9.5	12.25					
13	16	12.25					
14	22.5	12.25					
East Wall Starting BOTTOM N Corner)							
5	4	1					
9	0.75	6.5					
10	7.25	6.5					
15	4	12.25					

ENERGYSOLUTIONS

Final Sta[illegible]vey Results
Ward Center[illegible]rnell University

Room #:	B15: Waste Storage Tank Room - All surfaces	Survey Unit:	B-1-015
Surveyor:	LeRoy Cuneo (Print)	Sign	9/11/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	Sign	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #	L2360		Meter Model #	Wallac 1400		Meter Model #	L2360		Meter Model #	L 19
Meter Serial #	193629		Meter Serial #	Unknown		Meter Serial #	193629		Meter Serial #	148152
Probe Serial #	200130		Probe Serial #	NA		Probe Serial #	200130		Cal Due	3/5/2007
Cal Due	11/19/2006		Cal Due	NA		Cal Due	11/19/2006		Type	beta/gamma
Efficiency (%)	25.92%		Efficiency (%)	See Below		Efficiency (%)	25.92%		BKG (uR/hr)	13
Type	beta/gamma		Type	beta/gamma		Type	beta/gamma		Guideline (mR/hr)	NA
Sample Time (min)	1		Sample Time (min)	2		Sample Time (min)	1		Action Level (mR/hr)	NA
Background Time (min)	10		Background Time (min)	2		Background Time (min)	10			
Background Reading (counts)	2874		Background Reading (counts)	111.8		Background Reading (counts)	2874			
BKG (cpm)	287.4		BKG (cpm)	55.9		BKG (cpm)	287.4			
MDC (dpm/100cm2)	1777		MDC (dpm/100cm2)	See Below		MDC (dpm/100cm2)	475			
Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA			
Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA			
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	287.4	cpm	R_B	55.9	cpm	R_B	287.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1777	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91	10	737.66	Concrete
2	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	87	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	81	10	521.60	Concrete
5	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	89	20	506.17	Concrete
7	<MDC	<MDC	<MDC	113	10	560.19	Concrete
8	<MDC	<MDC	<MDC	122	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	114	20	<MDC	Concrete
10	<MDC	<MDC	<MDC	90	20	<MDC	Concrete
11	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	92	20	583.33	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	360	560.19	420	1023.15	63	24.68	10	383	737.65
2	380	714.51	420	1023.15	60.3	14.88	10	324	282.41
3	380	714.51	420	1023.15	59.8	12.98	10	316	220.68
4	360	560.19	420	1023.15	57.8	5.91	10	355	521.60
5	380	714.51	440	1177.47	62.5	22.94	20	342	421.30
6	380	714.51	420	1023.15	60.1	14.35	20	353	506.17
7	380	714.51	420	1023.15	58.8	12.53	10	360	560.19
8	380	714.51	420	1023.15	53.2	12.65	20	339	398.15
9	380	714.51	440	1177.47	53	12.70	20	332	344.14
10	380	714.51	420	1023.15	52.4	12.05	20	320	251.54
11	360	714.51	420	1023.15	67.6	40.12	10	268	-149.69
12	300	97.22	400	868.83	54.6	4.41	10	309	166.67
13	300	97.22	420	1023.15	59.3	12.00	20	363	583.33

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

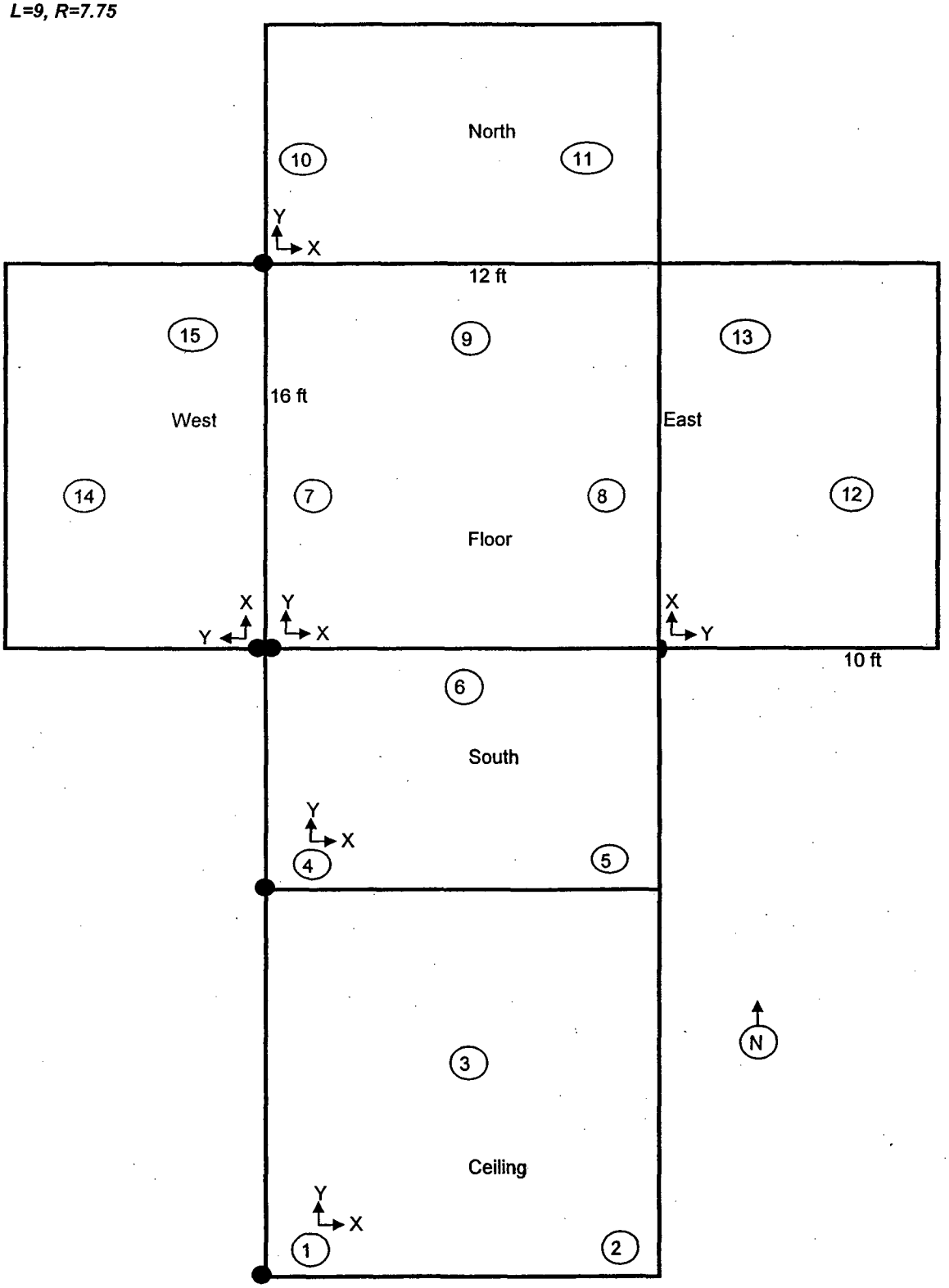
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	63	267418.4	740.01	28.77%
2	60.3	267418.4	744.18	29.58%
3	59.8	267418.4	746.62	30.06%
4	57.8	267418.4	757.04	32.17%
5	62.5	267418.4	740.01	28.77%
6	60.1	267418.4	742.62	29.27%
7	58.8	267418.4	708.31	23.15%
8	53.2	267418.4	696.93	21.35%
9	53	267418.4	705.41	22.84%
10	52.4	267418.4	741.5	29.06%
11	67.6	267418.4	742.06	29.16%
12	54.6	267418.4	743.75	29.49%
13	59.3	267418.4	737.77	28.34%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-1-015

Room: B15: Waste Storage Tank Room
Class 1
L=9, R=7.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-015**

Room: B15: Waste Storage Tank Room
Class 1
L=9, R=7.75

Number	X	Y	Direct	uR/hr	Smear?		Material
Ceiling (Starting NW Corner)							
1	2.25	1					
2	11.25	1					
3	6.75	8.75					
South (Starting TOP W Corner)							
4	2.25	0.5					
5	11.25	0.5					
6	6.75	8.25					
Floor (Starting SW Corner)							
7	2.25	6.25					
8	11.25	6.25					
9	6.75	14					
North (Starting BOTTOM W Corner)							
10	2.25	5.75					
11	11.25	5.75					
East (Starting BOTTOM S Corner)							
12	6.25	8.25					
13	14	1.75					
West (Starting BOTTOM S Corner)							
14	6.25	6.75					
15	14	2.25					

ENERGYSOLUTIONS

Final Stat[illegible]ey Results
Ward Center, [illegible]nell University

Room #:	BR03: Reactor Equipment Room - Ceiling	Survey Unit:	B-3-016
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/2/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/16/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2794	Background Reading (counts)	105	Background Reading (counts)	2794		
BKG (cpm)	279.4	BKG (cpm)	52.5	BKG (cpm)	279.4		
MDC (dpm/100cm2)	1752	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	468		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	279.4	cpm	R_B	52.5	cpm	R_B	279.4	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1752	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	468	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	84	12	606.48	Concrete
2	<MDC	<MDC	<MDC	85	12	537.04	Concrete
3	<MDC	<MDC	<MDC	82	12	699.07	Concrete
4	<MDC	<MDC	<MDC	83	12	922.84	Concrete
5	<MDC	<MDC	<MDC	82	12	575.82	Concrete
6	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
7	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
10	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	83	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	83	12	591.06	Concrete
13	<MDC	<MDC	<MDC	84	12	513.89	Concrete
14	<MDC	<MDC	<MDC	82	12	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results μR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	320	313.27	360	621.91	45	-24.92	12	358	606.48
2	320	313.27	360	621.91	58.2	19.15	12	349	537.04
3	340	467.59	380	776.23	50.2	-7.45	12	370	699.07
4	340	467.59	380	776.23	48.1	-14.39	12	399	922.84
5	340	467.59	380	776.23	53.7	3.87	12	354	575.62
6	340	467.59	380	776.23	55.1	8.70	12	328	375.00
7	300	158.95	340	467.59	47.3	-17.54	12	336	436.73
8	300	158.95	340	467.59	46	-22.32	12	313	259.26
9	300	158.95	340	467.59	44	-28.30	12	299	151.23
10	300	158.95	340	467.59	52.7	0.66	12	336	436.73
11	300	158.95	340	467.59	57.1	15.06	12	299	151.23
12	340	467.59	380	776.23	51	-4.93	12	356	591.05
13	340	467.59	380	776.23	49.1	-11.23	12	346	513.89
14	340	467.59	380	776.23	42.2	-33.28	12	319	305.56

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2380 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2380 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2380 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

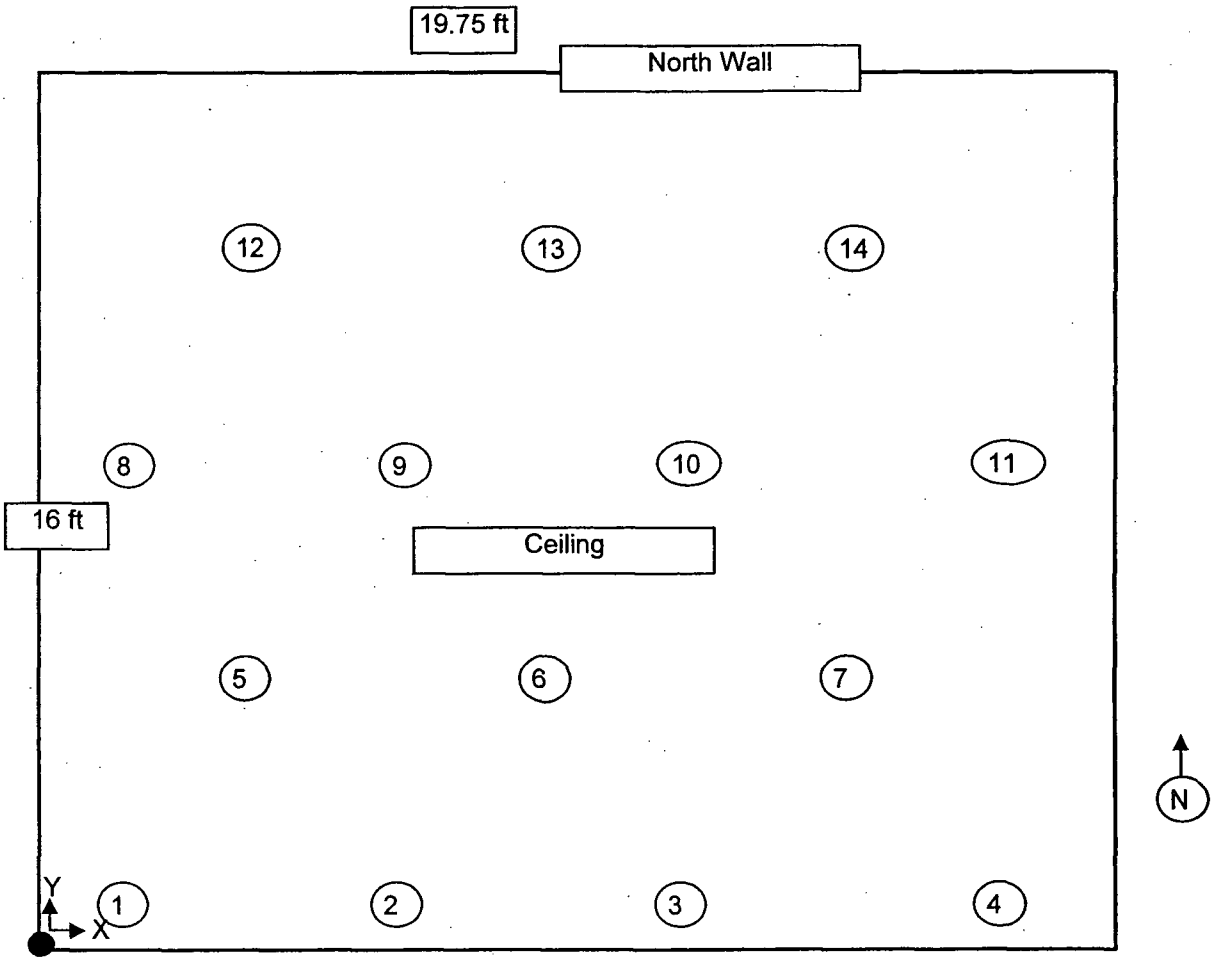
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	45	267418.4	746.81	30.10%
2	58.2	267418.4	745.12	29.76%
3	50.2	267418.4	750.71	30.88%
4	48.1	267418.4	749.19	30.57%
5	53.7	267418.4	751.46	31.03%
6	55.1	267418.4	745.81	29.90%
7	47.3	267418.4	744.56	29.65%
8	46	267418.4	741.87	29.13%
9	44	267418.4	746.5	30.03%
10	52.7	267418.4	747.12	30.16%
11	57.1	267418.4	749.07	30.55%
12	51	267418.4	748.57	30.45%
13	49.1	267418.4	747.69	30.27%
14	42.2	267418.4	751.08	30.95%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-016**

Room: BR03 Reactor Equipment Room - Ceiling
Class 3
L=5.25, R=4.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-016**

Room: BR03 Reactor Equipment Room - Ceiling
Class 3
L=5.25, R=4.5

19.75 ft

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
1	2	0.5					
2	7.25	0.5					
3	12.5	0.5					
4	17.75	0.5					
5	4.5	5					
6	9.75	5					
7	15	5					
8	2	9					
9	7.25	9					
10	12.5	9					
11	17.75	9					
12	4.5	14					
13	9.75	14					
14	15	14					

ENERGYSOLUTIONS

Room #:	BR03: Reactor Equipment Room - Floor and Lower Walls	Survey Unit:	B-1-017
Surveyor:	LeRoy Cuneo (Print)	Sign	10/2/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	Sign	10/16/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2794	Background Reading (counts)		105	Background Reading (counts)		2794		
BKG (cpm)		279.4	BKG (cpm)		52.5	BKG (cpm)		279.4		
MDC (dpm/100cm2)		1762	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		468		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	279.4	cpm	R_B	52.5	cpm	R_B	279.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1762	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	468	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	92	12	1046.30	Cinder Block
2	<MDC	<MDC	<MDC	87	12	1362.65	Cinder Block
3	<MDC	<MDC	<MDC	101	12	<MDC	Cinder Block
4	<MDC	<MDC	<MDC	87	12	853.40	Cinder Block
5	<MDC	<MDC	<MDC	95	12	861.11	Concrete
6	<MDC	<MDC	<MDC	92	12	552.47	Concrete
7	<MDC	<MDC	<MDC	97	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	98	12	<MDC	Concrete
10	<MDC	<MDC	<MDC	88	12	567.90	Concrete
11	<MDC	<MDC	<MDC	86	12	537.04	Concrete
12	<MDC	<MDC	<MDC	87	12	822.53	Concrete
13	<MDC	<MDC	<MDC	88	12	<MDC	Concrete
14	<MDC	<MDC	<MDC	88	12	544.75	Concrete
15	<MDC	<MDC	<MDC	89	0	<MDC	Cinder Block

ENERGYSOLUTIONS

Final Statu[illegible]vey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	380	776.23	440	1239.20	52.7	0.73	12	415	1046.30
2	380	776.23	440	1239.20	51.1	-4.80	12	456	1362.65
3	240	-304.01	280	4.63	40.2	-48.96	12	243	-280.86
4	380	776.23	440	1239.20	50.6	-6.49	12	390	853.40
5	380	776.23	440	1239.20	53	1.87	12	391	861.11
6	340	467.59	380	776.23	51.1	-5.10	12	351	552.47
7	300	158.95	360	621.91	47	-21.00	12	329	382.72
8	300	158.95	360	621.91	44.2	-30.16	12	306	205.25
9	300	158.95	360	621.91	45.2	-28.14	12	305	197.53
10	300	158.95	360	621.91	41.5	-38.36	12	353	567.90
11	380	776.23	440	1239.20	35.3	-58.64	12	349	537.04
12	380	776.23	440	1239.20	46.5	-20.66	12	386	822.53
13	300	158.95	320	313.27	59.1	22.84	12	279	-3.09
14	360	621.91	400	930.56	46.8	-19.74	12	350	544.75
15	190	-689.81	220	-458.33	39.4	-46.14	12	250	-226.85

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

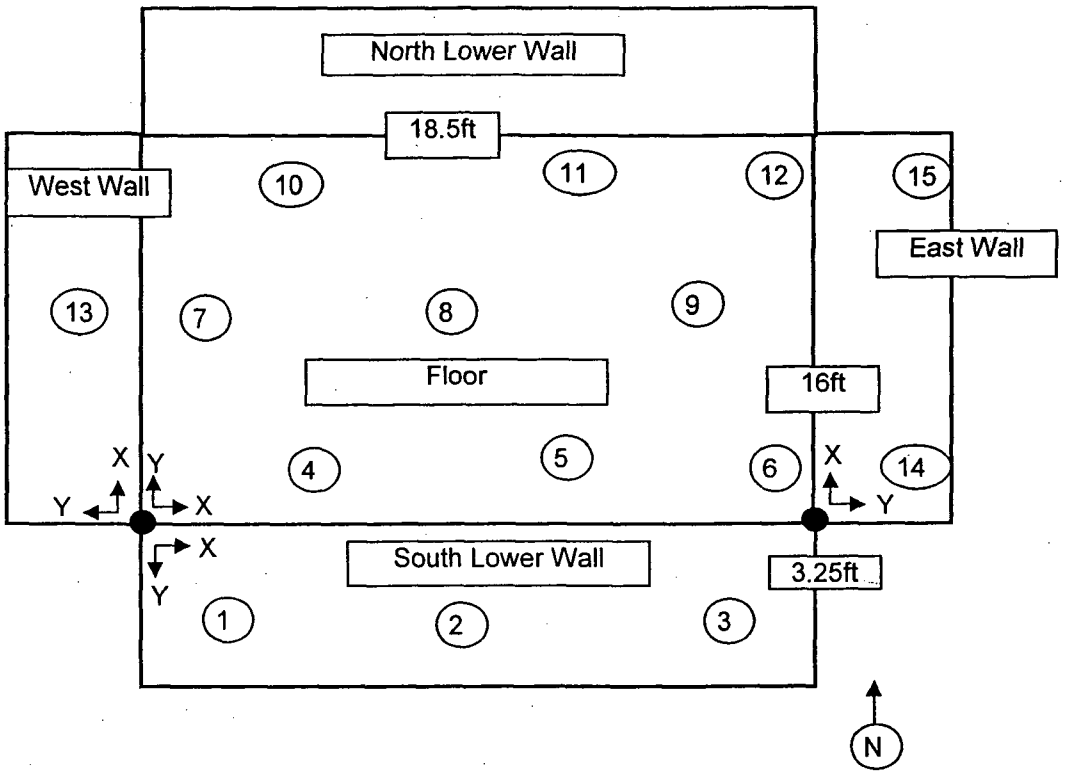
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	52.7	267418.4	733.46	27.53%
2	51.1	267418.4	742.19	29.19%
3	40.2	267418.4	720.05	25.12%
4	50.6	267418.4	742.68	29.28%
5	53	267418.4	729.53	26.81%
6	51.1	267418.4	733.06	27.46%
7	47	267418.4	726.08	26.19%
8	44.2	267418.4	733.37	27.52%
9	45.2	267418.4	724.72	25.94%
10	41.5	267418.4	739.51	28.67%
11	35.3	267418.4	742.93	29.33%
12	46.5	267418.4	741.44	29.04%
13	59.1	267418.4	740.69	28.90%
14	46.8	267418.4	740.57	28.88%
15	39.4	267418.4	738.02	28.39%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-017**

Room: BR03: Reactor Equipment Room - Floor and Lower Walls
Class 1
L=6.75, R=5.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-1-017

Room: BR03: Reactor Equipment Room - Floor and Lower Walls
Class 1
L=6.75, R=5.75

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
South Lower Wall (Starting BOTTOM W Corner)							
1	3.75	3					
2	10.5	3					
3	17.5	3					
Floor (Starting in the SW Corner)							
4	0.5	2.75					
5	7.25	2.75					
6	14	2.75					
7	3.75	8.5					
8	10.5	8.5					
9	17.5	8.5					
10	0.5	14.25					
11	7.25	14.25					
12	14	14.25					
West Lower Wall (Starting in the BOTTOM S Corner)							
13	8.5	2.75					
East (Starting in BOTTOM S Corner)							
14	2.75	2.25					
15	14.25	2.25					

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, [illegible]nell University

Room #:	BR03: Reactor Equipment Room - Upper Walls	Survey Unit:	B-2-018
Surveyor:	LeRoy Cuneo (Print)		(Sign) — 10/2/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)		(Sign) — 10/16/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2794	Background Reading (counts)		105	Background Reading (counts)		2794		
BKG (cpm)		279.4	BKG (cpm)		52.5	BKG (cpm)		279.4		
MDC (dpm/100cm2)		1752	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		468		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	279.4	cpm	R_B	52.5	cpm	R_B	279.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1752	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	468	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	13	<MDC	Concrete
2	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	91	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	93	12	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
6	<MDC	<MDC	<MDC	87	12	<MDC	Cinder Block
7	<MDC	<MDC	<MDC	89	12	<MDC	Cinder Block
8	<MDC	<MDC	<MDC	83	10	<MDC	Cinder Block
9	<MDC	<MDC	<MDC	85	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	82	10	<MDC	Cinder Block
11	<MDC	<MDC	<MDC	81	10	<MDC	Cinder Block
12	<MDC	<MDC	<MDC	86	10	<MDC	Cinder Block
13	<MDC	<MDC	<MDC	86	10	<MDC	Cinder Block
14	<MDC	<MDC	<MDC	86	10	<MDC	Cinder Block
15	<MDC	<MDC	<MDC	84	0	<MDC	Cinder Block

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, [illegible]nell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm².
1	300	158.95	320	313.27	40.7	-43.41	13	317	290.12
2	300	158.95	320	313.27	56.3	13.78	12	314	266.98
3	300	158.95	340	467.59	54.6	7.54	12	273	-49.38
4	300	158.95	340	467.59	52.2	-1.10	12	316	282.41
5	300	158.95	340	467.59	58.8	22.05	12	310	236.11
6	340	467.59	380	776.23	47	-18.97	12	337	444.44
7	300	158.95	330	390.43	48.9	-12.68	12	226	-412.04
8	300	158.95	330	390.43	45	-24.52	10	261	-141.98
9	300	158.95	340	467.59	50.1	-8.04	10	335	429.01
10	260	-149.69	300	158.95	48.1	-14.19	10	269	-80.25
11	260	-149.69	300	158.95	52.1	-1.28	10	249	-234.57
12	200	-612.65	220	-458.33	46	-21.97	10	196	-643.52
13	240	-304.01	280	4.63	49.6	-9.80	10	237	-327.16
14	180	-766.98	220	-458.33	50.6	-6.42	10	198	-628.09
15	240	-304.01	300	158.95	54.6	6.93	10	235	-342.59

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

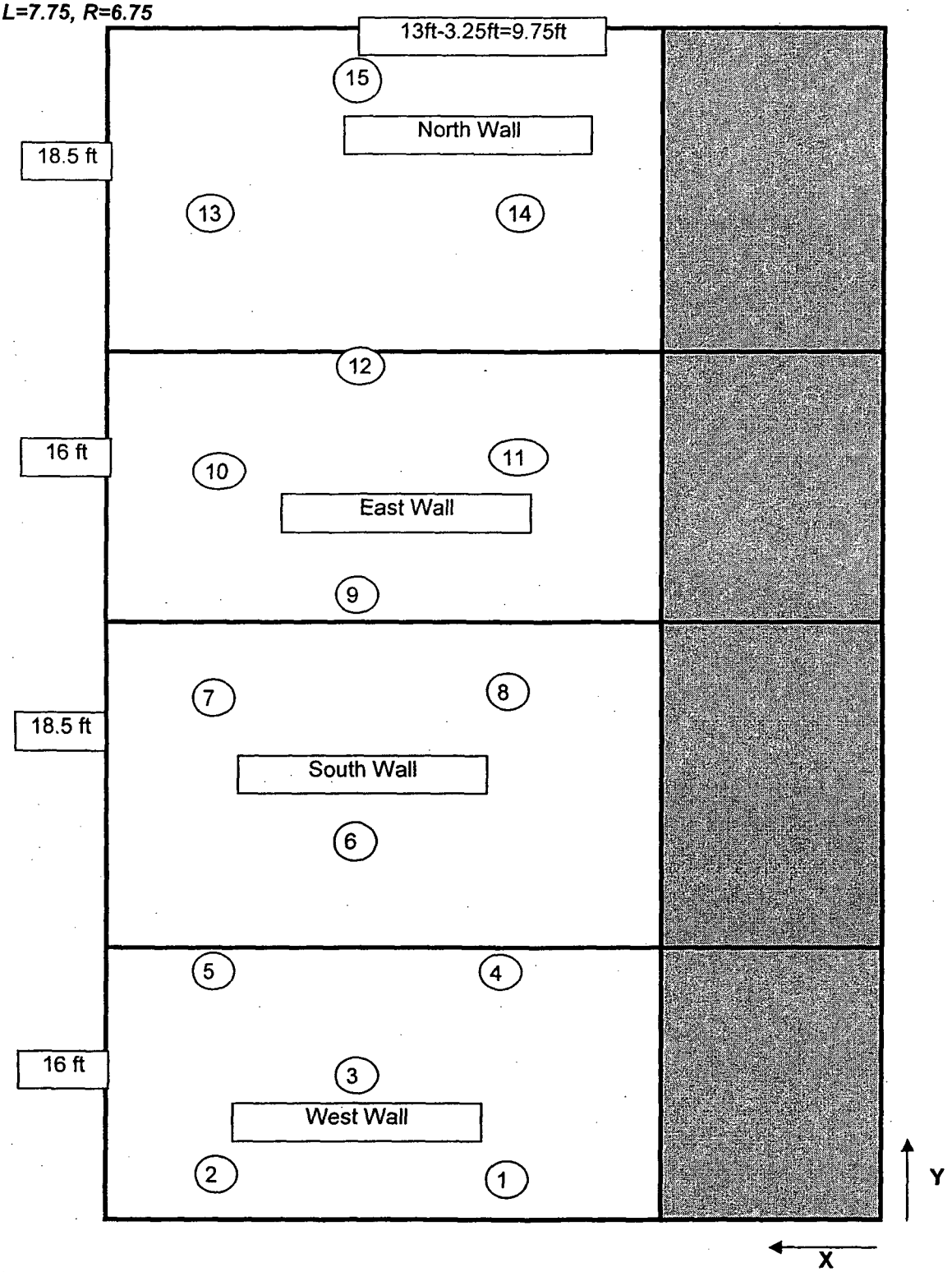
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	40.7	267418.4	731.57	27.18%
2	56.3	267418.4	733.68	27.57%
3	54.6	267418.4	735.22	27.86%
4	52.2	267418.4	732.69	27.39%
5	58.8	267418.4	739.01	28.58%
6	47	267418.4	741.19	29.00%
7	48.9	267418.4	738.08	28.40%
8	45	267418.4	749.26	30.58%
9	50.1	267418.4	745.53	29.84%
10	48.1	267418.4	751.34	31.00%
11	52.1	267418.4	752.66	31.27%
12	46	267418.4	744.25	29.59%
13	49.6	267418.4	744.18	29.58%
14	50.6	267418.4	744.37	29.61%
15	54.6	267418.4	747.88	30.31%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-2-018**

Room: BR03: Reactor Equipment Room - Upper Walls
Class 2
L=7.75, R=6.75



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-2-018

Room: BR03: Reactor Equipment Room - Upper Walls
Class 2
L=7.75, R=6.75

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
West (Start BOTTOM in SE Corner)							
1	4	1.75					
2	12	1.75					
3	8	8.75					
4	4	15.5					
5	12	15.5					
South (Starting BOTTOM SW Corner)							
6	8	4					
7	4	11					
8	12	11					
East (Start BOTTOM SE Corner)							
9	8	2					
10	4	8.75					
11	12	8.75					
12	8	15.75					
North(Start in BOTTOM W Corner)							
13	4	6.75					
14	12	6.75					
15	8	13.5					

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, Cornell University

Room #:	B08A: Chem Lab Storage - Ceiling and West Wall	Survey Unit:	B-1-023
Surveyor:	LeRoy Cuneo (Print)	Sign	9/26/2006 (Date)
Reviewer:	Chris Higgins (Print)	Sign	9/26/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3261	Background Reading (counts)		108.4	Background Reading (counts)		3261		
BKG (cpm)		326.1	BKG (cpm)		54.2	BKG (cpm)		326.1		
MDC (dpm/100cm2)		1893	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		504		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	103	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	103	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	93	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	95	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	94	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	93	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	85	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	96	10	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	160	-1281.64	260	-510.03	45.9	-33.21	10	249	-594.91
2	160	-1281.64	240	-664.35	47.2	-28.12	10	241	-656.64
3	160	-1281.64	240	-664.35	49.9	-15.79	10	211	-888.12
4	160	-1281.64	240	-664.35	48.5	-20.54	10	241	-656.64
5	160	-1281.64	200	-972.99	55.7	5.57	10	215	-857.25
6	140	-1435.96	240	-664.35	53.5	-2.55	10	240	-664.35
7	160	-1281.64	240	-664.35	60.3	21.91	10	312	-108.80
8	160	-1281.64	240	-664.35	44.2	-36.27	10	330	30.09
9	140	-1435.96	260	-510.03	46	-29.28	10	328	14.66
10	160	-1281.64	300	-201.39	51.6	-8.97	10	358	246.14
11	160	-1281.64	260	-510.03	55.6	4.61	10	352	199.85
12	160	-1281.64	260	-510.03	54.8	2.15	10	335	68.67
13	160	-1281.64	260	-510.03	53.5	-2.61	10	327	6.94

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

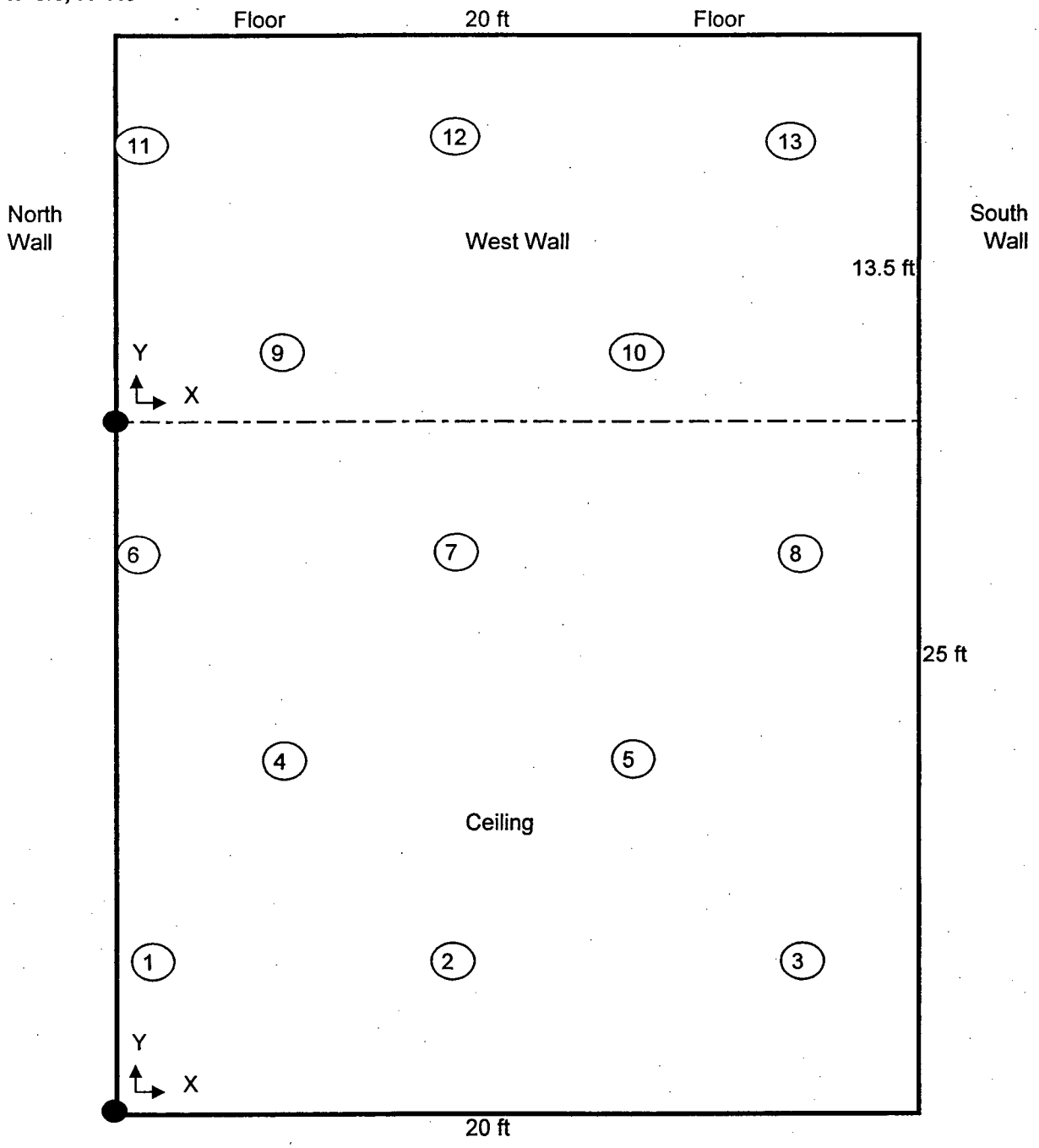
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	45.9	267418.4	719.31	24.99%
2	47.2	267418.4	718.7	24.89%
3	49.9	267418.4	731.88	27.24%
4	48.5	267418.4	734.61	27.75%
5	55.7	267418.4	730.28	26.95%
6	53.5	267418.4	732.93	27.43%
7	60.3	267418.4	735.1	27.84%
8	44.2	267418.4	733.68	27.57%
9	46	267418.4	735.97	28.00%
10	51.6	267418.4	741.13	28.98%
11	55.6	267418.4	748.12	30.36%
12	54.8	267418.4	735.41	27.90%
13	53.5	267418.4	729.41	26.79%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-023**

Room B08A: Chem Lab Storage - Ceiling and West Wall
Class 1
L=8.5, R=7.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-023**

Room B08A: Chem Lab Storage - Ceiling and West Wall
Class 1
L=8.5, R=7.5

Number	X	Y	Direct	uR/hr	Smear?	Material
Ceiling (Starting NW Corner)						
1	1	5.5				
2	9.5	5.5				
3	18	5.5				
4	5.25	12.75				
5	13.75	12.75				
6	1	20.25				
7	9.5	20.25				
8	18	20.25				
South Wall (Starting TOP N Corner)						
9	5.25	2.5				
10	13.75	2.5				
11	1	10				
12	9.5	10				
13	18	10				

ENERGYSOLUTIONS

Room #:	B08A: Chem Lab Stroage - North and East Walls	Survey Unit:	B-1-024
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/25/2006 (Date)
Reviewer:	Chris Higgins (Print)	(Sign)	9/25/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		26.92%	Efficiency (%)		See Below	Efficiency (%)		26.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3261	Background Reading (counts)		108.4	Background Reading (counts)		3261		
BKG (cpm)		326.1	BKG (cpm)		54.2	BKG (cpm)		326.1		
MDC (dpm/100cm2)		1893	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		504		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	12	<MDC	Dry Wall
2	<MDC	<MDC	<MDC	96	12	<MDC	Dry Wall
3	<MDC	<MDC	<MDC	94	12	<MDC	Dry Wall
4	<MDC	<MDC	<MDC	92	12	<MDC	Dry Wall
5	<MDC	<MDC	<MDC	83	12	<MDC	Concrete
6	<MDC	<MDC	<MDC	86	12	<MDC	Concrete
7	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	87	12	<MDC	Dry Wall
9	<MDC	<MDC	<MDC	87	12	<MDC	Dry Wall
10	<MDC	<MDC	<MDC	87	12	<MDC	Dry Wall
11	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	91	12	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	150	-1358.80	200	-972.99	56.7	9.07	12	259	-517.75
2	160	-1281.64	200	-972.99	57.7	12.87	12	219	-826.39
3	160	-1281.64	220	-818.67	45	-33.58	12	252	-571.76
4	140	-1435.96	240	-664.35	47.8	-22.90	12	242	-648.92
5	160	-1281.64	240	-664.35	56.3	6.75	12	292	-263.12
6	160	-1281.64	240	-664.35	56.1	6.28	12	304	-170.52
7	160	-1281.64	220	-818.67	54.4	0.68	12	301	-193.67
8	140	-1435.96	200	-972.99	47.5	-22.62	12	264	-479.17
9	160	-1281.64	220	-818.67	54	-0.68	12	241	-656.64
10	160	-1281.64	220	-818.67	44.2	-33.95	12	212	-880.40
11	160	-1281.64	260	-510.03	49.6	-16.18	12	292	-263.12
12	160	-1281.64	240	-664.35	64.5	36.71	12	310	-124.23
13	160	-1281.64	240	-664.35	53.6	-2.11	12	317	-70.22

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

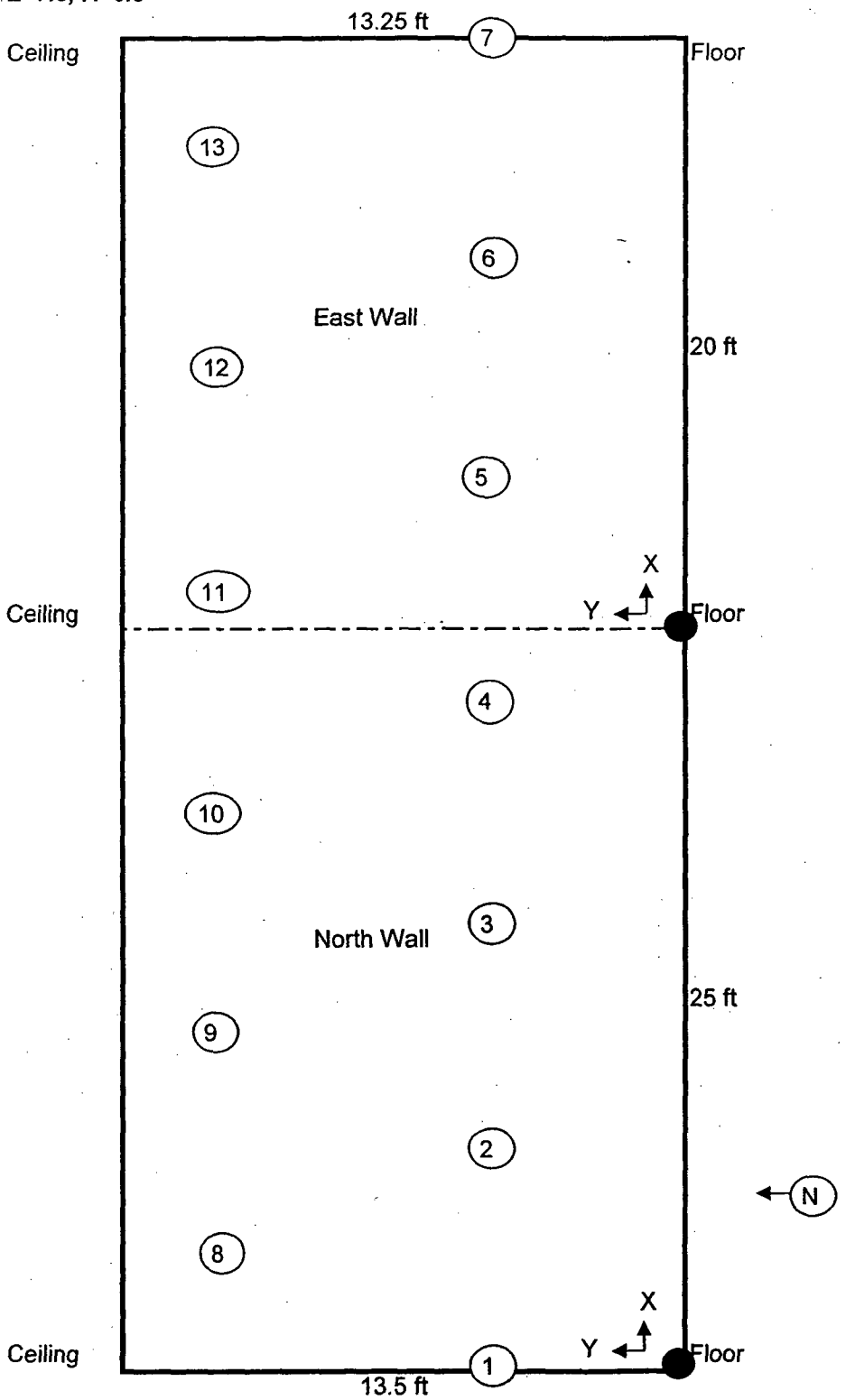
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.7	267418.4	733.61	27.56%
2	57.7	267418.4	731.63	27.19%
3	45	267418.4	732.75	27.40%
4	47.8	267418.4	735.66	27.94%
5	56.3	267418.4	751.9	31.12%
6	56.1	267418.4	747.69	30.27%
7	54.4	267418.4	743.81	29.50%
8	47.5	267418.4	744.43	29.63%
9	54	267418.4	744.12	29.57%
10	44.2	267418.4	743.56	29.46%
11	49.6	267418.4	738.27	28.44%
12	64.5	267418.4	736.28	28.06%
13	53.6	267418.4	738.14	28.41%

ENERGYSOLUTIONS

Final Status Surey Map
Ward Center, Cornell University

Survey Unit: **B-1-024**

Room B08A: Chem Lab Storage - North and East Wall
Class 1
L=7.5, R=6.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-024**

Room B08A: Chem Lab Storage - North and East Wall
Class 1
L=7.5, R=6.5

Number	X	Y	Direct	uR/hr	Smear?	Material
North (Starting BOTTOM W Corner)						
1	0	4.5				
2	7.5	4.5				
3	15	4.5				
4	22.5	4.5				
East (Starting BOTTOM N Corner)						
5	5	4.5				
6	12.5	4.5				
7	20	4.5				
North (Starting BOTTOM W Corner)						
8	3.75	11				
9	11.25	11				
10	18.75	11				
East (Starting BOTTOM N Corner)						
11	1.25	11				
12	8.75	11				
13	16.25	11				

ENERGYSOLUTIONS

Room #:	B08A: Chem Lab Storage - Floor and South Wall	Survey Unit:	B-1-025
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/25/2006 (Date)
Reviewer:	Chris Higgins (Print)	(Sign)	9/25/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3261	Background Reading (counts)		108.4	Background Reading (counts)		3261		
BKG (cpm)		326.1	BKG (cpm)		54.2	BKG (cpm)		326.1		
MDC (dpm/100cm2)		1893	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		504		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	94	12	<MDC	Tile
2	<MDC	<MDC	<MDC	105	12	<MDC	Tile
3	<MDC	<MDC	<MDC	88	12	<MDC	Tile
4	<MDC	<MDC	<MDC	92	12	<MDC	Tile
5	<MDC	<MDC	<MDC	80	12	<MDC	Tile
6	<MDC	<MDC	<MDC	87	12	<MDC	Tile
7	<MDC	<MDC	<MDC	88	12	<MDC	Tile
8	<MDC	<MDC	<MDC	102	12	<MDC	Tile
9	<MDC	<MDC	<MDC	86	12	<MDC	Tile
10	<MDC	<MDC	<MDC	91	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
14	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
15	<MDC	<MDC	<MDC	91	12	<MDC	Concrete

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	150	-1358.80	200	-972.99	49.9	-15.79	12	274	-402.01
2	150	-1358.80	220	-818.67	56.9	10.97	12	262	-494.60
3	150	-1358.80	200	-972.99	49.4	-16.40	12	245	-625.77
4	120	-1590.28	220	-818.67	53.5	-2.50	12	275	-394.29
5	120	-1590.28	220	-818.67	49.7	-14.07	12	262	-494.60
6	150	-1358.80	250	-587.19	52.6	-5.40	12	281	-347.99
7	150	-1358.80	220	-818.67	59.6	18.55	12	280	-355.71
8	150	-1358.80	200	-972.99	40.5	-54.44	12	283	-332.56
9	150	-1358.80	300	-201.39	48.3	-19.76	12	274	-402.01
10	160	-1281.64	240	-664.35	65.4	39.45	12	335	68.67
11	160	-1281.64	240	-664.35	42.6	-38.18	12	322	-31.64
12	160	-1281.64	240	-664.35	58.7	15.22	12	314	-93.36
13	160	-1281.64	240	-664.35	54.1	-0.33	12	305	-162.81
14	160	-1281.64	220	-818.67	45.9	-27.17	12	285	-317.13
15	160	-1281.64	220	-818.67	68.9	51.93	12	312	-108.80

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

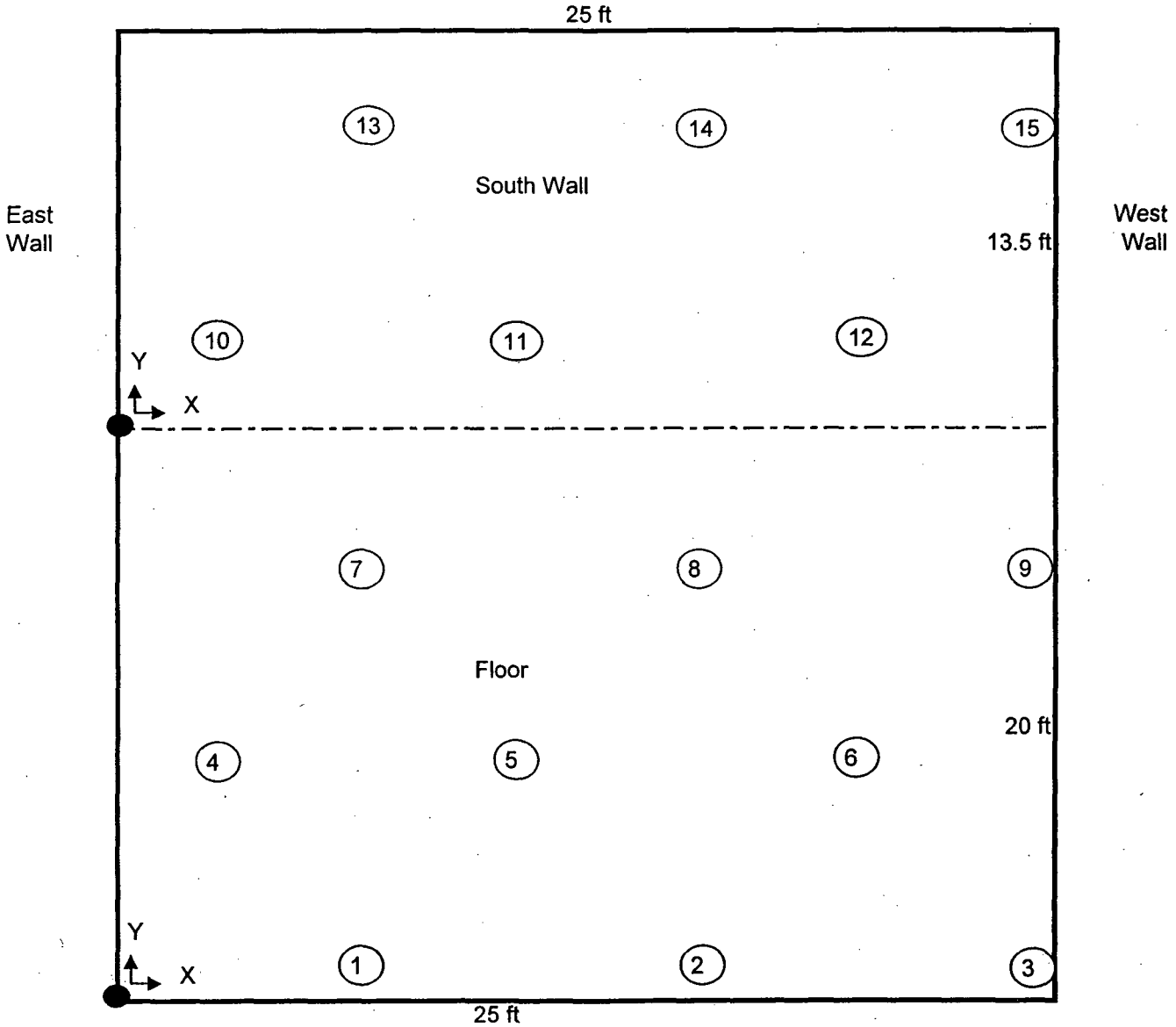
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2008	SQPE	Efficiency
1	49.9	267418.4	731.88	27.24%
2	56.9	267418.4	717.04	24.60%
3	49.4	267418.4	742.56	29.26%
4	53.5	267418.4	736.03	28.01%
5	49.7	267418.4	756.15	31.99%
6	52.6	267418.4	744.37	29.61%
7	59.6	267418.4	741.75	29.10%
8	40.5	267418.4	720.29	25.16%
9	48.3	267418.4	745.62	29.86%
10	65.4	267418.4	738.02	28.39%
11	42.6	267418.4	748.25	30.38%
12	58.7	267418.4	744.12	29.57%
13	54.1	267418.4	748	30.33%
14	45.9	267418.4	749.07	30.55%
15	68.9	267418.4	737.58	28.31%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-1-025**

Room B08A: Chem Lab Storage - Floor and South Wall
Class 1
L=,8.5 R=7.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-025**

Room B08A: Chem Lab Storage - Floor and South Wall
Class 1
L=,8.5 R=7.5

Number	X	Y	Direct	uR/hr	Smear?	Material
Floor (Starting NE Corner)						
1	6.75	1				
2	15.25	1				
3	23.75	1				
4	2.5	8.25				
5	11	8.25				
6	19.5	8.25				
7	6.75	15.5				
8	15.25	15.5				
9	23.75	15.5				
South Wall (Starting BOTTOM E Corner)						
10	2.5	3				
11	11	3				
12	19.5	3				
13	6.75	10.5				
14	15.25	10.5				
15	23.75	10.5				

ENERGYSOLUTIONS

Final Statu[illegible]vey Results
Ward Center, Cornell University

Room #:	B08A: Chem Lab Storage - Under floor tiles	Survey Unit:	B-1-026
Surveyor:	LeRoy Cuneo (Print)	Sign	9/28/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	Sign	11/15/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2701	Background Reading (counts)		105	Background Reading (counts)		2701		
BKG (cpm)		270.1	BKG (cpm)		52.5	BKG (cpm)		270.1		
MDC (dpm/100cm2)		1723	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		461		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	270.1	cpm	R_B	52.5	cpm	R_B	270.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1723	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	461	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	86	12	963.73	Concrete
2	<MDC	<MDC	<MDC	85	12	863.43	Concrete
3	<MDC	<MDC	<MDC	87	12	1033.18	Concrete
4	<MDC	<MDC	<MDC	86	12	685.96	Concrete
5	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
6							
7							
8							
9							
10							
11							
12							
13							

ENERGYSOLUTIONS

Final Sta[illegible]vey Results
Ward Center, [illegible]rnell University

Room #:	B08A: Chem Lab Storage - Under floor tiles	Survey Unit:	B-1-026
Surveyor:	LeRoy Cunap (Print)	(Sign)	9/28/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	11/16/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2701	Background Reading (counts)	105	Background Reading (counts)	2701		
BKG (cpm)	270.1	BKG (cpm)	52.5	BKG (cpm)	270.1		
MDC (dpm/100cm2)	1723	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	461		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	270.1	cpm	R_B	52.5	cpm	R_B	270.1	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1723	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	461	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	86	12	963.73	Concrete
2	<MDC	<MDC	<MDC	85	12	863.43	Concrete
3	<MDC	<MDC	<MDC	87	12	1033.18	Concrete
4	<MDC	<MDC	<MDC	86	12	686.96	Concrete
5	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
6							
7							
8							
9							
10							
11							
12							
13							

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Room #:	Reactor Bay Floor - Unit 1	Survey Unit:	B-1-028
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/9/2006 (Date)
Reviewer:	Kevin Taylor (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	11
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2802	Background Reading (counts)	112.8	Background Reading (counts)	2802		
BKG (cpm)	280.2	BKG (cpm)	56.4	BKG (cpm)	280.2		
MDC (dpm/100cm2)	1754	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	469		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	280.2	cpm	R_B	56.4	cpm	R_B	280.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1754	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	469	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	98	12	<MDC	Concrete
2	<MDC	<MDC	<MDC	97	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	95	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	95	12	893.52	Concrete
5	<MDC	<MDC	<MDC	94	12	<MDC	Concrete
6	<MDC	<MDC	<MDC	92	12	592.59	Concrete
7	<MDC	<MDC	<MDC	91	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	96	12	685.19	Concrete
9	<MDC	<MDC	<MDC	86	12	623.46	Concrete
10	<MDC	<MDC	<MDC	87	12	746.91	Concrete
11	<MDC	<MDC	<MDC	90	12	538.58	Concrete
12	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	87	12	1001.54	Concrete
14	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
15	<MDC	<MDC	<MDC	89	0	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	280	-1.54	320	307.10	51.5	-18.35	12	311	237.65
2	280	-1.54	320	307.10	51.6	-17.70	12	309	222.22
3	280	-1.54	320	307.10	51.6	-17.46	12	300	152.78
4	400	924.38	420	1078.70	57.4	3.63	12	396	893.52
5	300	152.78	340	461.42	54.3	-7.52	12	329	376.54
6	360	615.74	420	1078.70	61.3	17.29	12	357	592.59
7	340	461.42	360	615.74	39.5	-58.84	12	338	445.99
8	350	538.58	400	924.38	49.4	-25.62	12	369	685.19
9	350	538.58	400	924.38	45.2	-36.59	12	361	623.46
10	350	538.58	400	924.38	52	-14.68	12	377	746.91
11	350	538.58	400	924.38	42.9	-46.29	12	350	538.58
12	280	-1.54	320	307.10	50.2	-21.30	12	310	229.94
13	380	770.06	440	1233.02	42.9	-44.73	12	410	1001.54
14	260	-155.86	300	152.78	45.5	-37.11	12	318	291.67
15	300	152.78	330	384.26	49.1	-24.87	12	389	839.51

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	51.5	267418.4	728.98	26.71%
2	51.6	267418.4	731.26	27.13%
3	51.6	267418.4	733.24	27.49%
4	57.4	267418.4	733.37	27.52%
5	54.3	267418.4	735.6	27.93%
6	61.3	267418.4	737.77	28.34%
7	39.5	267418.4	739.76	28.72%
8	49.4	267418.4	732.32	27.32%
9	45.2	267418.4	749.38	30.61%
10	52	267418.4	746.18	29.97%
11	42.9	267418.4	742.06	29.16%
12	50.2	267418.4	741.75	29.10%
13	42.9	267418.4	747.25	30.18%
14	45.5	267418.4	743.12	29.37%
15	49.1	267418.4	743	29.35%

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Reactor Bay Floor - Unit 2	Survey Unit:	B-1-029
Surveyor:	LeRoy Cunso (Print)	(Sign)	10/5/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	26.92%	Efficiency (%)	See Below	Efficiency (%)	26.92%	BKG (uR/hr)	11
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2892	Background Reading (counts)	112.8	Background Reading (counts)	2892		
BKG (cpm)	289.2	BKG (cpm)	56.4	BKG (cpm)	289.2		
MDC (dpm/100cm2)	1782	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	476		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	289.2	cpm	R_B	56.4	cpm	R_B	289.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1782	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	476	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91	12	<MDC	Concrete
2	<MDC	<MDC	<MDC	96	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	89	12	569.44	Concrete
5	<MDC	<MDC	<MDC	84	12	592.59	Concrete
6	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
7	<MDC	<MDC	<MDC	84	12	808.64	Concrete
8	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	89	12	654.32	Concrete
10	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	91	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
14	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
15	<MDC	<MDC	<MDC	88	0	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	300	83.33	340	391.98	50.6	-20.05	12	329	307.10
2	300	83.33	340	391.98	58.8	8.81	12	331	322.53
3	330	314.81	370	623.46	58.8	8.19	12	328	299.38
4	340	391.98	380	700.62	51.1	-17.98	12	363	569.44
5	340	391.98	380	700.62	39.4	-54.74	12	366	592.59
6	340	391.98	380	700.62	52.4	-13.35	12	350	469.14
7	380	700.62	420	1009.26	51.5	-15.71	12	394	808.64
8	320	237.65	360	546.30	52	-14.21	12	343	415.12
9	400	854.94	440	1163.58	50.5	-20.05	12	374	654.32
10	240	-379.63	280	-70.99	54.6	-5.74	12	274	-117.28
11	320	237.65	360	546.30	48.7	-26.76	12	341	399.69
12	320	237.65	360	546.30	58.7	7.42	12	341	399.69
13	320	237.65	360	546.30	44.7	-37.46	12	319	229.94
14	300	83.33	340	391.98	57.3	3.16	12	312	175.93
15	300	83.33	340	391.98	53.2	-10.77	12	340	391.98

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	50.6	267418.4	740.82	28.92%
2	58.8	267418.4	731.82	27.23%
3	58.8	267418.4	742.87	29.32%
4	51.1	267418.4	743.68	29.48%
5	39.4	267418.4	751.59	31.05%
6	52.4	267418.4	746.12	29.96%
7	51.5	267418.4	752.22	31.18%
8	52	267418.4	751.15	30.96%
9	50.5	267418.4	743.43	29.43%
10	54.6	267418.4	753.17	31.38%
11	48.7	267418.4	740.01	28.77%
12	58.7	267418.4	751.21	30.98%
13	44.7	267418.4	752.47	31.23%
14	57.3	267418.4	738.45	28.47%
15	53.2	267418.4	744.87	29.71%

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Reactor Bay Floor - Unit 3	Survey Unit:	B-1-030
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/5/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148162
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	11
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3092	Background Reading (counts)	112.8	Background Reading (counts)	3092		
BKG (cpm)	309.2	BKG (cpm)	56.4	BKG (cpm)	309.2		
MDC (dpm/100cm2)	1843	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	491		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	309.2	cpm	R_B	56.4	cpm	R_B	309.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1843	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	491	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91	15	854.94	Concrete
2	<MDC	<MDC	<MDC	90	15	530.86	Concrete
3	<MDC	<MDC	<MDC	92	15	546.30	Concrete
4	<MDC	<MDC	<MDC	91	15	916.67	Concrete
5	<MDC	<MDC	<MDC	90	15	692.90	Concrete
6	<MDC	<MDC	<MDC	90	15	723.77	Concrete
7	<MDC	<MDC	<MDC	92	15	584.88	Concrete
8	<MDC	<MDC	<MDC	91	15	<MDC	Concrete
9	<MDC	<MDC	<MDC	88	15	<MDC	Concrete
10	<MDC	<MDC	<MDC	87	15	<MDC	Concrete
11	<MDC	<MDC	<MDC	86	15	<MDC	Concrete
12	<MDC	<MDC	<MDC	87	15	<MDC	Concrete
13	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
14	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
15	<MDC	<MDC	<MDC	90	0	<MDC	Concrete

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm^2	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm^2	LSC Smear Results CPM	LSC Smear Results dpm/100cm^2	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm^2
1	300	-70.99	330	160.49	56.4	0.00	15	420	854.94
2	380	546.30	410	777.78	40	-56.32	15	378	530.86
3	380	546.30	410	777.78	61.5	17.82	15	380	546.30
4	420	854.94	450	1086.42	60.9	15.56	15	428	916.67
5	380	546.30	410	777.78	50.6	-19.88	15	399	692.90
6	380	546.30	410	777.78	42.7	-47.15	15	403	723.77
7	380	546.30	410	777.78	48.1	-29.12	15	385	584.88
8	320	83.33	350	314.81	41.4	-52.36	15	354	345.68
9	320	83.33	350	314.81	49.6	-22.78	15	367	445.99
10	320	83.33	350	314.81	57	2.00	15	344	268.52
11	340	237.65	370	469.14	51.8	-14.96	15	367	445.99
12	400	700.62	430	932.10	52.1	-14.24	15	371	476.85
13	350	314.81	380	546.30	49.1	-24.86	15	358	376.54
14	300	-70.99	330	160.49	48.1	-28.08	15	291	-140.43
15	300	-70.99	330	160.49	56.3	-0.34	15	337	214.51

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

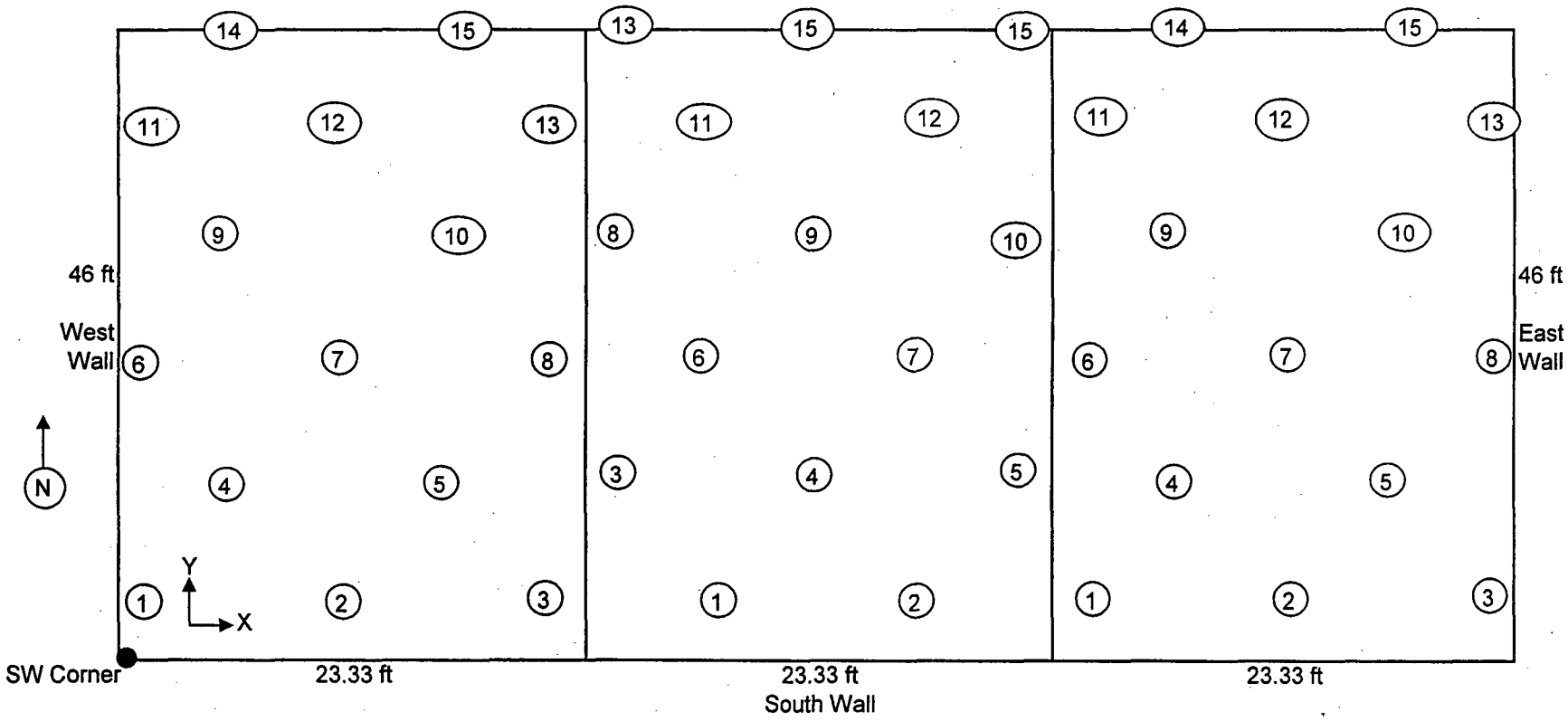
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.4	267418.4	739.82	28.73%
2	40	267418.4	741.82	29.12%
3	61.5	267418.4	739.2	28.61%
4	60.9	267418.4	740.75	28.91%
5	50.6	267418.4	742.12	29.18%
6	42.7	267418.4	741.5	29.06%
7	48.1	267418.4	738.64	28.51%
8	41.4	267418.4	739.38	28.65%
9	49.6	267418.4	745.56	29.85%
10	57	267418.4	746.5	30.03%
11	51.8	267418.4	750.08	30.75%
12	52.1	267418.4	747.37	30.21%
13	49.1	267418.4	743.08	29.36%
14	48.1	267418.4	744.08	29.55%
15	56.3	267418.4	742.12	29.18%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Units: B-1-028 B-1-029 B-1-030

Room: Reactor Bay Floor Units 1, 2, and 3
Class 1
L=9.5, R=8.25



B-1-028, -029, -030

ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Units: B-1-028 B-1-029 B-1-030

Room: Reactor Bay Floor Units 1, 2, and 3
Class 1
L=9.5, R=8.25

Number	X	Y	Direct	uR/hr	Smear?		Material
Floor 1 (Starting SW Corner)							
1	2	4					
2	11.5	4					
3	21	4					
4	6.75	12.25					
5	16.25	12.25					
6	2	20.5					
7	11.5	20.5					
8	21	20.5					
9	6.75	28.75					
10	16.25	28.75					
11	2	37					
12	11.5	37					
13	21	37					
14	6.75	45.25					
15	16.25	45.25					
Floor 2							
1	30.5	4					
2	40	4					
3	25.75	12.25					
4	35.25	12.25					
5	44.75	12.25					
6	30.5	20.5					
7	40	20.5					
8	25.75	28.75					
9	35.25	28.75					
10	44.75	28.75					
11	30.5	37					
12	40	37					
13	25.75	45.25					
14	35.25	45.25					
15	44.75	45.25					
Floor 3							
1	49.5	4					
2	59	4					
3	68.5	4					
4	54.25	12.25					
5	63.75	12.25					
6	49.5	20.5					
7	59	20.5					
8	68.5	20.5					
9	54.25	28.75					
10	63.75	28.75					
11	49.5	37					
12	59	37					
13	68.5	37					
14	54.25	45.25					
15	63.75	45.25					

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Reactror Bay - Lower Walls - North and East	Survey Unit:	B-1-031
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/3/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2843	Background Reading (counts)		105	Background Reading (counts)		2843		
BKG (cpm)		284.3	BKG (cpm)		52.5	BKG (cpm)		284.3		
MDC (dpm/100cm2)		1767	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		472		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	284.3	cpm	R_B	52.5	cpm	R_B	284.3	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1767	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	472	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	81	10	<MDC	Cinder Block
2	<MDC	<MDC	<MDC	86	10	<MDC	Cinder Block
3	<MDC	<MDC	<MDC	81	10	<MDC	Cinder Block
4	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
5	<MDC	<MDC	<MDC	84	11	<MDC	Concrete
6	<MDC	<MDC	<MDC	86	12	514.66	Concrete
7	<MDC	<MDC	<MDC	82	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	82	11	<MDC	Concrete
10	<MDC	<MDC	<MDC	87	11	<MDC	Concrete
11	<MDC	<MDC	<MDC	134	11	522.38	Concrete
12	<MDC	<MDC	<MDC	84	11	<MDC	Concrete
13	<MDC	<MDC	<MDC	86	11	<MDC	Metal

ENERGYSOLUTIONS

Final St[illegible] Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	280	-33.18	320	275.46	55.7	10.27	10	243	-318.67
2	260	-187.50	300	121.14	53	1.69	10	234	-388.12
3	260	-187.50	300	121.14	54.7	7.08	10	250	-264.66
4	260	-187.50	340	429.78	42.1	-35.09	12	291	51.70
5	260	-187.50	340	429.78	57.7	17.30	11	290	43.98
6	260	-187.50	340	429.78	41.8	-36.24	12	351	514.66
7	290	43.98	350	506.94	53.9	4.56	12	305	159.72
8	260	-187.50	300	121.14	45	-27.30	10	270	-110.34
9	340	429.78	380	738.43	47.3	-16.86	11	305	159.72
10	340	429.78	380	738.43	59.8	25.00	11	343	452.93
11	300	121.14	340	429.78	39	-71.27	11	352	522.38
12	300	121.14	340	429.78	51.9	-1.99	11	309	190.59
13	260	-187.50	300	121.14	39.5	-44.01	11	273	-87.19
									-2193.67

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	55.7	267418.4	752.09	31.16%
2	53	267418.4	744	29.54%
3	54.7	267418.4	751.78	31.09%
4	42.1	267418.4	744.5	29.64%
5	57.7	267418.4	746.62	30.06%
6	41.8	267418.4	743.93	29.53%
7	53.9	267418.4	750.01	30.73%
8	45	267418.4	733.12	27.47%
9	47.3	267418.4	750.58	30.85%
10	59.8	267418.4	742.25	29.20%
11	39	267418.4	680.52	18.94%
12	51.9	267418.4	746.81	30.10%
13	39.5	267418.4	744	29.54%

ENERGYSOLUTIONS

Final Sta[illegible]vey Results
Ward Center, Cornell University

Room #:	Reactror Bay - Lower Walls - South and West	Survey Unit:	B-1-032
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/3/2006 (Date)
Reviewer:	(Print)	(Sign)	(Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2843	Background Reading (counts)		105	Background Reading (counts)		2843		
BKG (cpm)		284.3	BKG (cpm)		52.5	BKG (cpm)		284.3		
MDC (dpm/100cm2)		1767	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		472		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	284.3	cpm	R_B	52.5	cpm	R_B	284.3	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	25%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1767	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	472	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	97	13	<MDC	Concrete
2	<MDC	<MDC	<MDC	89	13	<MDC	Concrete
3	<MDC	<MDC	<MDC	84	12	<MDC	Metal
4	<MDC	<MDC	<MDC	86	12	<MDC	Metal
5	<MDC	<MDC	<MDC	86	13	<MDC	Concrete
6	<MDC	<MDC	<MDC	89	13	<MDC	Concrete
7	<MDC	<MDC	<MDC	82	12	<MDC	Metal
8	<MDC	<MDC	<MDC	79	12	<MDC	Metal
9	<MDC	<MDC	<MDC	78	12	<MDC	Metal
10	<MDC	<MDC	<MDC	80	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	81	12	<MDC	Metal
12	<MDC	<MDC	<MDC	78	12	<MDC	Metal
13	<MDC	<MDC	<MDC	80	12	<MDC	Metal
14	<MDC	<MDC	<MDC	78	12	<MDC	Metal
15	<MDC	<MDC	<MDC	83	12	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	340	429.78	380	738.43	40.9	-44.41	13		-2193.67
2	340	429.78	380	738.43	51.7	-2.81	13	331	360.34
3	180	-804.78	230	-418.98	55.2	8.92	12	183	-781.84
4	180	-804.78	230	-418.98	47	-18.57	12	210	-573.30
5	300	121.14	360	584.10	50.2	-7.85	13	325	314.04
6	300	121.14	360	584.10	53.2	2.45	13	344	460.65
7	220	-496.14	280	-33.18	49.2	-10.62	12	273	-87.19
8	220	-496.14	280	-33.18	54.7	6.88	12	270	-110.34
9	220	-496.14	280	-33.18	56.5	12.26	12	258	-202.93
10	300	121.14	340	429.78	52.6	0.31	12	314	229.17
11	220	-496.14	280	-33.18	55.5	9.60	12	277	-56.33
12	220	-496.14	280	-33.18	49.6	-8.95	12	211	-565.59
13	180	-804.78	240	-341.82	48.8	-11.75	12	216	-527.01
14	180	-804.78	240	-341.82	55.2	8.31	12	240	-341.82
15	320	275.46	340	429.78	54.2	5.57	12	340	429.78

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

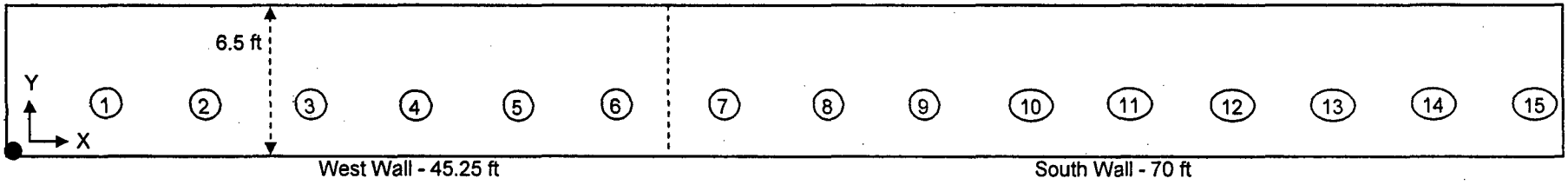
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	40.9	267418.4	725.72	26.12%
2	51.7	267418.4	738.7	28.52%
3	55.2	267418.4	747.75	30.28%
4	47	267418.4	744.37	29.61%
5	50.2	267418.4	742.75	29.30%
6	53.2	267418.4	739.14	28.60%
7	49.2	267418.4	751.69	31.07%
8	54.7	267418.4	756.15	31.99%
9	56.5	267418.4	759.27	32.64%
10	52.6	267418.4	755.32	31.82%
11	55.5	267418.4	752.54	31.25%
12	49.6	267418.4	758.12	32.40%
13	48.8	267418.4	753.68	31.48%
14	55.2	267418.4	758.57	32.49%
15	54.2	267418.4	748.94	30.52%

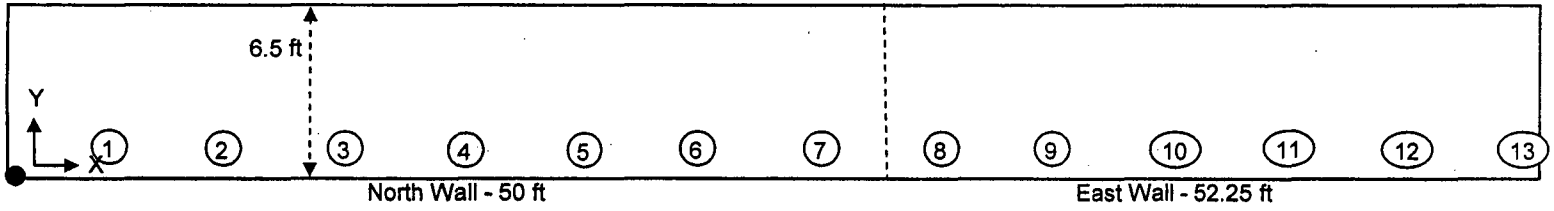
Survey Units: B-1-031 B-1-032

Reactor Bay Lower Walls
Class 1
L=8, R=7 (West and South walls)
L=7.75, R=6.5 (North and East walls)

B-1-032



B-1-031



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Units: **B-1-031 B-1-032**

Reactor Bay Lower Walls
Class 1
L=8, R=7 (West and South walls)
L=7.75, R=6.5 (North and East walls)

Number	X	Y	Direct	uR/hr	Smear?		Material
West Wall (Starting BOTTOM N Corner)							
1	2	2					
2	10	2					
3	18	2					
4	26	2					
5	34	2					
6	42	2					
South Wall (Continuing from West Wall)							
7	50	2					
8	58	2					
9	66	2					
10	74	2					
11	82	2					
12	90	2					
13	98	2					
14	106	2					
15	114	2					
North Wall Starting BOTTOM W Corner)							
1	2	0.75					
2	9.75	0.75					
3	17.5	0.75					
4	25.25	0.75					
5	33	0.75					
6	40.75	0.75					
7	48.5	0.75					
East Wall (Continuing from North Wall)							
8	56.25	0.75					
9	64	0.75					
10	71.75	0.75					
11	79.5	0.75					
12	87.25	0.75					
13	95	0.75					

ENERGYSOLUTIONS

Final St[illegible] Survey Results
Ward Center, Cornell University

Room #:	BR01: Isopote and Fuel Storage	Survey Unit:	B-1-050
Surveyor:	LeRoy Cuneo (Print)	Sign	9/20/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	Sign	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2796	Background Reading (counts)	108.4	Background Reading (counts)	2796		
BKG (cpm)	279.6	BKG (cpm)	54.2	BKG (cpm)	279.6		
MDC (dpm/100cm2)	1763	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	468		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	279.6	cpm	R_B	54.2	cpm	R_B	279.6	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1763	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	468	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	85	10	504.63	Concrete
2	<MDC	<MDC	<MDC	96	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	95	10	<MDC	Cinderblock
4	<MDC	<MDC	<MDC	91	10	<MDC	Cinderblock
5	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	83	10	<MDC	Cinderblock
12	<MDC	<MDC	<MDC	83	10	551.85	Concrete
13	<MDC	<MDC	<MDC	86	10	574.07	Concrete

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	310	234.57	340	466.05	41.6	-41.45	10	345	504.63
2	310	234.57	340	466.05	49.9	-16.07	10	301	165.12
3	220	-459.88	240	-305.56	45.6	-31.61	10	244	-274.69
4	220	-459.88	240	-305.56	60.8	23.36	10	236	-336.42
5	350	543.21	370	697.53	44	-35.29	10	333	412.04
6	350	543.21	370	697.53	58.3	14.11	10	321	319.44
7	310	234.57	330	388.89	51.6	-9.29	10	301	165.12
8	310	234.57	330	388.89	46.7	-26.53	10	288	64.81
9	310	234.57	330	388.89	58.7	15.86	10	310	234.57
10	310	234.57	330	388.89	49.5	-15.79	10	294	111.11
11	260	-151.23	280	3.09	45.7	-27.58	10	259	-158.95
12	340	466.05	360	620.37	51.6	-8.43	10	390	651.85
13	340	466.05	360	620.37	42.4	-39.53	10	354	574.07

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

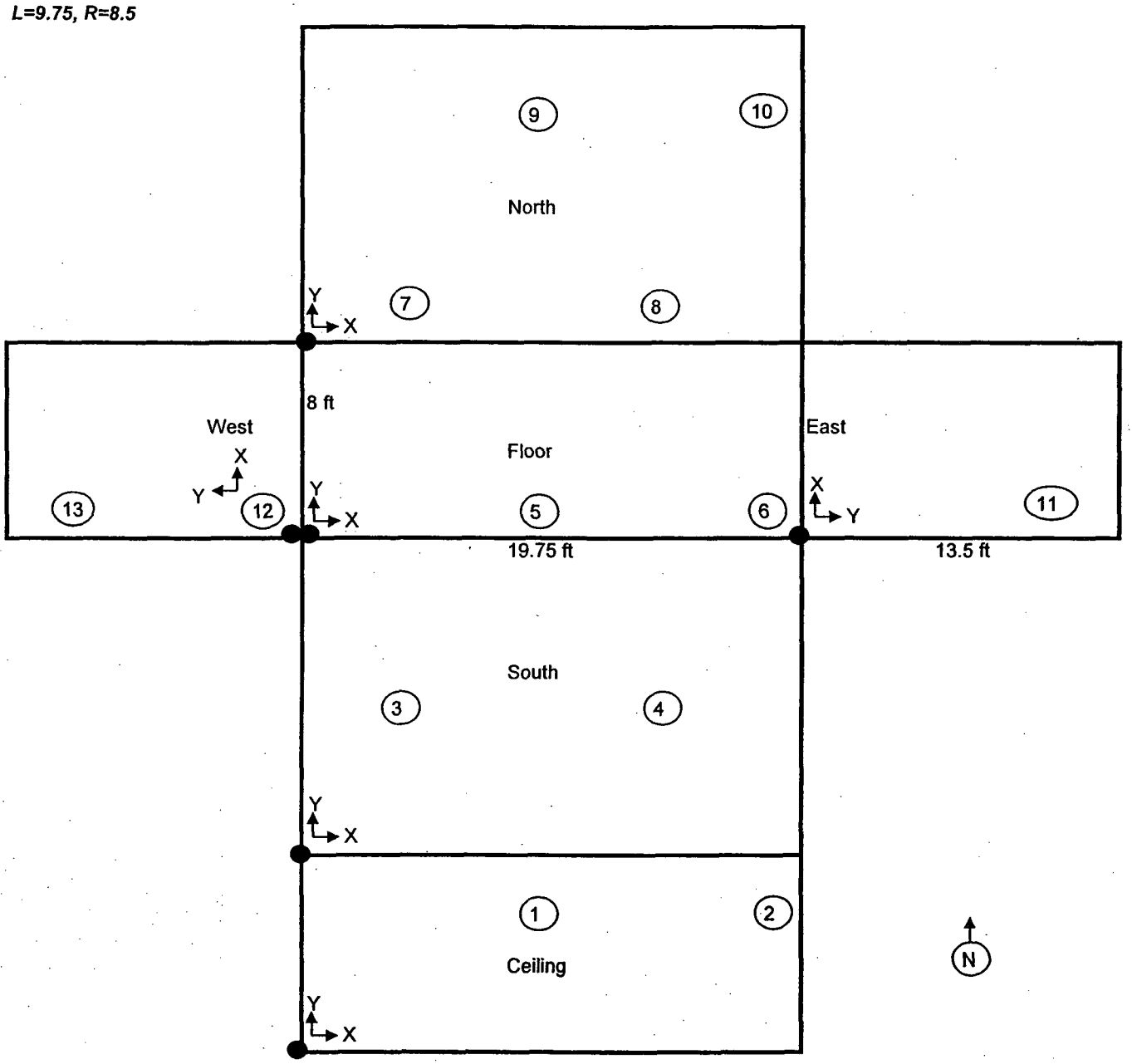
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	41.6	267418.4	748.32	30.40%
2	49.9	267418.4	729.29	26.77%
3	45.6	267418.4	730.77	27.04%
4	60.8	267418.4	737.33	28.26%
5	44	267418.4	740.69	28.90%
6	58.3	267418.4	741.5	29.06%
7	51.6	267418.4	735.84	27.98%
8	46.7	267418.4	737.4	28.27%
9	58.7	267418.4	737.89	28.36%
10	49.5	267418.4	745.12	29.76%
11	45.7	267418.4	750.45	30.82%
12	51.6	267418.4	750.58	30.85%
13	42.4	267418.4	745.56	29.85%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: B-1-050

Room: BR01: Isotope and Fuel Storage
Class 1
L=9.75, R=8.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **B-1-050**

Room: BR01: Isotope and Fuel Storage
Class 1
L=9.75, R=8.5

Number	X	Y	Direct	uR/hr	Smear?		Material
Ceiling (Starting NW Corner)							
1	9.5	5.5					
2	19.25	5.5					
South (Starting TOP W Corner)							
3	4.5	6					
4	14.25	6					
Floor (Starting SW Corner)							
5	9.5	0.75					
6	19.25	0.75					
North (Starting BOTTOM W Corner)							
7	4.5	1.25					
8	14.25	1.25					
9	9.5	9.75					
10	19.25	9.75					
East (Starting S BOTTOM Corner)							
11	0.75	9.25					
West (Starting S BOTTOM Corner)							
12	0.75	0.25					
13	0.75	10					

ENERGYSOLUTIONS

Final St[illegible] Survey Results
Ward Center, Cornell University

Room #:	B07: Laboratory- Floor and Lower Walls	Survey Unit:	B-2-072
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/16/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/17/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	26.92%	Efficiency (%)	See Below	Efficiency (%)	26.92%	BKG (uR/hr)	11
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3406	Background Reading (counts)	116.6	Background Reading (counts)	3406		
BKG (cpm)	340.6	BKG (cpm)	58.3	BKG (cpm)	340.6		
MDC (dpm/100cm2)	1934	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	515		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	340.6	cpm	R_B	58.3	cpm	R_B	340.6	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1934	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	515	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	92	12	813.27	Tile
2	<MDC	<MDC	<MDC	98	12	<MDC	Tile
3	<MDC	<MDC	<MDC	88	12	<MDC	Tile
4	<MDC	<MDC	<MDC	96	12	<MDC	Brick
5	<MDC	<MDC	<MDC	119	12	<MDC	Tile
6	<MDC	<MDC	<MDC	103	12	<MDC	Tile
7	<MDC	<MDC	<MDC	102	12	<MDC	Tile
8	<MDC	<MDC	<MDC	106	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	92	12	<MDC	Tile
10	<MDC	<MDC	<MDC	94	12	<MDC	Tile
11	<MDC	<MDC	<MDC	81	12	<MDC	Tile
12	<MDC	<MDC	<MDC	93	12	<MDC	Brick
13	<MDC	<MDC	<MDC	100	12	<MDC	Tile
14	<MDC	<MDC	<MDC	101	12	<MDC	Tile

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	320	-158.95	360	149.69	62.5	14.48	12	446	813.27
2	320	-158.95	360	149.69	56.3	-7.37	12	354	103.40
3	320	-158.95	360	149.69	56.8	-4.98	12	366	195.99
4	320	-158.95	360	149.69	51	-26.36	12	386	350.31
5	320	-158.95	360	149.69	57.3	-4.49	12	380	304.01
6	320	-158.95	360	149.69	59.9	6.21	12	350	72.53
7	320	-158.95	360	149.69	52	-24.04	12	368	211.42
8	320	-158.95	360	149.69	51	-29.18	12	351	80.25
9	320	-158.95	360	149.69	56.1	-7.59	12	388	365.74
10	320	-158.95	360	149.69	55.1	-11.31	12	337	-27.78
11	320	-158.95	360	149.69	56.7	-4.86	12	360	149.69
12	320	-158.95	360	149.69	51.1	-25.18	12	369	219.14
13	320	-158.95	360	149.69	61.9	13.46	12	364	180.56
14	320	-158.95	360	149.69	56.7	-6.07	12	385	342.59

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

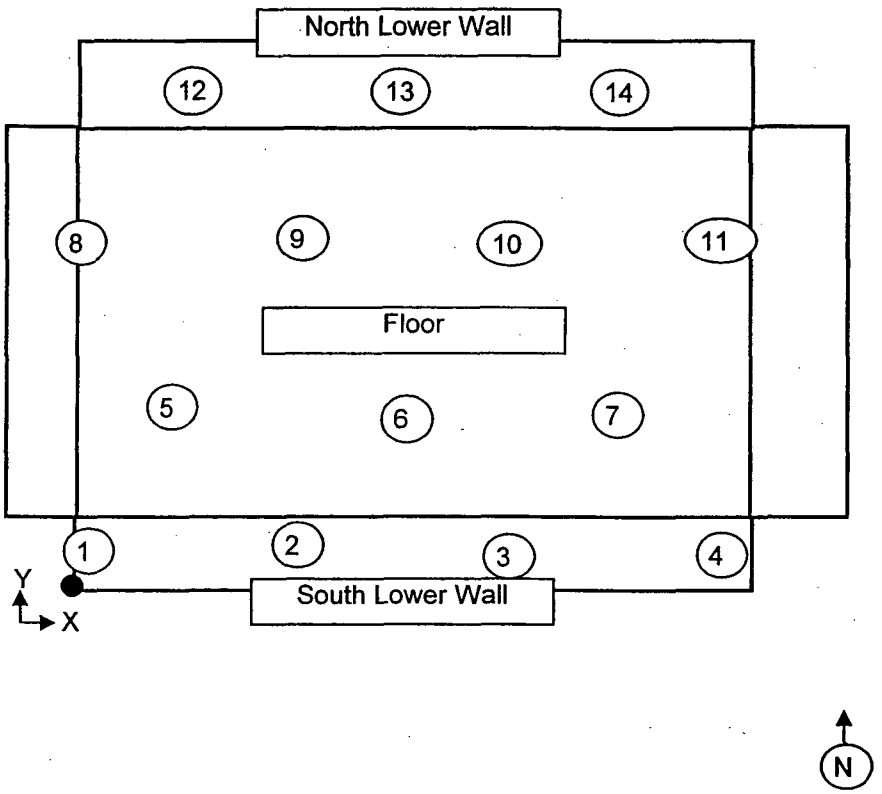
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	62.5	267418.4	741.25	29.01%
2	56.3	267418.4	731.25	27.12%
3	56.8	267418.4	746.95	30.12%
4	51	267418.4	734.3	27.69%
5	57.3	267418.4	702.91	22.28%
6	59.9	267418.4	723.8	25.78%
7	52	267418.4	726.2	26.21%
8	51	267418.4	719.43	25.02%
9	56.1	267418.4	741.13	28.98%
10	55.1	267418.4	737.58	28.31%
11	56.7	267418.4	760.74	32.95%
12	51.1	267418.4	739.07	28.59%
13	61.9	267418.4	729.16	26.74%
14	56.7	267418.4	726.94	26.34%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **B-2-072**

Room: B07: Laboratory - Floor and Lower Walls
Class 2
L=7, R=6



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: B-2-072

Room: B07: Laboratory - Floor and Lower Walls
Class 2
L=7, R=6

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
1	1.75	1					
2	8.75	1					
3	15.75	1					
4	22.75	1					
5	5.25	7					
6	12.25	7					
7	19.25	7					
8	1.75	13					
9	8.75	13					
10	15.75	13					
11	22.75	13					
12	5.25	19					
13	12.25	19					
14	19.25	19					

APPENDIX B

FIRST FLOOR SURVEY UNIT DATA REPORTS

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	First Floor Corridor Outside Rooms 109 & 111	Survey Unit:	F-2-033
Surveyor:	LeRoy Cuneo (Print)		(Sign) — 9/12/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)		(Sign) — 10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #	L2360		Meter Model #	Wallac 1400		Meter Model #	L2360		Meter Model #	Model 19
Meter Serial #	193629		Meter Serial #	Unknown		Meter Serial #	193629		Meter Serial #	148152
Probe Serial #	200130		Probe Serial #	NA		Probe Serial #	200130		Cal Due	3/5/2007
Cal Due	11/19/2006		Cal Due	NA		Cal Due	11/19/2006		Type	beta/gamma
Efficiency (%)	26.92%		Efficiency (%)	See Below		Efficiency (%)	26.92%		BKG (uR/hr)	13
Type	beta/gamma		Type	beta/gamma		Type	beta/gamma		Guideline (mR/hr)	NA
Sample Time (min)	1		Sample Time (min)	2		Sample Time (min)	1		Action Level (mR/hr)	NA
Background Time (min)	10		Background Time (min)	2		Background Time (min)	10			
Background Reading (counts)	3120		Background Reading (counts)	124.8		Background Reading (counts)	3120			
BKG (cpm)	312		BKG (cpm)	62.4		BKG (cpm)	312			
MDC (dpm/100cm2)	1851		MDC (dpm/100cm2)	See Below		MDC (dpm/100cm2)	493			
Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA			
Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA			
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	312	cpm	R_B	62.4	cpm	R_B	312	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1851	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	493	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	20	<MDC	Tile
2	<MDC	<MDC	<MDC	105	20	<MDC	Tile
3	<MDC	<MDC	<MDC	93	20	<MDC	Tile
4	<MDC	<MDC	<MDC	92	20	<MDC	Tile
5	<MDC	<MDC	<MDC	100	20	<MDC	Tile
6	<MDC	<MDC	<MDC	94	20	<MDC	Tile
7	<MDC	<MDC	<MDC	88	20	<MDC	Tile
8	<MDC	<MDC	<MDC	92	20	<MDC	Tile
9	<MDC	<MDC	<MDC	87	20	<MDC	Tile
10	<MDC	<MDC	<MDC	88	20	<MDC	Tile
11	<MDC	<MDC	<MDC	88	20	<MDC	Tile
12	<MDC	<MDC	<MDC	87	20	<MDC	Tile
13	<MDC	<MDC	<MDC	87	20	<MDC	Tile
14	<MDC	<MDC	<MDC	88	20	<MDC	Tile

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	300	-92.59	320	61.73	61.6	-2.71	20	308	-30.86
2	300	-92.59	320	61.73	57.7	-17.92	20	245	-516.98
3	300	-92.59	320	61.73	60.8	-5.44	20	267	-347.22
4	300	-92.59	320	61.73	57.5	-16.47	20	236	-586.42
5	300	-92.59	320	61.73	47.8	-53.19	20	275	-285.49
6	300	-92.59	320	61.73	48.8	-46.64	20	252	-462.96
7	280	-246.91	300	-92.59	48.7	-43.83	20	247	-501.54
8	280	-246.91	300	-92.59	56.8	-18.80	20	250	-478.40
9	280	-246.91	300	-92.59	64.2	5.69	20	269	-331.79
10	280	-246.91	300	-92.59	58.8	-11.48	20	257	-424.38
11	280	-246.91	300	-92.59	66	11.50	20	279	-254.63
12	280	-246.91	300	-92.59	54.8	-24.09	20	297	-115.74
13	300	-92.59	320	61.73	59	-10.80	20	286	-200.82
14	300	-92.59	320	61.73	55.5	-21.40	20	271	-316.36

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	
184941	200125	11/19/2006
193629	208657	12/12/2006
202415	221482	12/13/2006
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	61.6	267418.4	744.06	29.55%
2	57.7	267418.4	726.33	26.23%
3	60.8	267418.4	743.37	29.42%
4	57.5	267418.4	745.06	29.75%
5	47.8	267418.4	733	27.45%
6	48.8	267418.4	742.03	29.16%
7	48.7	267418.4	752.6	31.26%
8	56.8	267418.4	745.25	29.79%
9	64.2	267418.4	754.31	31.61%
10	58.8	267418.4	753.11	31.36%
11	66	267418.4	752.79	31.30%
12	54.8	267418.4	753.99	31.54%
13	59	267418.4	753.74	31.49%
14	55.5	267418.4	757.36	32.24%

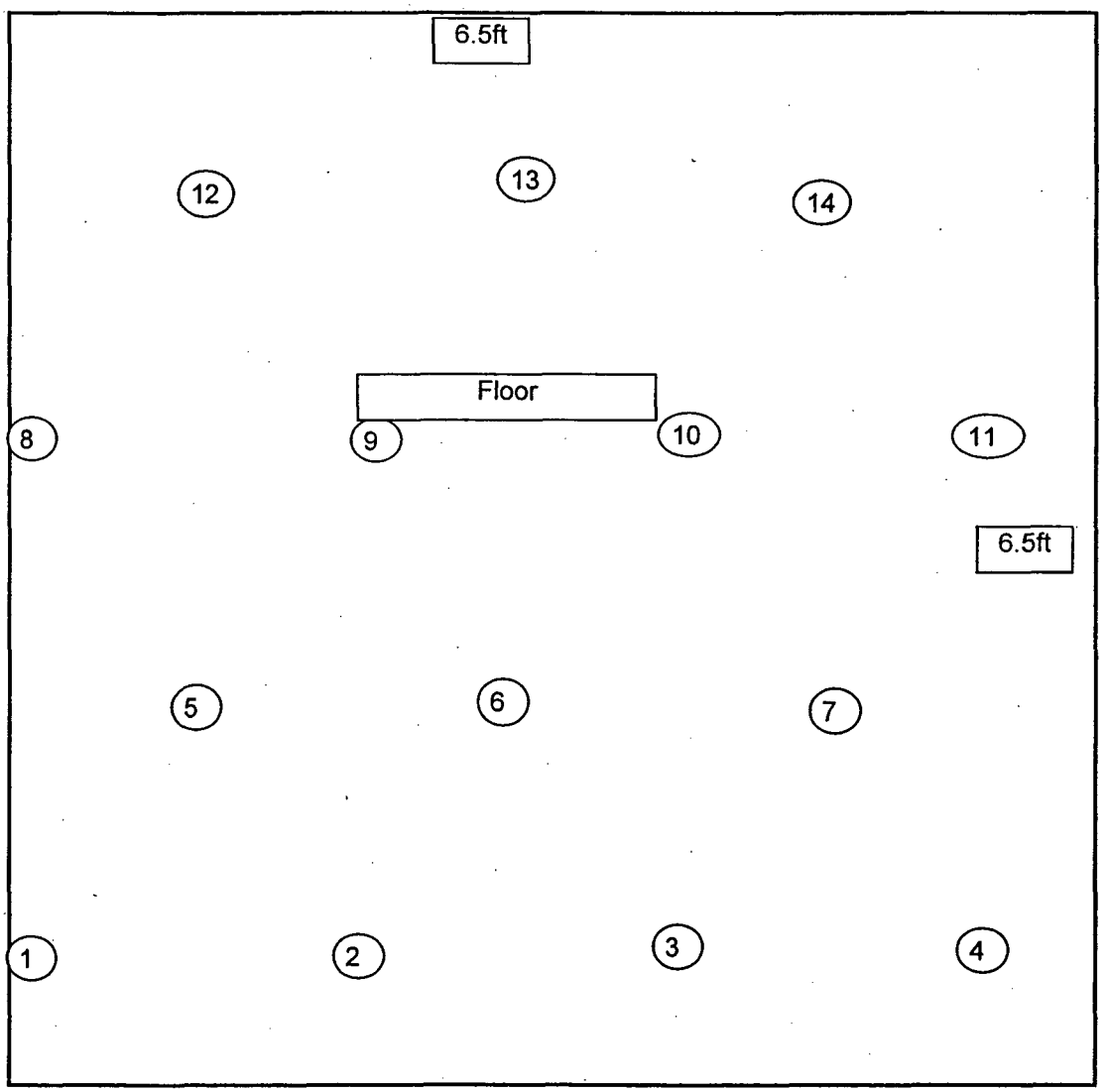
ENERGYSOLUTIONS

Final Site Survey Map
Ward Center, Cornell University

Survey Unit: **F-2-033**

Room: 1st Floor Corridor Outside Rooms 109 & 111

Class 2
L=2, R=1.75



Survey Unit: **F-2-033**

Room: 1st Floor Corridor Outside Rooms 109 & 111

Class 2
L=2, R=1.75

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Floor (Start in SW Corner)								
1	0	0.25						
2	2	0.25						
3	4	0.25						
4	6	0.25						
5	1	2						
6	3	2						
7	5	2						
8	0	3.75						
9	2	3.75						
10	4	3.75						
11	6	3.75						
12	1	5.5						
13	3	5.5						
14	5	5.5						

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	110 - Janitor's Closet Floor and Lower Walls	Survey Unit:	F-2-034
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/12/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	14
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2874	Background Reading (counts)	124.8	Background Reading (counts)	2874		
BKG (cpm)	287.4	BKG (cpm)	62.4	BKG (cpm)	287.4		
MDC (dpm/100cm2)	1777	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	287.4	cpm	R_B	62.4	cpm	R_B	287.4	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1777	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
2	<MDC	<MDC	<MDC	89	20	<MDC	Cinder Block
3	<MDC	<MDC	<MDC	87	20	<MDC	Cinder Block
4	<MDC	<MDC	<MDC	87	20	<MDC	Cinder Block
5	<MDC	<MDC	<MDC	88	20	<MDC	Tile
6	<MDC	<MDC	<MDC	88	20	<MDC	Wood
7	<MDC	<MDC	<MDC	88	20	<MDC	Cinder Block
8	<MDC	<MDC	<MDC	91	20	<MDC	Metal
9	<MDC	<MDC	<MDC	90	20	<MDC	Cinder Block
10	<MDC	<MDC	<MDC	89	20	<MDC	Cinder Block
11	<MDC	<MDC	<MDC	87	20	<MDC	Cinder Block
12	<MDC	<MDC	<MDC	88	20	<MDC	Cinder Block
13	<MDC	<MDC	<MDC	88	20	<MDC	Cinder Block

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	240	-365.74	260	-211.42	54.2	26.19	20	244	-334.88
2	250	-288.58	280	-57.10	50.7	38.07	20	207	-620.37
3	240	-365.74	280	-57.10	57.6	15.28	20	220	-520.06
4	240	-365.74	280	-57.10	69.5	22.49	20	238	-381.17
5	260	-211.42	280	-57.10	57.2	16.57	20	237	-388.89
6	240	-365.74	260	-211.42	48.6	44.16	20	224	-489.20
7	240	-365.74	280	-57.10	56.9	17.65	20	213	-574.07
8	250	-288.58	280	-57.10	48.9	44.65	20	201	-666.67
9	240	-365.74	280	-57.10	61.9	1.63	20	213	-574.07
10	240	-365.74	280	-57.10	51.1	36.83	20	198	-689.81
11	240	-365.74	260	-211.42	59.8	6.25	20	208	-612.65
12	240	-365.74	260	-211.42	57.2	16.56	20	220	-520.06
13	240	-365.74	280	-57.10	55.9	20.85	20	228	-458.33

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

Beckman	from EH&S LSC CPM	Standards (on std bottles) dpm/100cm2 3/9/2008	from EH&S LSC SQPE	Efficiency
1	54.2	267418.4	752.85	31.31%
2	50.7	267418.4	750.01	30.73%
3	57.6	267418.4	753.55	31.45%
4	69.5	267418.4	754.14	31.57%
5	57.2	267418.4	753.23	31.39%
6	48.6	267418.4	752.54	31.25%
7	56.9	267418.4	752.16	31.17%
8	48.9	267418.4	747.5	30.23%
9	61.9	267418.4	749.45	30.62%
10	51.1	267418.4	750.58	30.85%
11	59.8	267418.4	753.87	31.52%
12	57.2	267418.4	753.3	31.40%
13	55.9	267418.4	752.22	31.18%

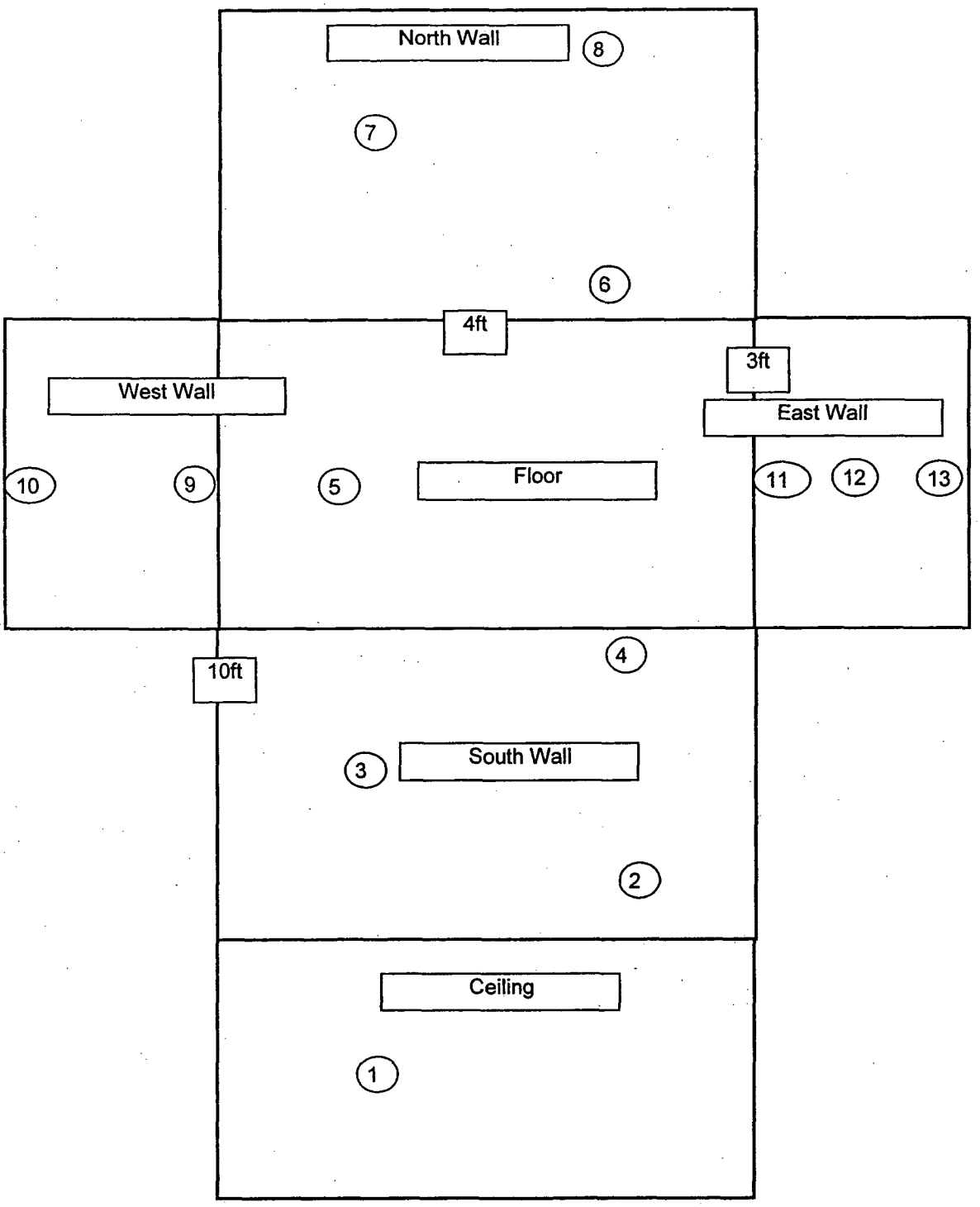
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-2-034

Room: 110 - Janitor's Closet Floor and Lower Walls

Class 2
L=4, R=3.25



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: F-2-034

Room: 110 - Janitor's Closet Floor and Lower Walls

Class 2
L=4, R=3.25

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Ceiling (Starting Top NW Corner)								
1	1	0.25						
South (Starting TOP SW Corner)								
2	3	0.5						
3	1	4.25						
4	3	7.5						
Floor (Start in SW Corner)								
5	1	0.25						
North(Start in SW Corner)								
6	3	1.5						
7	1	5						
8	3	8.5						
West (Start in SE Corner)[In Line with Floor]								
9	0.25	3						
10	0.25	7						
East (Start in SE Corner)[In Line with Floor]								
11	0.25	1						
12	0.25	5						
13	0.25	9						

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Rooms 100 - 108 & Hallway	Survey Unit:	F-3-035
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/11/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		26.92%	Efficiency (%)		See Below	Efficiency (%)		26.92%	BKG (uR/hr)	16
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2874	Background Reading (counts)		124.8	Background Reading (counts)		2874		
BKG (cpm)		287.4	BKG (cpm)		62.4	BKG (cpm)		287.4		
MDC (dpm/100cm2)		1777	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		475		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	287.4	cpm	R_B	62.4	cpm	R_B	287.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1777	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2		

	Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2) Evaluation	LSC Smear Results (dpm/100cm2) MDC	Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
	1	<MDC	<MDC	<MDC	66	20	<MDC	Carpet
	2	<MDC	<MDC	<MDC	64	22	<MDC	Carpet
	3	<MDC	<MDC	<MDC	70	20	<MDC	Carpet
	4	<MDC	<MDC	<MDC	70	20	<MDC	Tile
	5	<MDC	<MDC	<MDC	73	20	<MDC	Tile
	6	<MDC	<MDC	<MDC	65	22	<MDC	Carpet
	7	<MDC	<MDC	<MDC	66	20	<MDC	Tile
	8	<MDC	<MDC	<MDC	67	20	<MDC	Tile
	9	<MDC	<MDC	<MDC	66	20	<MDC	Tile
	10	<MDC	<MDC	<MDC	63	20	<MDC	Tile
	11	<MDC	<MDC	<MDC	62	20	<MDC	Tile
(Bath tile background and MDC used Rm BR 13))	12	<MDC	<MDC	<MDC	63	20	<MDC	Bath tile
	13	<MDC	<MDC	<MDC	66	20	<MDC	Tile
	14	<MDC	<MDC	<MDC	69	20	<MDC	Tile
(Bath tile background and MDC used Rm BR 13))	15	<MDC	<MDC	<MDC	73	20	<MDC	Bath tile

#12 and #15 are from the restrooms, which have tiles that have a higher background then the hallway tiles.

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	250	-288.58	300	97.22	61.2	-2.82	20	221	-512.35
2	160	-983.02	240	-365.74	58.5	-9.13	22	254	-257.72
3	240	-365.74	300	97.22	60.3	-5.34	20	292	35.49
4	260	-211.42	350	483.02	63.5	2.78	20	223	-496.91
5	250	-288.58	400	868.83	53.8	-22.63	20	250	-288.58
6	250	-288.58	400	868.83	58.4	-8.47	22	307	151.23
7	260	-211.42	40	-1908.95	63.4	2.41	20	288	4.63
8	250	-288.58	400	868.83	52.1	-25.05	20	257	-234.57
9	250	-288.58	400	868.83	60.3	-5.04	20	252	-273.15
10	250	-288.58	400	868.83	53.4	-20.54	20	295	58.64
11	250	-288.58	410	945.99	70.5	18.27	20	267	-157.41
12	400	868.83	600	2412.04	67.2	11.08	20	454	1285.49
13	280	-57.10	360	560.19	48.7	-32.40	20	229	-450.62
14	260	-211.42	380	714.51	60.3	-5.06	20	277	-80.25
15	450	1254.63	600	2412.04	56.2	-16.55	20	530	1871.91

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

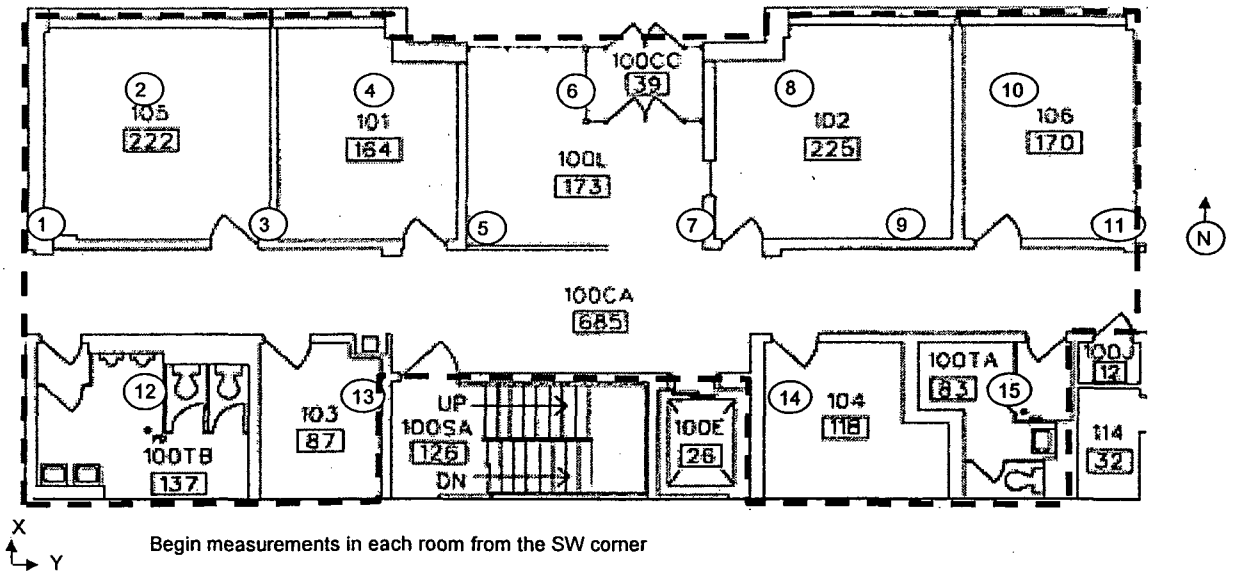
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	61.2	442042.6	749.76	42.58%
2	58.5	442042.6	750.26	42.71%
3	60.3	442042.6	736.84	39.30%
4	63.5	442042.6	737.71	39.52%
5	53.8	442042.6	730.15	37.68%
6	58.4	442042.6	748.38	42.22%
7	63.4	442042.6	745.56	41.50%
8	52.1	442042.6	744.06	41.11%
9	60.3	442042.6	746.12	41.64%
10	53.4	442042.6	754.5	43.82%
11	70.5	442042.6	756.4	44.32%
12	67.2	442042.6	752.54	43.30%
13	48.7	442042.6	748.63	42.28%
14	60.3	442042.6	745.62	41.51%
15	56.2	442042.6	729.23	37.46%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-3-035

Room: 100 to 108 & Hallway
Class 3
L=13.5, R=11.5



X
Y

Begin measurements in each room from the SW corner

Survey Unit: **F-3-035**

Room: 100 to 108 & Hallway
Class 3
L=13.5, R=11.5

Number	X	Y	Direct	uR/hr	Smear		Material
Room 103							
1	1.5	1					
2	8.25	12.5					
3	15	1					
Room 101							
4	12.5	6.75					
Lobby							
5	1.5	1					
6	8.25	12.5					
7	15	1					
Room 102							
8	5.25	12.5					
9	12	1					
Room 106							
10	12.5	2.25					
11	1	9					
Men's Room							
12	8.25	8.5					
Room 103							
13	8.5	5.75					
Room 104							
14	8.5	2					
Women's Room							
15	8.5	3					

ENERGYSOLUTIONS

Final State[illegible]vey Results
Ward Center, Cornell University

Room #:	109 - Reading/Conference Room Floor	Survey Unit:	F-3-036
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/12/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	14
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3120	Background Reading (counts)	124.8	Background Reading (counts)	3120		
BKG (cpm)	312	BKG (cpm)	62.4	BKG (cpm)	312		
MDC (dpm/100cm2)	1851	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	493		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	312	cpm	R_B	62.4	cpm	R_B	312	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1851	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	493	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
1	<MDC	<MDC	<MDC	94	20	<MDC	Tile
2	<MDC	<MDC	<MDC	89	20	<MDC	Tile
3	<MDC	<MDC	<MDC	93	20	<MDC	Tile
4	<MDC	<MDC	<MDC	98	20	<MDC	Tile
5	<MDC	<MDC	<MDC	95	20	<MDC	Tile
6	<MDC	<MDC	<MDC	93	20	<MDC	Tile
7	<MDC	<MDC	<MDC	92	20	<MDC	Tile
8	<MDC	<MDC	<MDC	99	20	<MDC	Tile
9	<MDC	<MDC	<MDC	96	20	<MDC	Tile
10	<MDC	<MDC	<MDC	88	20	<MDC	Tile
11	<MDC	<MDC	<MDC	88	20	<MDC	Tile
12	<MDC	<MDC	<MDC	100	20	<MDC	Tile
13	<MDC	<MDC	<MDC	97	20	<MDC	Tile
14	<MDC	<MDC	<MDC	88	20	<MDC	Tile
15	<MDC	<MDC	<MDC	89	20	<MDC	Tile
16	<MDC	<MDC	<MDC	88	20	<MDC	Tile

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	260	-401.23	300	-92.59	60.8	-5.45	20	243	-532.41
2	260	-401.23	300	-92.59	60.6	-5.84	20	243	-532.41
3	260	-401.23	300	-92.59	55.7	-22.55	20	291	-162.04
4	260	-401.23	300	-92.59	56.9	-18.94	20	299	-100.31
5	220	-709.88	300	-92.59	51.4	-38.00	20	245	-516.98
6	260	-401.23	300	-92.59	57.8	-15.53	20	245	-516.98
7	240	-555.56	300	-92.59	54	-28.21	20	244	-524.69
8	240	-555.56	300	-92.59	53.9	-30.49	20	233	-609.57
9	240	-555.56	300	-92.59	50.9	-40.29	20	267	-347.22
10	240	-555.56	300	-92.59	53.3	-29.10	20	239	-563.27
11	240	-555.56	300	-92.59	59.1	-10.52	20	268	-339.51
12	240	-555.56	300	-92.59	49.9	-45.36	20	235	-594.14
13	260	-401.23	300	-92.59	56.7	-20.05	20	250	-478.40
14	280	-401.23	300	-92.59	59.3	-9.87	20	222	-694.44
15	280	-401.23	300	-92.59	54.2	-26.43	20	278	-262.35
16	240	-555.56	300	-92.59	50	-39.60	20	259	-408.95

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	60.8	267418.4	743.06	29.36%
2	60.6	267418.4	750.52	30.84%
3	55.7	267418.4	744.87	29.71%
4	56.9	267418.4	741.44	29.04%
5	51.4	267418.4	740.94	28.95%
6	57.8	267418.4	744.37	29.61%
7	54	267418.4	745.18	29.77%
8	53.9	267418.4	735.29	27.87%
9	50.9	267418.4	738.82	28.54%
10	53.3	267418.4	752.66	31.27%
11	59.1	267418.4	753.11	31.36%
12	49.9	267418.4	733.61	27.56%
13	56.7	267418.4	738.2	28.42%
14	59.3	267418.4	753.36	31.41%
15	54.2	267418.4	751.46	31.03%
16	50	267418.4	752.85	31.31%

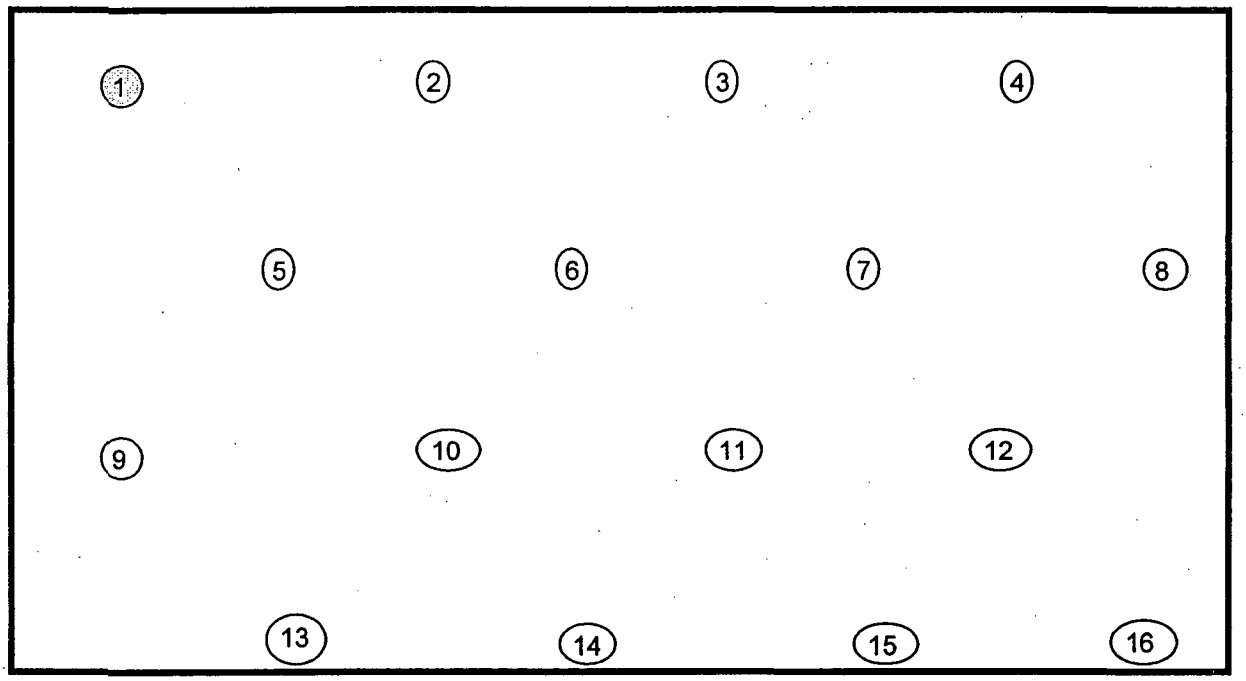
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **F-3-036**

Room: 109 - Reading/Conference Room Floor
Class 3
L = 4.5 R = 3.9

North



Survey Unit: **F-3-036**

Room: 109 - Reading/Conference Room Floor
Class 3
L = 4.5 R = 3.9

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	1.65	11.71	1	8	11	9
2	6.15	11.71	6	2	11	9
3	10.65	11.71	10	8	11	9
4	15.15	11.71	15	2	11	9
5	3.90	7.81	3	11	7	10
6	8.40	7.81	8	5	7	10
7	12.90	7.81	12	11	7	10
8	17.40	7.81	17	5	7	10
9	1.65	3.92	1	8	3	11
10	6.15	3.92	6	2	3	11
11	10.65	3.92	10	8	3	11
12	15.15	3.92	15	2	3	11
13	3.90	0.02	3	11	0	0
14	8.40	0.02	8	5	0	0
15	12.90	0.02	12	11	0	0
16	17.40	0.02	17	5	0	0

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	111 - ZPR Laboratory Ceiling	Survey Unit:	F-3-037
Surveyor:	LeRoy Cuneo (Print)	Sign	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 5
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	21695
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	11/16/2006
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2915	Background Reading (counts)	111.8	Background Reading (counts)	2915		
BKG (cpm)	291.5	BKG (cpm)	55.9	BKG (cpm)	291.5		
MDC (dpm/100cm2)	1789	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	478		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	291.5	cpm	R_B	55.9	cpm	R_B	291.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	20	<MDC	Concrete
2	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
4	<MDC	<MDC	<MDC	87	20	<MDC	Concrete
5	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
7	<MDC	<MDC	<MDC	122	20	<MDC	Concrete
8	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	91	20	<MDC	Concrete
10	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
11	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
12	<MDC	<MDC	<MDC	92	30	513.12	Concrete
13	<MDC	<MDC	<MDC	92	20	<MDC	Concrete
14	<MDC	<MDC	<MDC	95	20	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	340	374.23	360	528.55	68.6	43.61	20	257	-266.20
2	350	451.39	370	605.71	66.7	36.96	20	286	-42.44
3	350	451.39	360	528.55	68.3	42.52	20	282	-73.30
4	350	451.39	360	528.55	61.9	19.90	20	322	235.34
5	350	451.39	370	605.71	53.7	-7.40	20	312	158.18
6	340	374.23	360	528.55	63.4	25.47	20	317	196.76
7	360	528.55	380	682.87	60.3	20.57	20	309	135.03
8	340	374.23	360	528.55	56.6	2.38	20	306	111.88
9	340	374.23	360	528.55	67.4	40.06	20	317	196.76
10	340	374.23	360	528.55	64.9	30.57	20	321	227.62
11	330	297.07	350	451.39	61.8	19.86	20	263	-219.91
12	340	374.23	370	605.71	58.2	8.14	30	358	513.12
13	340	374.23	350	451.39	61.8	20.70	20	280	-88.73
14	330	297.07	350	451.39	66.4	38.35	20	269	-173.61

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	68.6	267418.4	740.62	28.92%
2	66.7	267418.4	742.37	29.22%
3	68.3	267418.4	742.06	29.16%
4	61.9	267418.4	747.06	30.14%
5	53.7	267418.4	744.87	29.71%
6	63.4	267418.4	743.5	29.44%
7	60.3	267418.4	697.24	21.39%
8	56.6	267418.4	743.5	29.44%
9	67.4	267418.4	739.69	28.71%
10	64.9	267418.4	743.5	29.44%
11	61.8	267418.4	744.81	29.70%
12	58.2	267418.4	737.4	28.27%
13	61.8	267418.4	738.84	28.51%
14	66.4	267418.4	732.62	27.38%

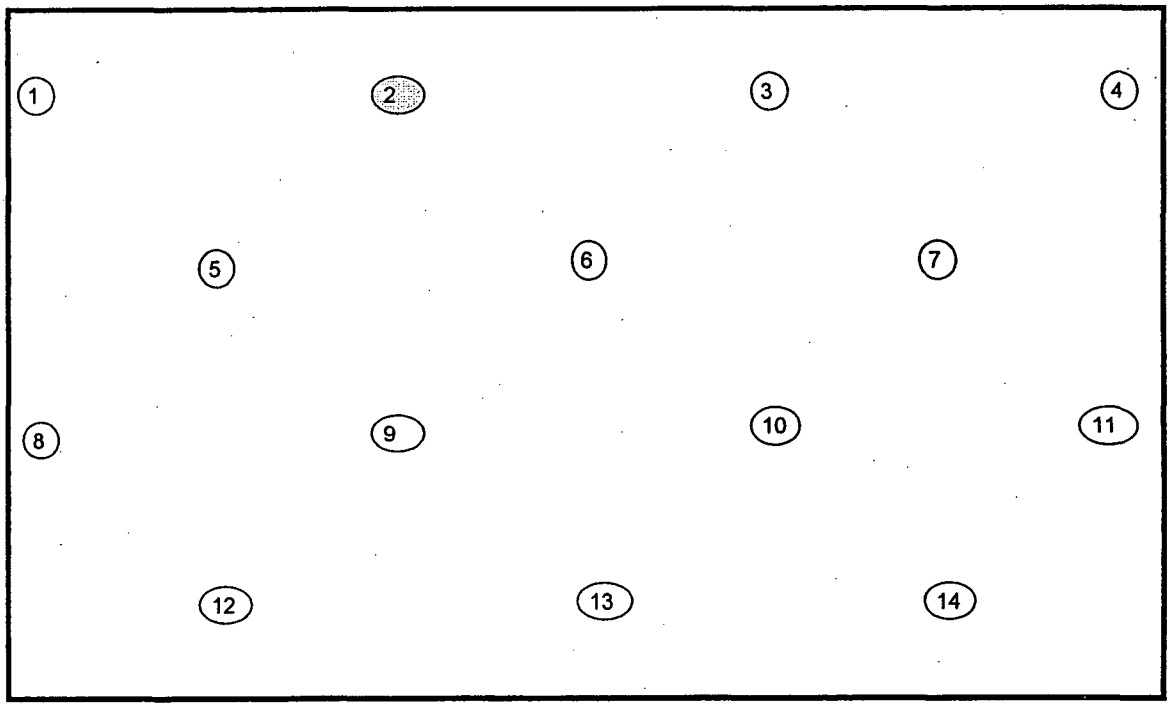
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-3-037

Room: 111- ZPR Laboratory Ceiling
Class 3
L=8.3 R=7.19

North
(looking up)



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **F-3-037**

Room: 111 - ZPR Laboratory Ceiling
Class 3
L = 8.30 R=7.19

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	0.08	23.99	0	1	24	0
2	8.38	23.99	8	5	24	0
3	16.68	23.99	16	8	24	0
4	24.98	23.99	25	0	24	0
5	4.23	16.80	4	3	16	10
6	12.53	16.80	12	6	16	10
7	20.83	16.80	20	10	16	10
8	0.08	9.61	0	1	9	7
9	8.38	9.61	8	5	9	7
10	16.68	9.61	16	8	9	7
11	24.98	9.61	25	0	9	7
12	4.23	2.43	4	3	2	5
13	12.53	2.43	12	6	2	5
14	20.83	2.43	20	10	2	5

Note: We Don't know if smears are on L2929 or LSC, yet.
Note: Do We need to use the extra points?
Note: Yellow is Random Start

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	111 - ZPR Laboratory Upper Walls	Survey Unit:	F-2-038
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 5
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	21695
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	11/16/2006
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2915	Background Reading (counts)		111.8	Background Reading (counts)		2915		
BKG (cpm)		291.5	BKG (cpm)		55.9	BKG (cpm)		291.5		
MDC (dpm/100cm2)		1789	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		478		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	291.5	cpm	R_B	55.9	cpm	R_B	291.5	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
2	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	20	<MDC	Sheet Metal
4	<MDC	<MDC	<MDC	87	20	<MDC	Concrete
5	<MDC	<MDC	<MDC	87	20	<MDC	Cinder Block
6	<MDC	<MDC	<MDC	89	20	<MDC	Cinder Block
7	<MDC	<MDC	<MDC	98	20	<MDC	Cinder Block
8	<MDC	<MDC	<MDC	88	15	<MDC	Cinder Block
9	<MDC	<MDC	<MDC	89	20	<MDC	Cinder Block
10	<MDC	<MDC	<MDC	89	20	<MDC	Metal
11	<MDC	<MDC	<MDC	89	20	<MDC	Wood
12	<MDC	<MDC	<MDC	90	10	<MDC	Glass
13	<MDC	<MDC	<MDC	92	20	<MDC	Metal
14	<MDC	<MDC	<MDC	89	20	<MDC	Glass

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	120	-1323.30	200	-706.02	58.7	9.48	20	206	-659.72
2	200	-706.02	300	65.59	67	37.56	20	330	297.07
3	140	-1168.98	200	-706.02	52	13.34	20	228	-489.97
4	160	-1014.66	240	-397.38	58.8	8.72	20	279	-96.45
5	120	-1323.30	260	-243.06	52.5	-11.36	20	234	-443.87
6	120	-1323.30	240	-397.38	57.6	5.78	20	229	-482.25
7	120	-1323.30	200	-706.02	63.4	28.25	20	192	-767.75
8	120	-1323.30	200	-706.02	52.7	-10.82	15	206	-659.72
9	120	-1323.30	200	-706.02	55	-3.06	20	247	-343.36
10	140	-1168.98	200	-706.02	64.5	29.26	20	176	-891.20
11	120	-1323.30	200	-706.02	66.7	36.76	20	203	-682.87
12	200	-706.02	320	219.91	69	45.16	10	204	-675.15
13	200	-706.02	300	65.59	56.2	1.06	20	201	-698.30
14	200	-706.02	310	142.75	58.2	7.83	20	246	-351.08

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

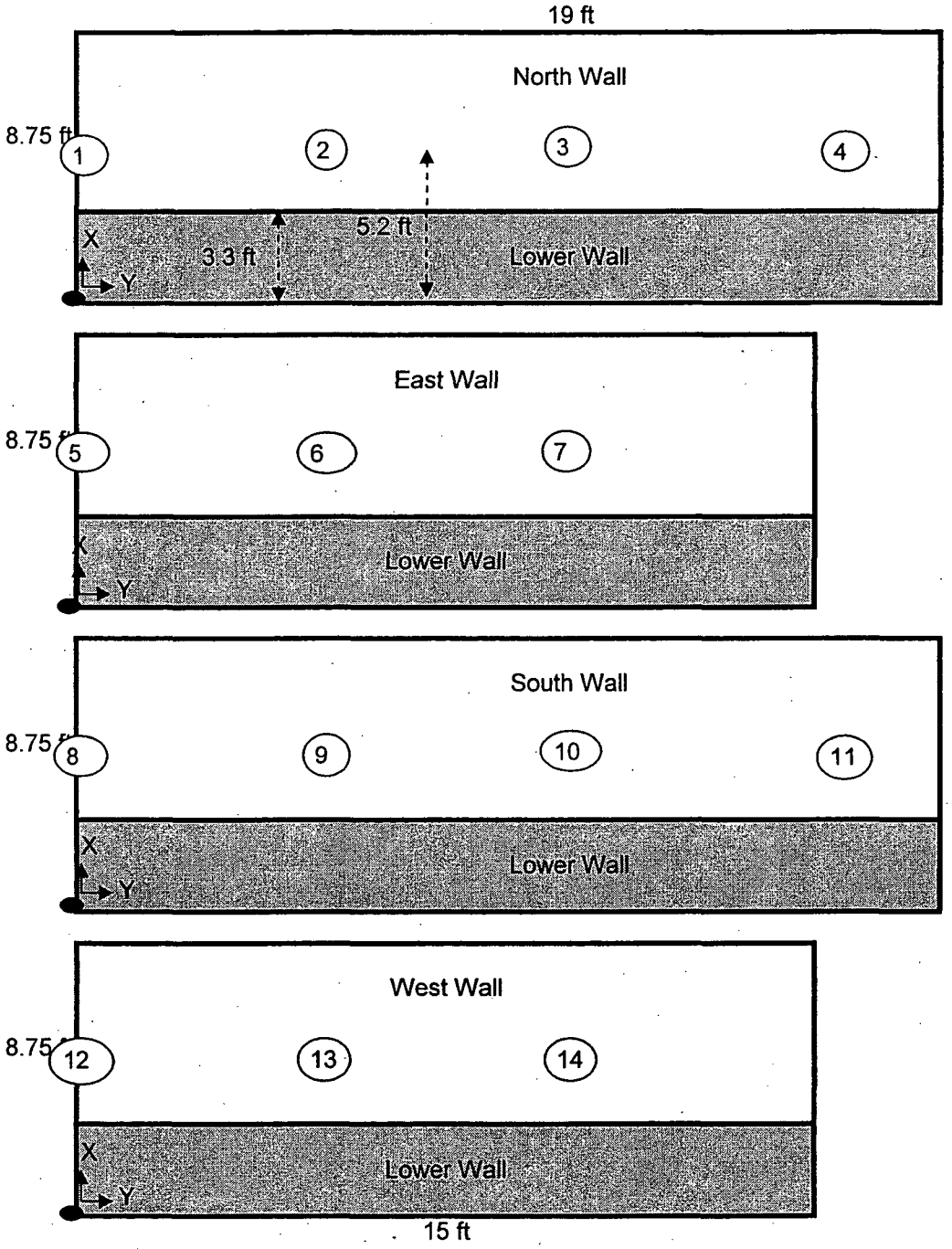
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	58.7	267418.4	743.93	29.53%
2	67	267418.4	744.06	29.55%
3	52	267418.4	742.37	29.22%
4	58.8	267418.4	745.5	29.84%
5	52.5	267418.4	745.93	29.92%
6	57.6	267418.4	743.25	29.40%
7	63.4	267418.4	728.11	26.55%
8	52.7	267418.4	744.12	29.57%
9	55	267418.4	743.12	29.37%
10	64.5	267418.4	743.25	29.40%
11	66.7	267418.4	743.18	29.38%
12	69	267418.4	741.25	29.01%
13	56.2	267418.4	737.58	28.31%
14	58.2	267418.4	743.12	29.37%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **F-2-038**

Room: 111 - ZPR Laboratory Upper Walls
Class 2
L=8.5, R=7.25



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **F-2-038**

Room: 111 - ZPR Laboratory Upper Walls
Class 2
L=8.5, R=7.25

Number	X	Y	Direct	uR/hr	Smear?		Material
North Wall (Starting Lower Left)							
1	0.5	5.2					
2	6.25	5.2					
3	12	5.2					
4	17.75	5.2					
East Wall (Starting Lower Left)							
5	0.5	5.2					
6	6.25	5.2					
7	12	5.2					
South Wall (Starting Lower Left)							
8	0.5	5.2					
9	6.25	5.2					
10	12	5.2					
11	17.75	5.2					
West Wall (Starting Lower Left)							
12	0.5	5.2					
13	6.25	5.2					
14	12	5.2					

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	111- ZPR Laboratory Floor and Lower Walls	Survey Unit:	F-1-039
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 5
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	21696
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	11/16/2006
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2915	Background Reading (counts)	111.5	Background Reading (counts)	2915		
BKG (cpm)	291.5	BKG (cpm)	55.9	BKG (cpm)	291.5		
MDC (dpm/100cm2)	1789	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	478		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_b	291.5	cpm	R_b	55.9	cpm	R_b	291.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (μR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	20	<MDC	Cinder Block
2	<MDC	<MDC	<MDC	91	30	<MDC	Tile
3	<MDC	<MDC	<MDC	91	30	<MDC	Tile
4	<MDC	<MDC	<MDC	88	30	<MDC	Concrete
5	<MDC	<MDC	<MDC	94	30	<MDC	Tile
6	<MDC	<MDC	<MDC	90	30	<MDC	Tile
7	<MDC	<MDC	<MDC	92	30	<MDC	Tile
8	<MDC	<MDC	<MDC	89	20	<MDC	Cinder Block
9	<MDC	<MDC	<MDC	86	20	<MDC	Tile
10	<MDC	<MDC	<MDC	92	20	<MDC	Tile
11	<MDC	<MDC	<MDC	83	20	<MDC	Concrete
12	<MDC	<MDC	<MDC	84	20	<MDC	Cinder Block
13	<MDC	<MDC	<MDC	80	20	<MDC	Cinder Block
14	<MDC	<MDC	<MDC	88	30	<MDC	Cinder Block

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	120	-1323.30	220	-551.70	58.9	10.10	20	261	-235.34
2	100	-1477.62	220	-551.70	66.5	37.08	30	258	-258.49
3	180	-660.34	240	-397.38	52.1	13.31	30	224	-520.83
4	120	-1323.30	240	-397.38	48.9	-23.62	30	285	-50.15
5	120	-1323.30	220	-551.70	57	3.95	30	220	-551.70
6	160	-1014.66	240	-397.38	53.3	-8.97	30	237	-420.52
7	160	-1014.66	220	-551.70	58	7.39	30	263	-219.91
8	120	-1323.30	200	-706.02	68.1	41.66	20	217	-574.85
9	140	-1168.98	200	-706.02	65.1	30.16	20	286	-42.44
10	120	-1323.30	200	-706.02	47.8	-28.40	20	280	-88.73
11	120	-1323.30	220	-551.70	59.6	11.78	20	258	-258.49
12	120	-1323.30	200	-706.02	48.9	-22.45	20	274	-135.03
13	120	-1323.30	200	-706.02	57.2	4.01	20	230	-474.54
14	120	-1323.30	200	-706.02	56.7	2.64	30	251	-312.50

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

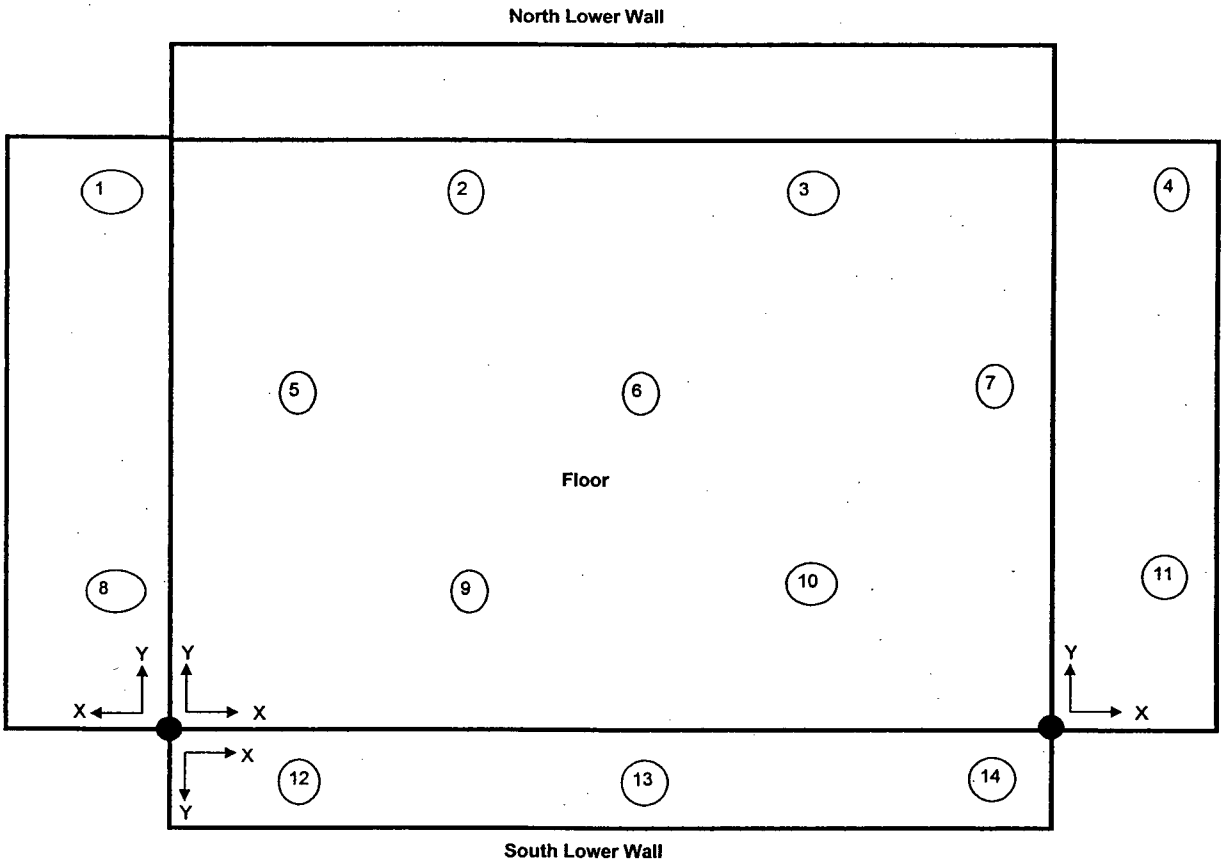
2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	58.9	267418.4	744.81	29.70%
2	66.5	267418.4	739.07	28.59%
3	52.1	267418.4	738.82	28.54%
4	48.9	267418.4	744.5	29.64%
5	57	267418.4	734.98	27.82%
6	53.3	267418.4	741.13	28.98%
7	58	267418.4	738.14	28.41%
8	68.1	267418.4	742.68	29.28%
9	65.1	267418.4	748.88	30.51%
10	47.8	267418.4	738.7	28.52%
11	59.6	267418.4	753.23	31.39%
12	48.9	267418.4	752.22	31.18%
13	57.2	267418.4	758.25	32.43%
14	56.7	267418.4	748	30.33%

Survey Unit: F-1-039

Room 111 - ZPR Laboratory Floor & Lower Walls
Class 1
L = 10.07 ft
R = 8.72 ft



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **F-1-039**

Room **111 - ZPR Laboratory Floor & Lower Walls**
Class 1
L=7.84 R=6.79

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)	Notes
1	0.80	23.68	0	10	23	8	1
2	9.28	23.68	9	3	23	8	
3	19.35	23.68	20	-8	23	8	
4	2.43	23.68	2	5	23	8	2
5	4.25	14.96	4	3	14	12	
6	14.32	14.96	14	4	14	12	
7	24.39	14.96	24	5	14	12	
8	0.80	6.24	0	10	6	3	1
9	9.28	6.24	9	3	6	3	
10	19.35	6.24	19	4	6	3	
11	2.43	6.24	2	5	6	3	2
12	4.25	2.48	4	3	2	6	3
13	14.32	2.48	14	4	2	6	3
14	24.39	2.48	24	5	2	6	3

Notes:
1 X measured up from the floor
2 X measured up from the floor
3 Y measured up from the floor

ENERGYSOLUTIONS

Final Status Survey Results
82A9578

Room #:	112,114,116,118, & Connecting Hallway floors	Survey Unit:	F-3-040
Surveyor:	LeRoy Cuneo (Print)	Sign	Date: 9/12/2006
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	Date: 10/3/2006

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	16
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3120	Background Reading (counts)	124.8	Background Reading (counts)	3120		
BKG (cpm)	312	BKG (cpm)	62.4	BKG (cpm)	312		
MDC (dpm/100cm2)	1851	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	493		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	312	cpm	R_B	62.4	cpm	R_B	312	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1851	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	493	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	73	18	<MDC	Tile
2	<MDC	<MDC	<MDC	71	20	<MDC	Tile
3	<MDC	<MDC	<MDC	75	20	<MDC	Tile
4	<MDC	<MDC	<MDC	69	20	<MDC	Tile
5	<MDC	<MDC	<MDC	65	20	<MDC	Tile
6	<MDC	<MDC	<MDC	63	20	<MDC	Tile
7	<MDC	<MDC	<MDC	65	20	<MDC	Tile
8	<MDC	<MDC	<MDC	62	20	<MDC	Tile
9	<MDC	<MDC	<MDC	72	18	<MDC	Tile
10	<MDC	<MDC	<MDC	71	20	<MDC	Tile
11	<MDC	<MDC	<MDC	70	20	<MDC	Tile
12	<MDC	<MDC	<MDC	68	20	<MDC	Tile
13	<MDC	<MDC	<MDC	69	20	<MDC	Tile
14	<MDC	<MDC	<MDC	65	20	<MDC	Tile
15	<MDC	<MDC	<MDC	62	20	<MDC	Tile
16	<MDC	<MDC	<MDC	69	20	<MDC	Tile

ENERGYSOLUTIONS

Final Survey Results
82A9578

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	250	-478.40	360	370.37	72.3	26.14	18	260	-401.23
2	250	-478.40	360	370.37	40	-58.05	20	262	-385.80
3	250	-478.40	360	370.37	57.7	-12.90	20	252	-462.98
4	250	-478.40	360	370.37	52.3	-25.41	20	259	-408.95
5	260	-401.23	360	370.37	59.7	-6.36	20	224	-679.01
6	250	-478.40	360	370.37	61.9	-1.15	20	261	-393.52
7	250	-478.40	360	370.37	57.7	-11.06	20	253	-455.25
8	250	-478.40	360	370.37	55.7	-15.13	20	257	-424.38
9	250	-478.40	360	370.37	60.9	-3.91	18	223	-686.73
10	250	-478.40	360	370.37	57.2	-13.35	20	300	-92.59
11	250	-478.40	360	370.37	53.7	-22.21	20	269	-331.79
12	250	-478.40	360	370.37	63.6	2.97	20	249	-486.11
13	250	-478.40	360	370.37	58.5	-9.77	20	247	-501.54
14	250	-478.40	360	370.37	53.5	-22.00	20	263	-378.09
15	250	-478.40	360	370.37	66.8	9.98	20	267	-347.22
16	250	-478.40	360	370.37	58.7	-9.31	20	241	-547.84

scan speed	0.5	detector widths per second
probe width	8.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.26%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2008	SQPE	Efficiency
1	72.3	442042.6	730.96	37.87%
2	40	442042.6	733.92	38.59%
3	57.7	442042.6	724.91	36.43%
4	52.3	442042.6	738.64	39.75%
5	59.7	442042.6	749.26	42.45%
6	61.9	442042.6	753.04	43.44%
7	57.7	442042.6	749.51	42.51%
8	55.7	442042.6	756.28	44.29%
9	60.9	442042.6	732.87	38.33%
10	57.2	442042.6	735.41	38.95%
11	53.7	442042.6	736.28	39.17%
12	63.6	442042.6	741.31	40.42%
13	58.5	442042.6	739.26	39.91%
14	53.5	442042.6	741.44	40.45%
15	66.8	442042.6	755.51	44.09%
16	58.7	442042.6	738.64	39.75%

ENERGYSOLUTIONS

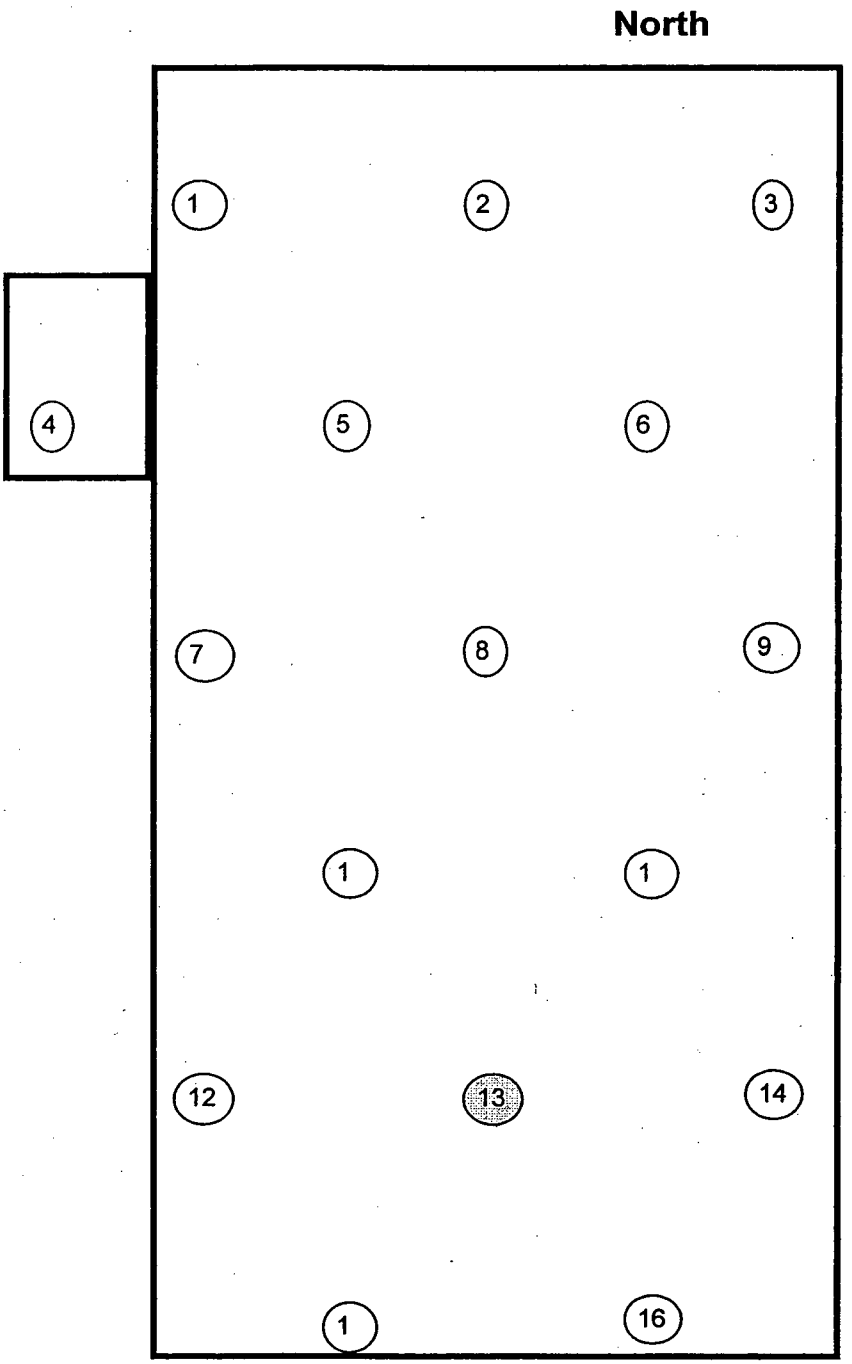
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **F-3-040**

Rooms: 112, 114, 116, 118, & Connecting Hallway floors

Class 3

L=11.24 R=9.73



Survey Unit: F-3-040

Rooms: 112, 114, 116, 118, & Connecting Hallway floors

Class 3

L=11.24 R=9.73

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	0.00	48.67	0	0	48	8
2	11.24	48.67	11	3	48	8
3	22.48	48.67	22	6	48	8
4	-5.62	38.93	-5	-7	38	11
5	5.62	38.93	5	7	38	11
6	16.86	38.93	16	10	38	11
7	0.00	29.20	0	0	29	2
8	11.24	29.20	11	3	29	2
9	22.48	29.20	22	6	29	2
10	5.62	19.46	5	7	19	6
11	16.86	19.46	16	10	19	6
12	0.00	9.73	0	0	9	9
13	11.24	9.73	11	3	9	9
14	22.48	9.73	22	6	9	9
15	5.62	0.00	5	7	0	0
16	16.86	0.00	16	10	0	0

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	117 - ZPR Tank Room - Ceiling and South, East, & West walls	Survey Unit:	F-1-041
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 5
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	21695
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	11/16/2006
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2915	Background Reading (counts)	111.8	Background Reading (counts)	2915		
BKG (cpm)	291.5	BKG (cpm)	55.9	BKG (cpm)	291.5		
MDC (dpm/100cm2)	1789	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	478		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	291.5	cpm	R_B	55.9	cpm	R_B	291.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	10	<MDC	Metal
2	<MDC	<MDC	<MDC	89	10	<MDC	Metal
3	<MDC	<MDC	<MDC	95	15	<MDC	Metal
4	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
6	<MDC	<MDC	<MDC	90	15	<MDC	Concrete
7	<MDC	<MDC	<MDC	91	15	<MDC	Concrete
8	<MDC	<MDC	<MDC	133	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
10	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	87	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	88	0	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	120	-1323.30	210	-628.86	64.4	28.68	10	155	-1053.24
2	100	-1477.62	200	-706.02	60.8	16.63	10	165	-976.08
3	120	-1323.30	200	-706.02	46.6	33.98	10	148	-1122.69
4	300	65.59	400	837.19	56.2	1.02	15	240	-397.38
5	280	-88.73	400	837.19	49.8	20.82	15	265	-204.48
6	300	65.59	400	837.19	59.4	12.13	15	241	-389.66
7	280	-88.73	340	374.23	54.1	6.28	15	256	-273.92
8	340	374.23	420	991.51	50.4	-28.11	15	279	-96.45
9	250	-320.22	320	219.91	57.2	4.45	10	242	-381.94
10	200	-706.02	300	65.59	54.2	-5.63	15	281	-81.02
11	300	65.59	380	682.87	68.1	40.92	10	236	-428.24
12	300	65.59	380	682.87	66.9	36.73	10	229	-482.25
13	300	65.59	380	682.87	60.5	15.56	10	223	-528.55

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	64.4	267418.4	744.5	29.64%
2	60.8	267418.4	743.56	29.46%
3	46.6	267418.4	732.57	27.37%
4	56.2	267418.4	742.62	29.27%
5	49.8	267418.4	742.75	29.30%
6	59.4	267418.4	740.44	28.85%
7	54.1	267418.4	739.57	28.68%
8	50.4	267418.4	684.94	19.57%
9	57.2	267418.4	742.37	29.22%
10	54.2	267418.4	747.37	30.21%
11	68.1	267418.4	745.37	29.81%
12	66.9	267418.4	746.06	29.95%
13	60.5	267418.4	744.12	29.57%

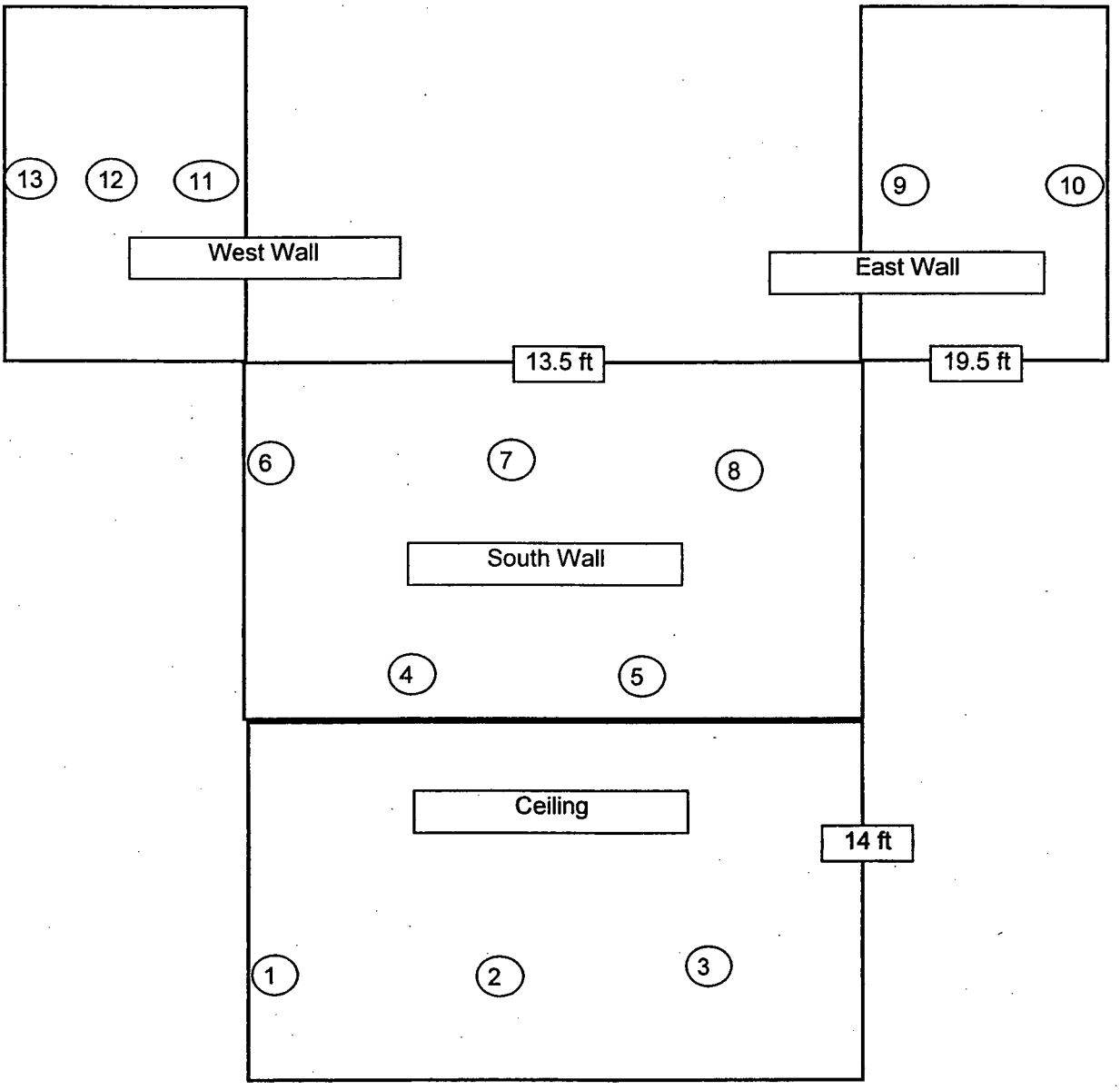
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-1-041

Room: 117 - ZPR Tank Room - Ceiling and South, East, & West walls
Class 1

L=9.25, R=8



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: F-1-041

Room: 117 - ZPR Tank Room - Ceiling and South, East, & West walls
Class 1

L=9.25, R=8

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
Ceiling (Starting Top NW Corner)							
1	4	0.25					
2	13.25	0.25					
3	8.75	8.25					
South (Starting TOP SW Corner)							
4	4	2.25					
5	13.25	2.25					
6	8.75	10.25					
7	4	18.25					
	13.25	32.25-15					
8	13.25	18.25					
East (Start in SE Corner)[In Line with Floor]							
9	6.75	4					
10	6.75	13.25					
West (Start in SE Corner)[In Line with Floor]							
11	6.75	0.5					
12	6.75	9.75					
13	6.75	19					

Note: We Don't know if smears are on L2929 or LSC, yet.
Note: Do We need to use the extra points?
Note: Yellow is Random Start

ENERGYSOLUTIONS

Final Sta[illegible]vey Results
Ward Center, Cornell University

Room #:	117 ZPR Tank Room - Floor and North Wall	Survey Unit:	F-1-042
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 6
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	21695
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	11/16/2006
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2915	Background Reading (counts)	111.5	Background Reading (counts)	2915		
BKG (cpm)	291.5	BKG (cpm)	55.9	BKG (cpm)	291.5		
MDC (dpm/100cm2)	1789	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	478		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	291.5	cpm	R_B	55.9	cpm	R_B	291.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	97	20	<MDC	Concrete
2	<MDC	<MDC	<MDC	92	20	<MDC	Concrete
3	<MDC	<MDC	<MDC	94	20	<MDC	Concrete
4	<MDC	<MDC	<MDC	93	20	<MDC	Concrete
5	<MDC	<MDC	<MDC	80	20	<MDC	Concrete
6	<MDC	<MDC	<MDC	96	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	84	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	93	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	84	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	109	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
15	<MDC	<MDC	<MDC	88	15	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	250	-320.22	300	65.59	55.4	11.86	20	261	-235.34
2	300	65.59	375	644.29	52.3	-12.73	20	242	-361.94
3	300	65.59	375	644.29	57.7	6.48	20	229	-482.25
4	300	65.59	400	837.19	53	-10.39	20	252	-304.78
5	300	65.59	375	644.29	60.4	15.48	20	281	-81.02
6	300	65.59	375	644.29	60.8	18.02	10	241	-389.66
7	300	65.59	375	644.29	53.6	-7.41	10	239	-405.09
8	300	65.59	375	644.29	57.6	5.58	10	269	-173.61
9	250	-320.22	320	219.91	50.9	-16.89	10	281	-81.02
10	150	-1091.82	280	-88.73	54.3	-5.59	10	298	50.15
11	150	-1091.82	280	-88.73	60.2	15.33	10	267	-189.04
12	160	-1014.66	250	-320.22	59.3	10.91	10	262	-227.62
13	150	-1091.82	280	-88.73	60.3	18.33	10	241	-389.66
14	200	-706.02	280	-88.73	52	-13.15	10	292	3.86
15	200	-706.02	280	-88.73	67.6	39.65	15	237	-420.52

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	55.4	267418.4	729.9	26.88%
2	52.3	267418.4	737.46	28.28%
3	57.7	267418.4	734.87	27.76%
4	53	267418.4	735.53	27.92%
5	60.4	267418.4	741.56	29.07%
6	60.8	267418.4	731.63	27.19%
7	53.6	267418.4	751.59	31.05%
8	57.6	267418.4	748.57	30.45%
9	50.9	267418.4	744.31	29.60%
10	54.3	267418.4	739.14	28.60%
11	60.2	267418.4	736.22	28.05%
12	59.3	267418.4	752.09	31.16%
13	60.3	267418.4	713.47	24.00%
14	52	267418.4	744.62	29.66%
15	67.6	267418.4	743.81	29.50%

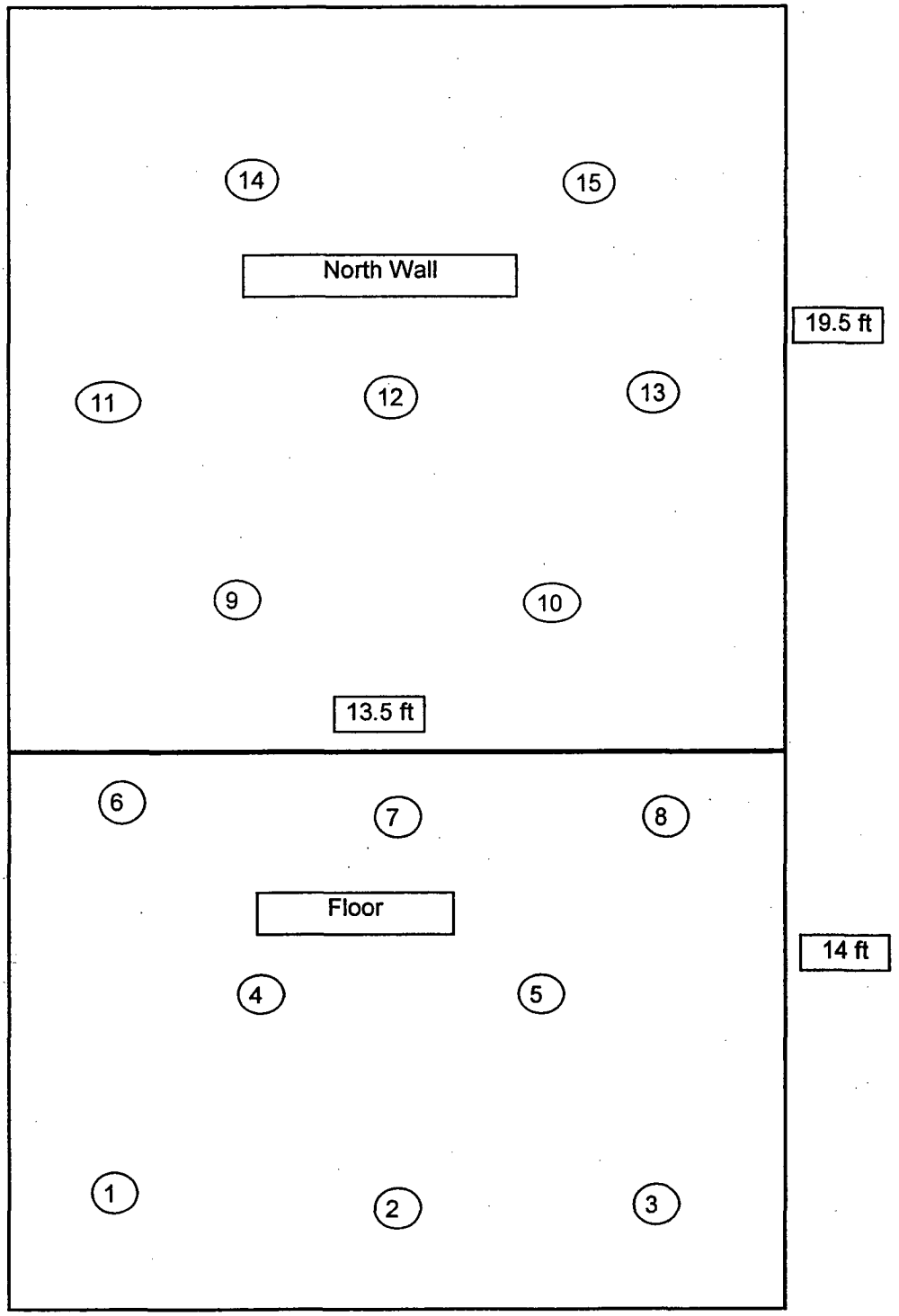
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **F-1-042**

Room:117 ZPR Tank Room - Floor and North Wall

L=6.25, R=5.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **F-1-042**

Room:117 ZPR Tank Room - Floor and North Wall

L=6.35, R=5.5

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Floor (Start in SW Corner)								
1	0.5	1						
2	6.75	1						
3	13	1						
4	3.75	6.5						
5	10	6.5						
6	0.5	12						
7	6.75	12						
8	13	12						
North(Start in SW Corner)								
9	3.75	3.25						
10	13	3.25						
11	0.5	8.75						
12	6.75	8.75						
13	13	8.75						
14	3.75	14.25						
15	13	14.25						

Note: We Don't know if smears are on L2929 or LSC, yet.
Note: Do We need to use the extra points?
Note: Yellow is Random Start

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	117 ZPR Upper Level - Ceiling and South, East, & West Walls	Survey Unit:	F-1-043
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/11/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148167
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		26.92%	Efficiency (%)		See Below	Efficiency (%)		26.92%	BKG (uR/hr)	20
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2874	Background Reading (counts)		124.8	Background Reading (counts)		2874		
BKG (cpm)		287.4	BKG (cpm)		62.4	BKG (cpm)		287.4		
MDC (dpm/100cm2)		1777	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		475		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	287.4	cpm	R_B	62.4	cpm	R_B	287.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1777	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2) Evaluation	LSC Smear Results (dpm/100cm2) MDC	Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
1	<MDC	<MDC	<MDC	89	24	<MDC	Concrete
2	<MDC	<MDC	<MDC	86	24	<MDC	Concrete
3	<MDC	<MDC	<MDC	88	20	<MDC	Concrete
4	<MDC	<MDC	<MDC	97	24	<MDC	Concrete
5	<MDC	<MDC	<MDC	93	24	<MDC	Concrete
6	<MDC	<MDC	<MDC	107	22	<MDC	Concrete
7	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
8	<MDC	<MDC	<MDC	87	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	88	24	<MDC	Concrete
10	<MDC	<MDC	<MDC	88	24	<MDC	Concrete
11	<MDC	<MDC	<MDC	92	24	<MDC	Concrete
12	<MDC	<MDC	<MDC	92	20	<MDC	Concrete
13	<MDC	<MDC	<MDC	95	20	<MDC	Concrete
14	<MDC	<MDC	<MDC	122	24	<MDC	Concrete

ENERGYSOLUTIONS

Final Statu[illegible]vey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	320	251.54	340	405.86	54.2	-26.88	24	244	-334.88
2	320	251.54	340	405.86	64.9	7.84	24	249	-296.30
3	340	405.86	340	405.86	50.6	-37.92	20	264	-180.56
4	320	251.54	340	405.86	65.8	12.05	24	236	-396.60
5	340	405.86	360	560.19	66	12.16	24	273	-111.11
6	330	328.70	360	560.19	67	17.88	22	257	-234.57
7	320	251.54	340	405.86	63.4	3.23	20	286	-10.80
8	340	405.86	360	560.19	56.6	-18.34	20	249	-296.30
9	340	405.86	370	637.35	67.1	15.02	24	264	-180.56
10	340	405.86	360	560.19	48.1	-44.78	24	279	-64.81
11	320	251.54	340	405.86	55.1	-24.46	24	290	20.06
12	350	483.02	350	483.02	62.3	0.34	20	247	-311.73
13	340	405.86	360	560.19	69	22.84	20	271	-126.54
14	340	405.86	360	560.19	59.8	-11.51	24	279	-64.81

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	54.2	267418.4	750.01	30.73%
2	64.9	267418.4	755.64	31.88%
3	50.6	267418.4	751.9	31.12%
4	65.8	267418.4	737.09	28.21%
5	66	267418.4	744.37	29.61%
6	67	267418.4	723.49	25.73%
7	63.4	267418.4	751.15	30.96%
8	56.6	267418.4	754.37	31.62%
9	67.1	267418.4	752.79	31.30%
10	48.1	267418.4	755.9	31.94%
11	55.1	267418.4	745.56	29.85%
12	62.3	267418.4	745.5	29.84%
13	69	267418.4	740.69	28.90%
14	59.8	267418.4	704.81	22.58%

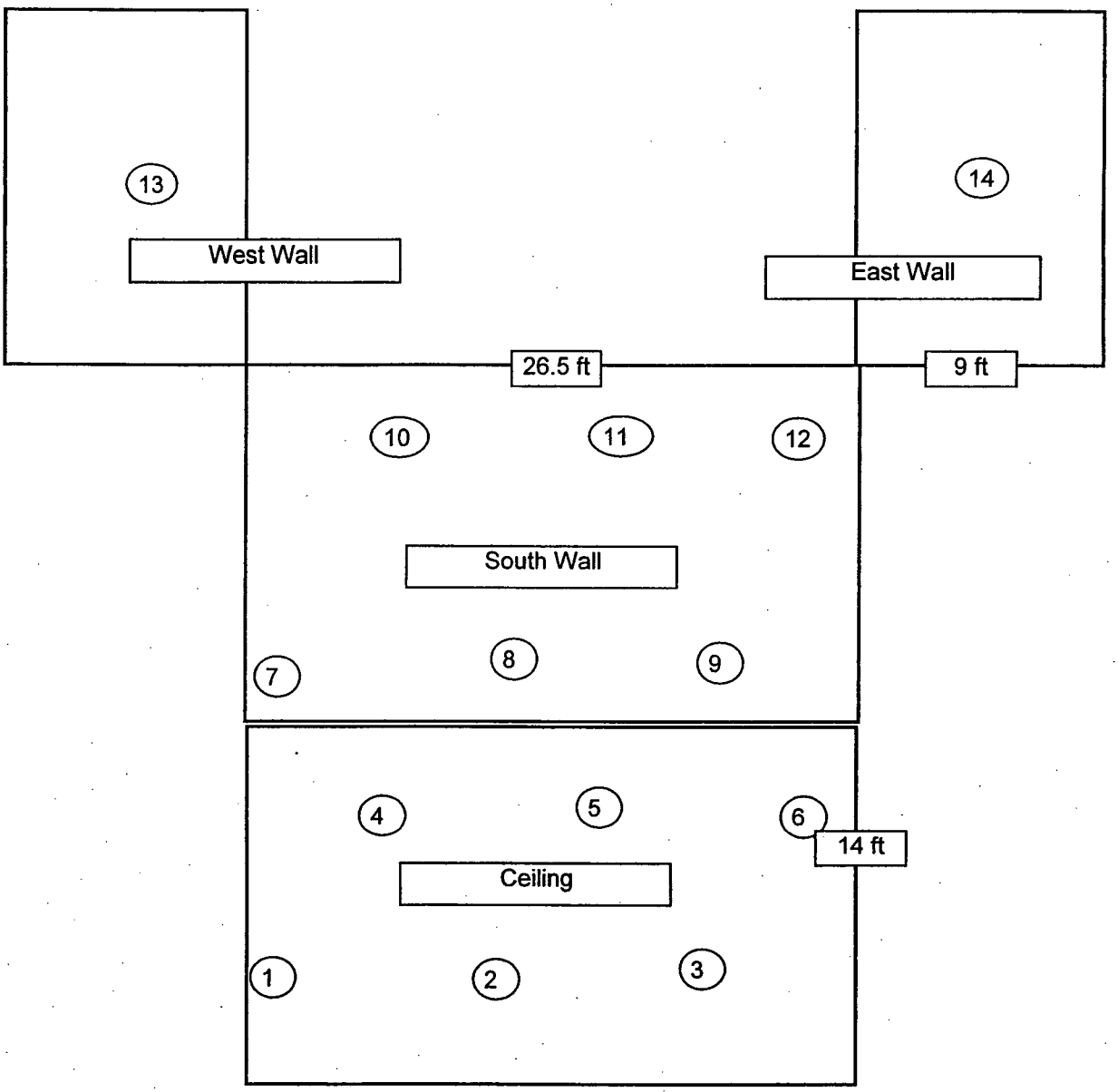
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-1-043

Room: 117 - ZPR Upper Level - Ceiling and South, East, & West walls

Class 1
L=8.75, R=7.5



Survey Unit: F-1-043

Room: 117 - ZPR Upper Level - Ceiling and South, East, & West walls
Class 1
L=8.75, R=7.5

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Ceiling (Starting Top NW Corner)								
1	6.25	0.25						
2	15	0.25						
3	23.75	0.25						
4	1.75	7.75						
5	10.25	7.75						
6	19.25	7.75						
South (Starting TOP SW Corner)								
7	6.25	1.5						
8	15	1.5						
9	23.75	1.5						
10	1.75	8.75						
11	10.25	8.75						
12	19.25	8.75						
West (Start in SE Corner)								
13	7.5	2.5						
East (Start in SE Corner)								
14	7.5	6						

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Room #:	117 ZPR Upper Level - Floor and North wall	Survey Unit:	F-1-044
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/11/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #	L2360		Meter Model #	Wallac 1400		Meter Model #	L2360		Meter Model #	L 19
Meter Serial #	193629		Meter Serial #	Unknown		Meter Serial #	193629		Meter Serial #	148157
Probe Serial #	200130		Probe Serial #	NA		Probe Serial #	200130		Cal Due	3/5/2007
Cal Due	11/19/2006		Cal Due	NA		Cal Due	11/19/2006		Type	beta/gamma
Efficiency (%)	25.92%		Efficiency (%)	See Below		Efficiency (%)	25.92%		BKG (uR/hr)	20
Type	beta/gamma		Type	beta/gamma		Type	beta/gamma		Guideline (mR/hr)	NA
Sample Time (min)	1		Sample Time (min)	2		Sample Time (min)	1		Action Level (mR/hr)	NA
Background Time (min)	10		Background Time (min)	2		Background Time (min)	10			
Background Reading (counts)	2874		Background Reading (counts)	111.5		Background Reading (counts)	2874			
BKG (cpm)	287.4		BKG (cpm)	55.9		BKG (cpm)	287.4			
MDC (dpm/100cm2)	1777		MDC (dpm/100cm2)	See Below		MDC (dpm/100cm2)	475			
Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA		Guideline (dpm/100cm^2)	NA			
Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA		Action Level (dpm/100cm^2)	NA			
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	287.4	cpm	R_B	55.9	cpm	R_B	287.4	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	25%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1777	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	92	20	<MDC	Metal
2	<MDC	<MDC	<MDC	108	20	<MDC	Metal
3	<MDC	<MDC	<MDC	94	22	667.90	Concrete
4	<MDC	<MDC	<MDC	86	24	<MDC	Concrete
5	<MDC	<MDC	<MDC	83	20	<MDC	Metal
6	<MDC	<MDC	<MDC	88	24	<MDC	Concrete
7	<MDC	<MDC	<MDC	86	24	<MDC	Concrete
8	<MDC	<MDC	<MDC	81	20	<MDC	Metal
9	<MDC	<MDC	<MDC	70	20	<MDC	Metal
10	<MDC	<MDC	<MDC	63	20	<MDC	Concrete
11	<MDC	<MDC	<MDC	111	20	<MDC	Concrete
12	<MDC	<MDC	<MDC	86	18	<MDC	Concrete
13	<MDC	<MDC	<MDC	89	20	<MDC	Concrete
14	<MDC	<MDC	<MDC	82	20	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	200	-674.38	300	97.22	65.9	35.22	20	207	-620.37
2	200	-674.38	300	97.22	59.5	14.83	20	188	-766.98
3	320	251.54	380	714.51	57.8	8.68	22	361	567.90
4	300	97.22	380	714.51	57.5	5.37	24	321	259.26
5	240	-365.74	300	97.22	55.5	-1.27	20	159	-990.74
6	300	97.22	400	868.83	53.7	-7.41	24	297	74.07
7	350	483.02	440	1177.47	57.8	6.23	24	293	43.21
8	220	-520.06	320	251.54	59.3	10.55	20	202	-658.95
9	200	-674.38	320	251.54	49.9	-16.03	20	184	-797.84
10	300	97.22	400	868.83	64.5	20.79	20	300	97.22
11	320	251.54	400	868.83	59.3	14.41	20	323	274.69
12	300	97.22	420	1023.15	58.8	9.83	18	268	-149.69
13	320	251.54	400	868.83	62.4	21.93	20	230	-442.90
14	320	251.54	400	868.83	59.3	10.64	20	278	-72.53

scan speed	0.5	detector widths per second
probe width	8.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

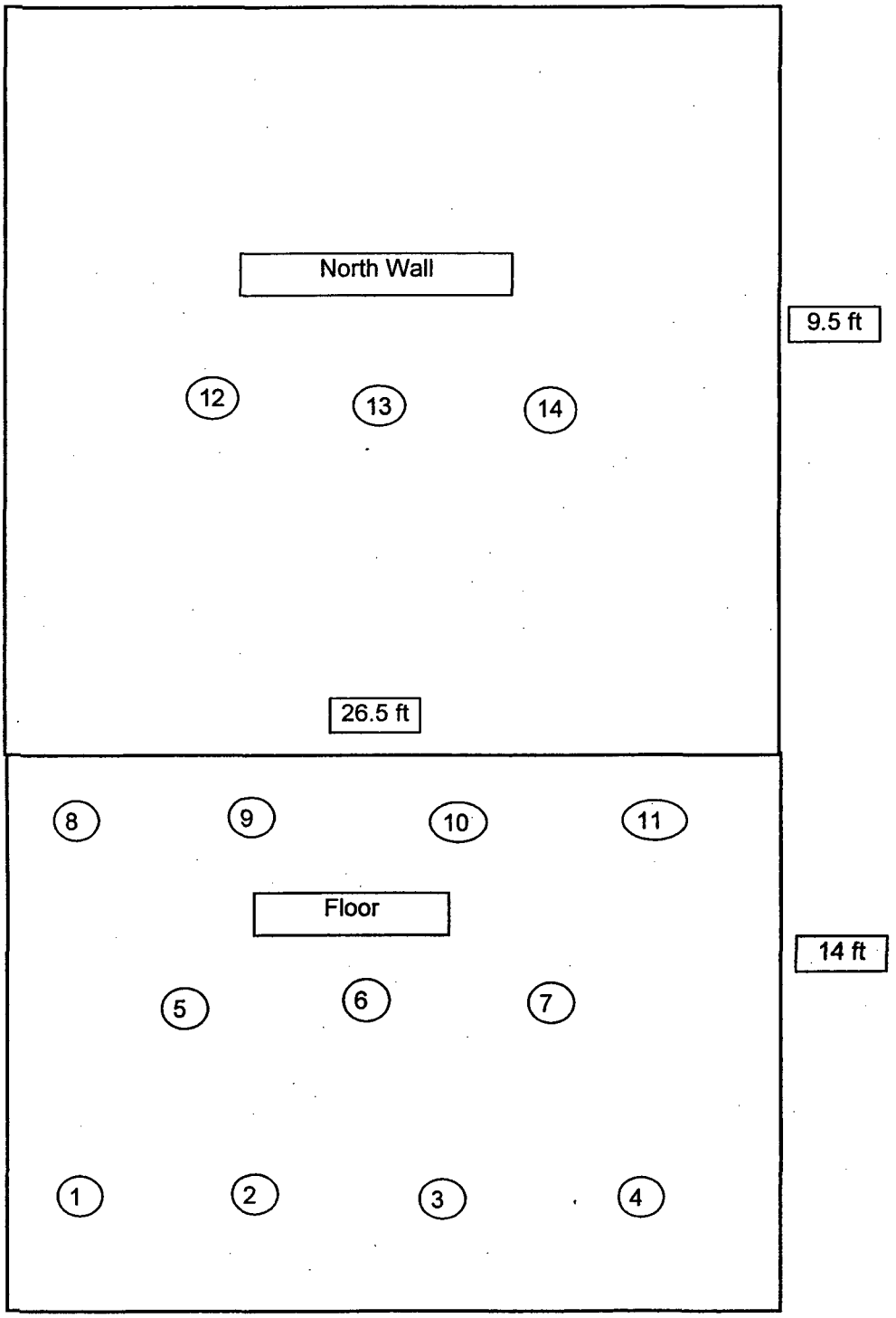
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	65.9	267418.4	738.02	28.39%
2	59.5	267418.4	715.07	24.27%
3	57.8	267418.4	733.92	27.62%
4	57.5	267418.4	745.18	29.77%
5	55.5	267418.4	754.25	31.60%
6	53.7	267418.4	744.68	29.68%
7	57.8	267418.4	748.75	30.48%
8	59.3	267418.4	757.29	32.22%
9	49.9	267418.4	780.93	37.42%
10	64.5	267418.4	797.37	41.36%
11	59.3	267418.4	711.08	23.60%
12	58.8	267418.4	744.12	29.57%
13	62.4	267418.4	744.5	29.64%
14	59.3	267418.4	755.96	31.95%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-1-044
Room:117 ZPR Upper Level - Floor and North Wall

Class 1
L=7.5, R=6.5



Survey Unit: **F-1-044**

Room:117 ZPR Upper Level - Floor and North Wall
Class 1
L=7.5, R=6.5

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Floor (Start in SW Corner)								
1	3.25	0.5						
2	10.75	0.5						
3	18.25	0.5						
4	25.75	0.5						
5	7	7						
6	14.5	7						
7	22	7						
8	3.25	13.5						
9	10.75	13.5						
10	18.25	13.5						
11	25.75	13.5						
North(Start in SW Corner)								
12	7	6						
13	14.5	6						
14	22	6						

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Room #:	117 - ZPR hallway	Survey Unit:	F-1-045
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/8/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 5
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	201695
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	11/18/2006
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	20
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2915	Background Reading (counts)	111.5	Background Reading (counts)	2915		
BKG (cpm)	291.5	BKG (cpm)	55.9	BKG (cpm)	291.5		
MDC (dpm/100cm2)	1789	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	478		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	291.5	cpm	R_B	55.9	cpm	R_B	291.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1789	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	478	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
	<MDC	<MDC	<MDC	96	15	<MDC	Concrete
	<MDC	<MDC	<MDC	106	10	<MDC	Concrete
	<MDC	<MDC	<MDC	96	15	<MDC	Concrete
	<MDC	<MDC	<MDC	89	15	<MDC	Concrete
	<MDC	<MDC	<MDC	87	15	<MDC	Concrete
	<MDC	<MDC	<MDC	92	15	<MDC	Concrete
	<MDC	<MDC	<MDC	91	15	<MDC	Concrete
	<MDC	<MDC	<MDC	88	10	<MDC	Metal
	<MDC	<MDC	<MDC	93	10	<MDC	Concrete
	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
	<MDC	<MDC	<MDC	92	10	<MDC	Concrete
	<MDC	<MDC	<MDC	96	10	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	340	374.23	450	1222.99	54.4	-5.04	10	198	-721.45
2	360	528.55	450	1222.99	51.5	-16.19	15	215	-590.28
3	360	528.55	440	1145.83	59.3	14.05	10	350	451.39
4	350	451.39	450	1222.99	58.9	10.95	15	318	204.48
5	340	374.23	450	1222.99	59.9	13.59	15	295	27.01
6	360	528.55	460	1300.15	50.1	-19.42	15	307	119.60
7	350	528.55	440	1145.83	59.3	12.02	15	301	73.30
8	350	528.55	450	1222.99	61.7	20.19	15	301	73.30
9	350	451.39	440	1145.83	50.3	-18.89	10	191	-775.46
10	340	374.23	450	1222.99	50.9	-17.83	10	300	65.59
11	360	528.55	460	1300.15	61.3	18.90	10	301	73.30
12	350	451.39	460	1300.15	60.1	14.76	10	352	466.82
13	360	528.55	440	1145.83	60.8	18.09	10	291	-3.86

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

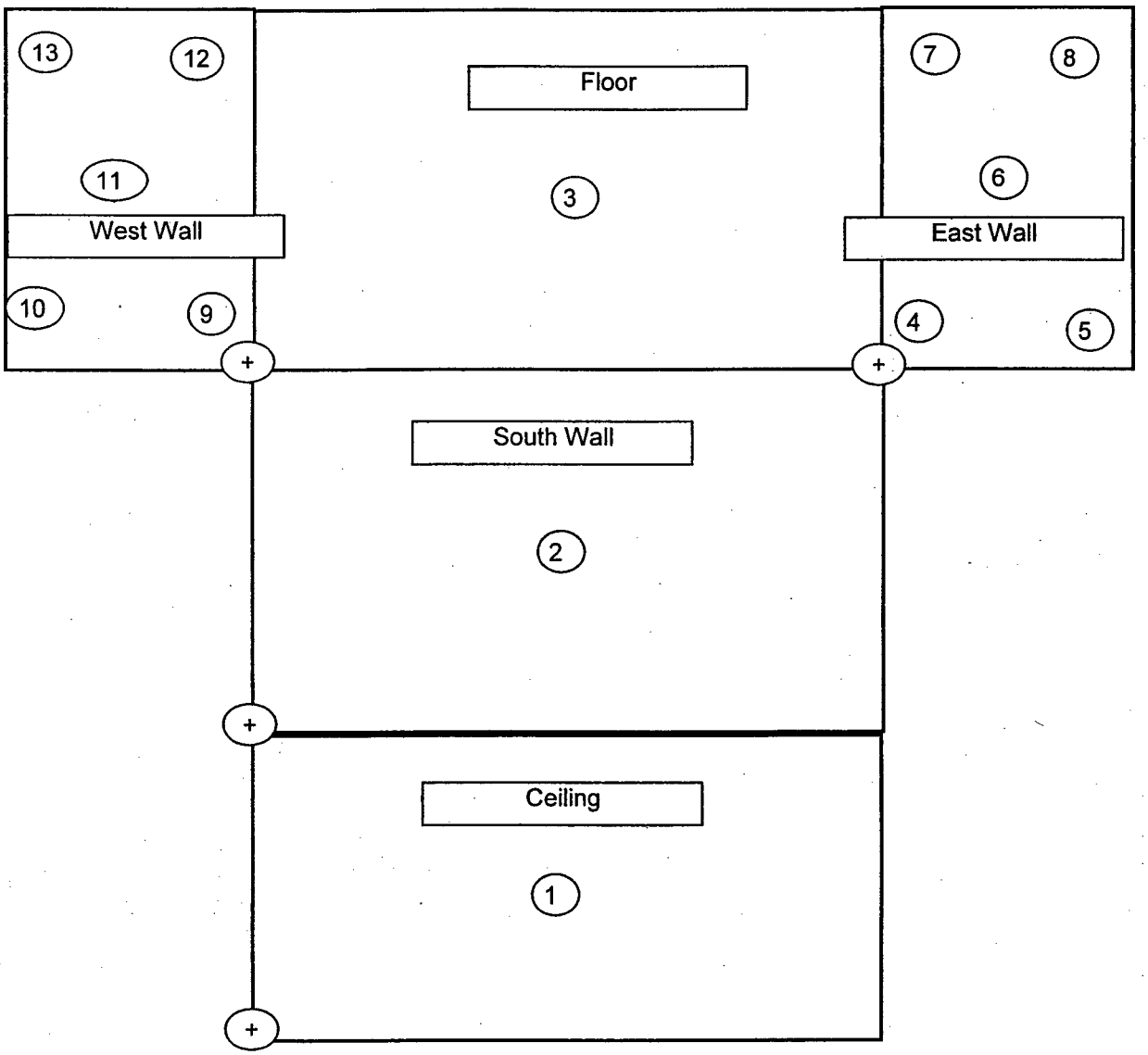
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2008	SQPE	Efficiency
1	54.4	267418.4	745	29.74%
2	51.5	267418.4	731.51	27.17%
3	59.3	267418.4	714.64	24.20%
4	58.9	267418.4	732.75	27.40%
5	59.9	267418.4	743.43	29.43%
6	50.1	267418.4	745.68	29.87%
7	59.3	267418.4	737.46	28.28%
8	61.7	267418.4	739.82	28.73%
9	50.3	267418.4	744.56	29.65%
10	50.9	267418.4	736.22	28.05%
11	61.3	267418.4	739.01	28.58%
12	60.1	267418.4	738.33	28.45%
13	60.8	267418.4	731.02	27.08%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **F-1-045**

Room: 117 - ZPR Hallway
Class 1
L=7.25, R=6.25



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **F-1-045**

Room: 117- ZPR Hallway

Class 1
L=7.25, R=6.25

Number	X	Y	Direct	uR/hr	Meterial	ScanAve	ScanMax
Ceiling (Starting Top NW Corner)							
1	2.5	10.25					
2	2.5	6					
Floor (Start in SW Corner)							
3	2.5	9.25					
East (Start in SE Corner)[In Line with Floor]							
4	3	0.75					
5	3	8					
6	9.25	4.5					
7	15.5	0.75					
8	15.5	8					
West (Start in SE Corner)[In Line with Floor]							
9	3	1.25					
10	3	8.5					
11	9.25	4.75					
12	15.5	1.25					
13	15.5	8.5					

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Room #:	1R07 - Top of Gamma Cell	Survey Unit:	F-1-046
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/26/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3037	Background Reading (counts)	105	Background Reading (counts)	3037		
BKG (cpm)	303.7	BKG (cpm)	52.5	BKG (cpm)	303.7		
MDC (dpm/100cm2)	1827	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	487		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	303.7	cpm	R_B	52.5	cpm	R_B	303.7	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1827	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	487	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	85	10	<MDC	Concrete
7	<MDC	<MDC	<MDC	87	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	91	10	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	320	125.77	380	588.73	46.5	-21.05	10	343	303.24
2	300	-28.55	360	434.41	53.5	3.52	10	279	-190.59
3	300	-28.55	360	434.41	49.1	-11.96	10	358	418.98
4	300	-28.55	340	280.09	51.6	-3.12	10	310	48.61
5	280	-182.87	340	280.09	52.7	0.70	10	321	133.49
6	340	280.09	400	743.06	43	-31.93	10	348	341.82
7	260	-337.19	320	125.77	54.7	7.54	10	289	-113.43
8	240	-491.51	260	-337.19	45.2	-25.27	10	246	-445.22
9	260	-337.19	300	-28.55	46.3	-21.64	10	284	-152.01
10	260	-337.19	300	-28.55	48.3	-14.71	10	286	-136.57
11	260	-337.19	300	-28.55	46.5	-20.43	10	273	-236.88
12	280	-182.87	320	125.77	46.5	-21.12	10	326	172.07
13	280	-182.87	320	125.77	59.3	23.67	10	306	17.75
14	240	-491.51	320	125.77	53.2	2.52	10	243	-468.36

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/8/2006	SQPE	Efficiency
1	46.5	267418.4	738.64	28.51%
2	53.5	267418.4	738.02	28.39%
3	49.1	267418.4	738.27	28.44%
4	51.6	267418.4	740.19	28.80%
5	52.7	267418.4	738.2	28.42%
6	43	267418.4	745.06	29.75%
7	54.7	267418.4	742.12	29.18%
8	45.2	267418.4	740.63	28.89%
9	46.3	267418.4	739.38	28.65%
10	48.3	267418.4	738.89	28.55%
11	46.5	267418.4	743.12	29.37%
12	46.5	267418.4	738.14	28.41%
13	59.3	267418.4	739.82	28.73%
14	53.2	267418.4	734.67	27.76%

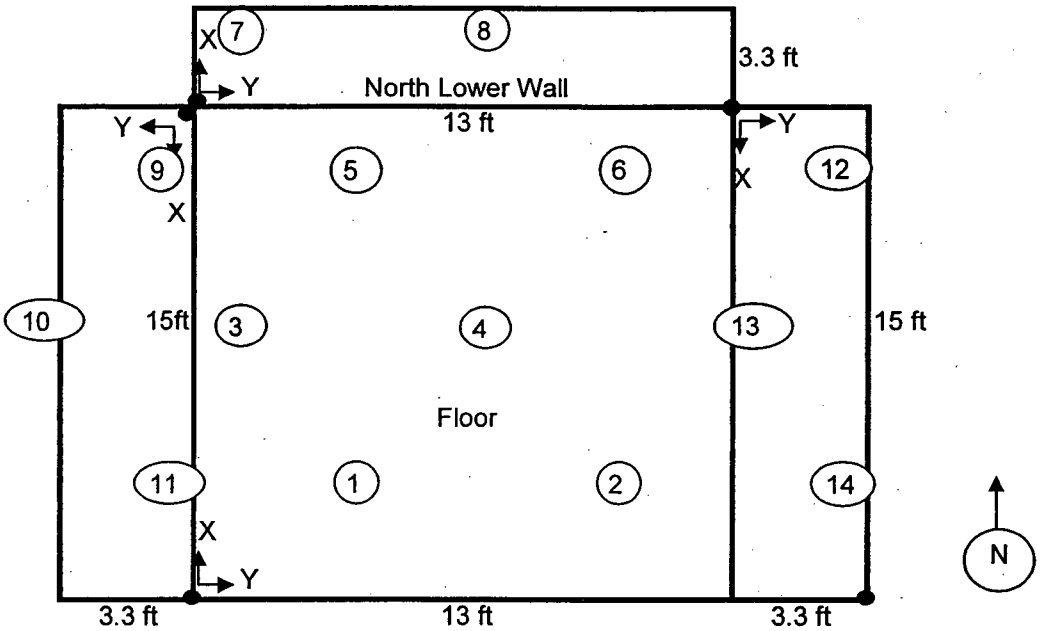
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-1-046

Room: 1R07 - Top of Gamma Cell (floor and lower walls)

Class 1
L=5.5, R=4.75



Survey Unit: F-1-046

Room: 1R07 - Top of Gamma Cell (floor and lower walls)

Class 1
L=5.5, R=4.75

Number	X	Y	Direct	uR/hr	Smear?		Material
Floor (Starting SW corner)							
1	5	3.5					
2	10.5	3.5					
3	2.25	8.25					
4	7.75	8.25					
5	5	13					
6	10.5	13					
North Wall (Starting BOTTOM W Corner)							
7	2.25	2.75					
8	7.75	2.75					
West Wall (Starting BOTTOM N Corner)							
9	2	0.5					
10	6.75	3.25					
11	11.5	0.5					
East Wall (Starting BOTTOM N Corner)							
12	2	3					
13	6.75	0.25					
14	11.5	3					

ENERGYSOLUTIONS

Room #:	113 - ZPR Control Room Ceiling	Survey Unit:	F-3-047
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/26/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148162
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3261	Background Reading (counts)		108.4	Background Reading (counts)		3261		
BKG (cpm)		326.1	BKG (cpm)		54.2	BKG (cpm)		326.1		
MDC (dpm/100cm2)		1893	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		504		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
2	<MDC	<MDC	<MDC	96	12	<MDC	Concrete
3	<MDC	<MDC	<MDC	97	12	<MDC	Concrete
4	<MDC	<MDC	<MDC	104	12	<MDC	Concrete
5	<MDC	<MDC	<MDC	100	12	<MDC	Concrete
6	<MDC	<MDC	<MDC	96	12	<MDC	Concrete
7	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
8	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
9	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
10	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	85	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	89	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	86	12	<MDC	Concrete
14	<MDC	<MDC	<MDC	88	12	<MDC	Concrete
15					12	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	340	107.25	360	261.57	57.8	12.93	12	337	84.10
2	340	107.25	360	261.57	58.1	14.57	12	341	114.97
3	330	30.09	350	184.41	48.1	-22.98	12	310	-124.23
4	320	-47.07	340	107.25	50.4	-15.35	12	284	-324.85
5	340	107.25	360	261.57	46.8	-28.81	12	355	222.99
6	320	-47.07	340	107.25	57.2	11.18	12	327	6.94
7	320	-47.07	340	107.25	56.1	6.78	12	326	-0.77
8	320	-47.07	340	107.25	44	-35.69	12	316	-77.93
9	320	-47.07	340	107.25	41.9	-42.83	12	321	-39.35
10	300	-201.39	320	-47.07	56.7	8.49	12	288	-293.98
11	340	107.25	360	261.57	53.5	-2.32	12	307	-147.38
12	340	107.25	360	261.57	53.2	-3.44	12	307	-147.38
13	340	107.25	360	261.57	51.1	-10.25	12	348	168.98
14	340	107.25	360	261.57	55.7	5.16	12	310	-124.23
							12	313	-101.08

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

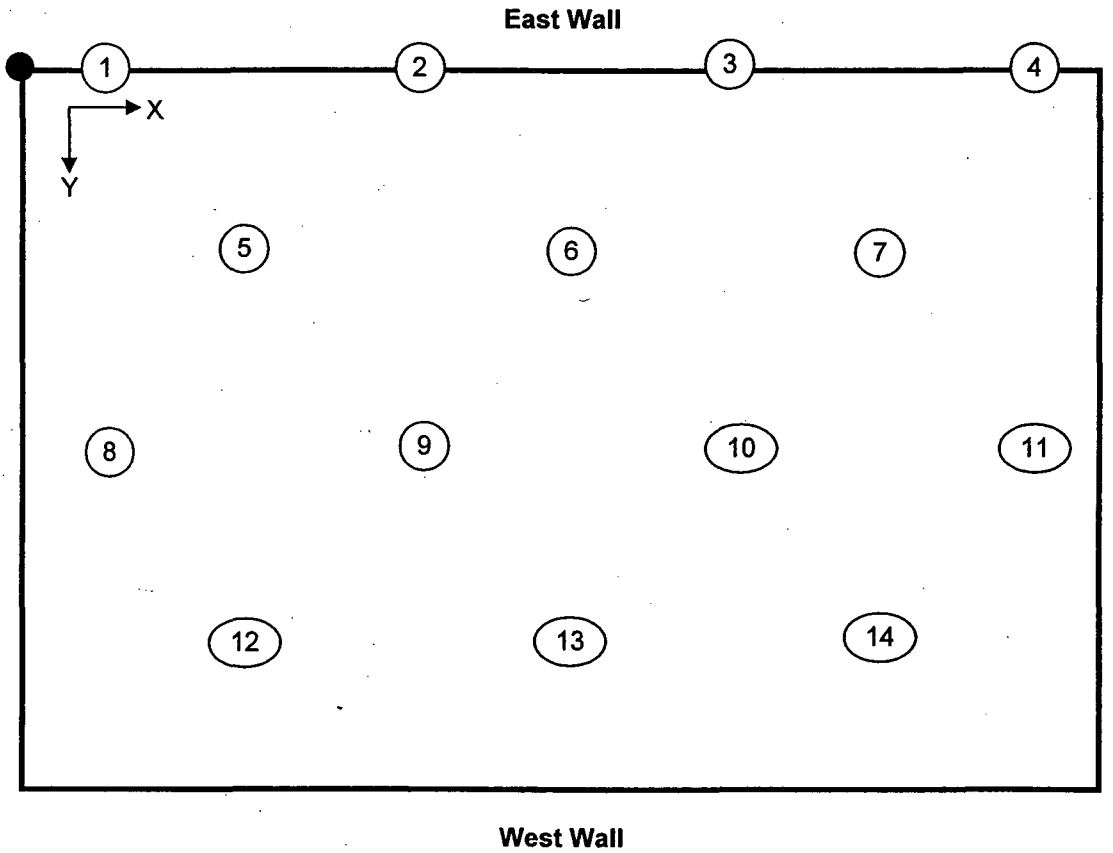
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	57.8	267418.4	735.16	27.85%
2	58.1	267418.4	729.29	26.77%
3	48.1	267418.4	728.05	26.54%
4	50.4	267418.4	717.96	24.76%
5	46.8	267418.4	723.25	25.68%
6	57.2	267418.4	729.66	26.83%
7	56.1	267418.4	736.03	28.01%
8	44	267418.4	739.01	28.58%
9	41.9	267418.4	739.76	28.72%
10	56.7	267418.4	743.56	29.46%
11	53.5	267418.4	747.44	30.22%
12	53.2	267418.4	741.38	29.03%
13	51.1	267418.4	747.56	30.24%
14	55.7	267418.4	741.62	29.08%

Survey Unit: F-3-047

Room: 113 - ZPR Control Room Ceiling

Class 3



Survey Unit: **F-3-047**

Room: 113 - ZPR Control Room Ceiling

Class 3

Number	X (ft)	X (in)	Y (ft)	Y (in)
1	2	8	0	0
2	9	0	0	0
3	15	4	0	0
4	21	8	0	0
5	5	10	5	6
6	12	2	5	6
7	18	6	5	6
8	2	8	10	12
9	9	0	10	12
10	15	4	10	12
11	21	8	10	12
12	5	10	16	5
13	12	2	16	5
14	18	6	16	5

ENERGYSOLUTIONS

Final Sta[illegible] Survey Results
Ward Center, Cornell University

Room #:	113 ZPR Control Room - Upper Walls	Survey Unit:	F-2-048
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/25/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3261	Background Reading (counts)	108.4	Background Reading (counts)	3261		
BKG (cpm)	326.1	BKG (cpm)	54.2	BKG (cpm)	326.1		
MDC (dpm/100cm2)	1893	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	504		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	90	10	<MDC	Wood
3	<MDC	<MDC	<MDC	93	10	<MDC	Metal
4	<MDC	<MDC	<MDC	94	10	<MDC	Wood
5	<MDC	<MDC	<MDC	96	10	<MDC	Glass
6	<MDC	<MDC	<MDC	76	10	<MDC	Glass
7	<MDC	<MDC	<MDC	82	10	<MDC	Concrete
8	<MDC	<MDC	<MDC	82	10	<MDC	Metal
9	<MDC	<MDC	<MDC	91	10	<MDC	Metal
10	<MDC	<MDC	<MDC	93	10	<MDC	Canvas
11	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	88	10	<MDC	Metal
13	<MDC	<MDC	<MDC	86	10	<MDC	Concrete

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	340	107.25	350	184.41	55.8	5.59	10	311	-116.51
2	220	-818.67	230	-741.51	58	13.32	10	242	-648.92
3	230	-741.51	240	-664.35	53.7	-1.81	10	230	-741.51
4	230	-741.51	240	-664.35	55.2	3.66	10	228	-756.94
5	240	-664.35	260	-510.03	58.7	16.76	10	250	-587.19
6	240	-664.35	260	-510.03	44.7	-28.00	10	241	-656.64
7	340	107.25	360	261.57	57.2	9.62	10	323	-23.92
8	220	-818.67	240	-664.35	53.7	-1.60	10	223	-795.52
9	240	-664.35	260	-510.03	52.5	-6.04	10	279	-363.43
10	210	-895.83	240	-664.35	44.4	-35.31	10	236	-695.22
11	320	-47.07	340	107.25	60.3	21.65	10	314	-93.36
12	220	-818.67	240	-664.35	48.3	-20.16	10	234	-710.65
13	320	-47.07	340	107.25	47.3	-23.19	10	294	-247.69

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

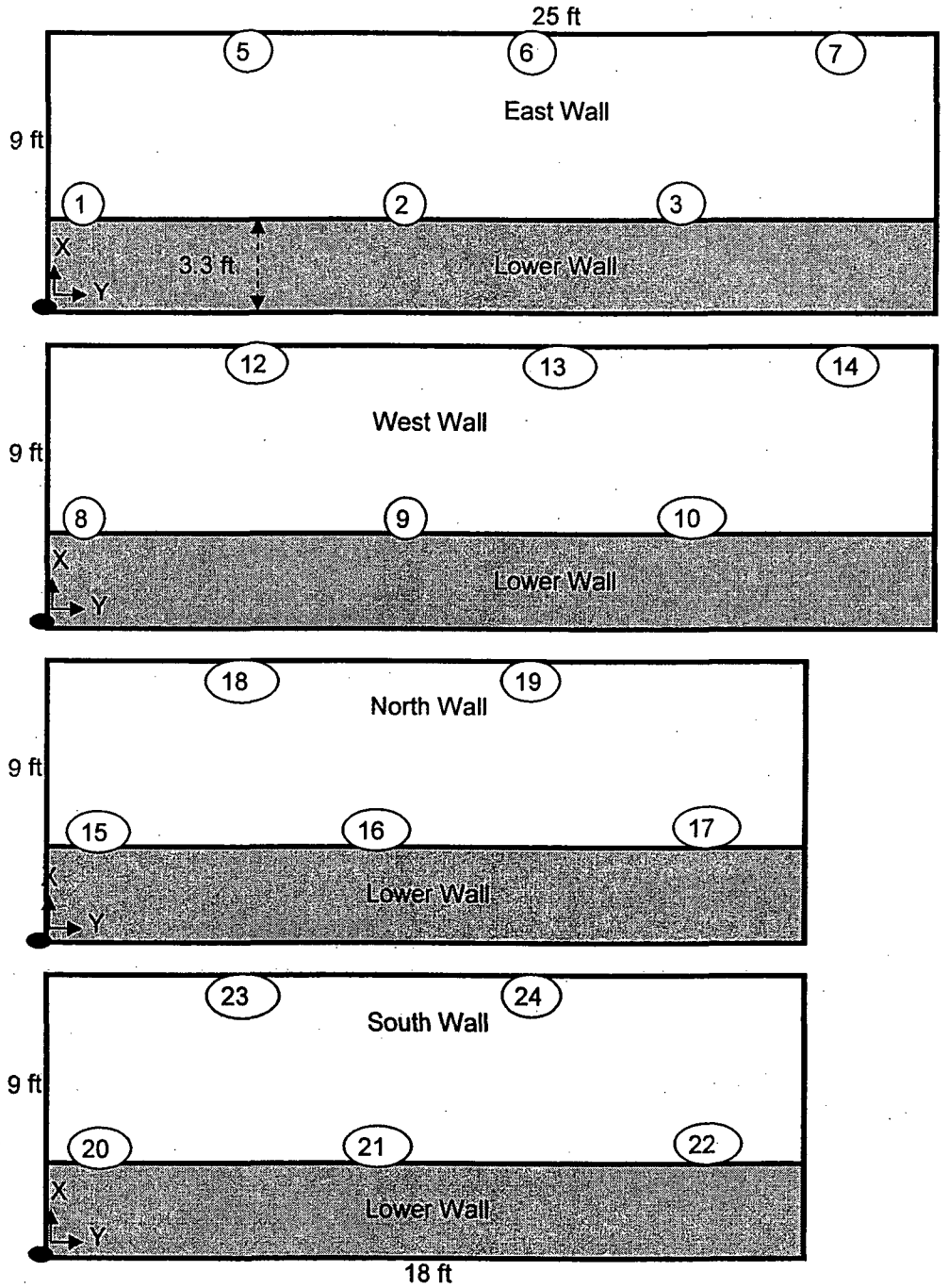
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	55.8	267418.4	739.2	28.61%
2	58	267418.4	738.76	28.53%
3	53.7	267418.4	734.3	27.69%
4	55.2	267418.4	732.5	27.35%
5	58.7	267418.4	729.72	26.84%
6	44.7	267418.4	765.34	33.93%
7	57.2	267418.4	752.28	31.19%
8	53.7	267418.4	752.66	31.27%
9	52.5	267418.4	736.84	28.17%
10	44.4	267418.4	734.67	27.76%
11	60.3	267418.4	736.9	28.18%
12	48.3	267418.4	742.62	29.27%
13	47.3	267418.4	745.06	29.75%

Survey Unit: F-2-048

Room: 113 ZPR Control Room Upper Walls

Class 2
L=7.5, R=6.5



Survey Unit: **F-2-048**

Room: 113 ZPR Control Room Upper Walls

Class 2
L=7.5, R=6.5

Number	X	Y	Direct	uR/hr	Smear?		Material
East Wall (Starting Lower Left)							
1	1.25	3.4					
2	8.75	3.4					
3	16.25	3.4					
4	23.75	3.4					
5	5	9.9					
6	12.5	9.9					
7	20	9.9					
West Wall (Starting Lower Left)							
8	1.25	3.4					
9	8.75	3.4					
10	16.25	3.4					
11	23.75	3.4					
12	5	9.9					
13	12.5	9.9					
14	20	9.9					
North Wall (Starting Lower Left)							
15	1.25	3.4					
16	8.75	3.4					
17	16.25	3.4					
18	5	9.9					
19	12.5	9.9					
South Wall (Starting Lower Left)							
20	1.25	3.4					
21	8.75	3.4					
22	16.25	3.4					
23	5	9.9					
24	12.5	9.9					

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Room #:	113 - ZPR Control Room Floor & Lower Walls	Survey Unit:	F-1-049
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/25/2006 (Date)
Reviewer:	Kevin E. Taylor (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3261	Background Reading (counts)	108.4	Background Reading (counts)	3261		
BKG (cpm)	326.1	BKG (cpm)	54.2	BKG (cpm)	326.1		
MDC (dpm/100cm2)	1893	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	504		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	326.1	cpm	R_B	54.2	cpm	R_B	326.1	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1893	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	504	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	90	10	<MDC	Metal
4	<MDC	<MDC	<MDC	81	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	91	10	<MDC	Tile
6	<MDC	<MDC	<MDC	87	10	<MDC	Tile
7	<MDC	<MDC	<MDC	87	10	<MDC	Tile
8	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	88	10	<MDC	Tile
10	<MDC	<MDC	<MDC	89	10	<MDC	Tile
11	<MDC	<MDC	<MDC	83	10	<MDC	Brick
12	<MDC	<MDC	<MDC	82	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	84	10	<MDC	Tile
14	<MDC	<MDC	<MDC	84	10	<MDC	Tile
15	<MDC	<MDC	<MDC	90	0	<MDC	Tile

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	300	-201.39	330	30.09	56.1	6.68	10	303	-178.24
2	300	-201.39	330	30.09	56.2	6.87	10	316	-77.93
3	200	-972.99	220	-818.67	52.2	-7.04	10	210	-895.83
4	320	-47.07	340	107.25	45.2	-28.44	10	305	-162.81
5	280	-355.71	300	-201.39	57.1	10.21	10	360	261.57
6	240	-664.35	260	-510.03	50.8	-11.51	10	248	-602.62
7	240	-664.35	270	-432.87	53.4	-2.71	10	253	-564.04
8	310	-124.23	330	30.09	57.7	12.17	10	308	-139.66
9	240	-664.35	260	-510.03	55	2.72	10	278	-371.14
10	280	-355.71	300	-201.39	53.9	-1.04	10	256	-540.90
11	380	415.90	400	570.22	52	-7.09	10	382	431.33
12	360	261.57	380	415.90	50.9	-10.50	10	345	145.83
13	220	-818.67	240	-664.35	48	-20.25	10	258	-525.46
14	240	-664.35	260	-510.03	46.3	-25.82	10	267	-456.02
15	240	-664.35	260	-510.03	51.5	-9.46	10	262	-494.60

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

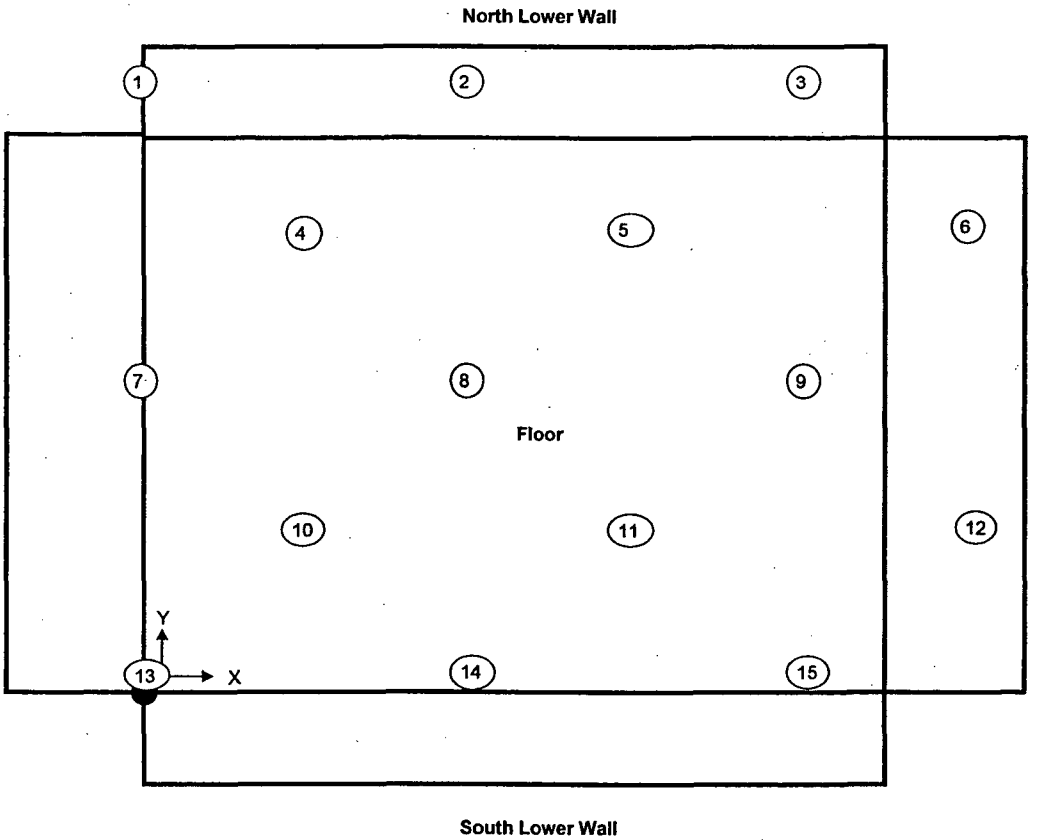
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.1	267418.4	738.27	28.44%
2	56.2	267418.4	746.31	30.00%
3	52.2	267418.4	738.2	28.42%
4	45.2	267418.4	754.5	31.65%
5	57.1	267418.4	738.08	28.40%
6	50.8	267418.4	744	29.54%
7	53.4	267418.4	743.62	29.47%
8	57.7	267418.4	740.01	28.77%
9	55	267418.4	743.18	29.38%
10	53.9	267418.4	740.75	28.91%
11	52	267418.4	751.46	31.03%
12	50.9	267418.4	753.36	31.41%
13	48	267418.4	749.45	30.62%
14	46.3	267418.4	749.32	30.60%
15	51.5	267418.4	738.89	28.55%

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: F-1-049

Room: 113 ZPR Control Room Floor & Lower Walls
Class 1
L=7.84 R=6.79



Survey Unit: **F-1-049**

Room: 113 ZPR Control Room Floor & Lower Walls
Class 1
L=7.84 R=6.79

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	0.00	28.00	0	0	28	0
2	8.06	28.00	8	1	28	0
3	16.12	28.00	16	1	28	0
4	4.03	21.02	4	0	21	0
5	12.09	21.02	12	1	21	0
6	20.15	21.02	20	2	21	0
7	0.00	14.04	0	0	14	0
8	8.06	14.04	8	1	14	0
9	16.12	14.04	16	1	14	0
10	4.03	7.06	4	0	7	1
11	12.09	7.06	12	1	7	1
12	20.15	7.06	20	2	7	1
13	0.00	0.08	0	0	0	1
14	8.06	0.08	8	1	0	1
15	16.12	0.08	16	1	0	1

APPENDIX C

SECOND FLOOR SURVEY UNIT DATA REPORTS

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	2nd Floor Corridor Outside Reactor Bay (Floor)	Survey Unit:	S-2-051
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/8/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	8
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2883	Background Reading (counts)		96.2	Background Reading (counts)		2883		
BKG (cpm)		288.3	BKG (cpm)		48.1	BKG (cpm)		288.3		
MDC (dpm/100cm2)		1780	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		475		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	288.3	cpm	R_B	48.1	cpm	R_B	288.3	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1780	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	14	<MDC	Tile
2	<MDC	<MDC	<MDC	90	14	<MDC	Tile
3	<MDC	<MDC	<MDC	98	14	<MDC	Tile
4	<MDC	<MDC	<MDC	91	12	<MDC	Tile
5	<MDC	<MDC	<MDC	95	12	<MDC	Tile
6	<MDC	<MDC	<MDC	92	12	<MDC	Tile
7	<MDC	<MDC	<MDC	85	12	<MDC	Tile
8	<MDC	<MDC	<MDC	89	12	<MDC	Tile
9	<MDC	<MDC	<MDC	85	12	<MDC	Tile
10	<MDC	<MDC	<MDC	83	12	<MDC	Tile
11	<MDC	<MDC	<MDC	92	10	<MDC	Tile
12	<MDC	<MDC	<MDC	87	10	<MDC	Tile
13	<MDC	<MDC	<MDC	86	10	<MDC	Tile
14	<MDC	<MDC	<MDC	87	10	<MDC	Tile
15	<MDC	<MDC	<MDC	89	10	<MDC	Tile

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	dpm/100cm²	Beta/G - Scan Max Results CPM	dpm/100cm²	LSC Smear Results CPM	dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	dpm/100cm²
1	240	-372.69	260	-218.36	59.8	44.76	14	259	-226.08
2	300	90.28	330	321.76	60.3	45.22	14	250	-295.52
3	300	90.28	330	321.76	57.2	36.76	14	275	-102.62
4	300	90.28	320	244.60	50.4	8.61	12	285	-25.46
5	300	90.28	320	244.60	48.8	2.73	12	262	-202.93
6	280	-64.04	300	90.28	57.1	33.94	12	258	-233.80
7	280	-64.04	310	167.44	50.3	7.72	12	233	-426.70
8	300	90.28	320	244.60	47	-4.03	12	255	-256.94
9	300	90.28	320	244.60	62.5	50.10	12	248	-310.96
10	300	90.28	320	244.60	58.3	34.79	12	284	-33.18
11	300	90.28	320	244.60	51.1	11.33	10	249	-303.24
12	280	-64.04	300	90.28	54.7	23.68	10	237	-395.83
13	260	-218.36	280	-64.04	54.8	23.57	10	244	-341.82
14	260	-218.36	280	-64.04	54.7	23.59	10	253	-272.38
15	260	-218.36	280	-64.04	52.1	14.13	10	257	-241.51

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

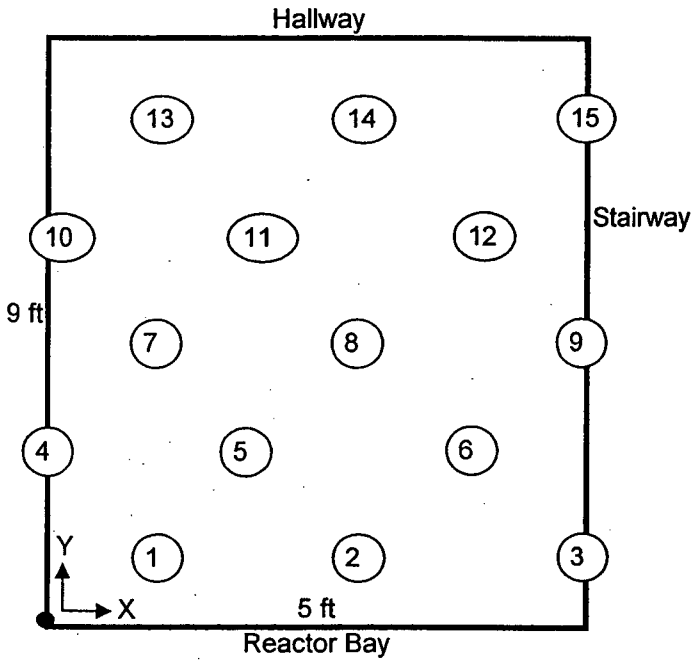
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.66%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	59.8	267418.4	725.83	26.14%
2	60.3	267418.4	730.46	26.98%
3	57.2	267418.4	717.9	24.75%
4	50.4	267418.4	728.92	26.70%
5	48.8	267418.4	723.25	25.68%
6	57.1	267418.4	727.93	26.52%
7	50.3	267418.4	738.51	28.48%
8	47	267418.4	732.07	27.28%
9	62.5	267418.4	739.88	28.74%
10	58.3	267418.4	742.87	29.32%
11	51.1	267418.4	727.74	26.48%
12	54.7	267418.4	735.29	27.87%
13	54.8	267418.4	738.2	28.42%
14	54.7	267418.4	735.84	27.98%
15	52.1	267418.4	737.64	28.32%

Survey Unit: **S-2-051**

Room: 2nd Floor Corridor Outside Reactor Bay (Floor)

Class 2
L=2, R=1.75



Survey Unit: **S-2-051**

Room: 2nd Floor Corridor Outside Reactor Bay (Floor)

Class 2
L=2, R=1.75

Number	X	Y	Direct	uR/hr	Smear?		Material
Floor (Starting SW Corner)							
1	1	0.75					
2	3	0.75					
3	5	0.75					
4	0	2.5					
5	2	2.5					
6	4	2.5					
7	1	4.25					
8	3	4.25					
9	5	4.25					
10	0	6					
11	2	6					
12	4	6					
13	1	7.75					
14	3	7.75					
15	5	7.75					

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Room #:	Elevator car	Survey Unit:	S-3-052
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/13/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2968	Background Reading (counts)		124.8	Background Reading (counts)		2968		
BKG (cpm)		296.8	BKG (cpm)		62.4	BKG (cpm)		296.8		
MDC (dpm/100cm2)		1806	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		482		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	296.8	cpm	R_B	62.4	cpm	R_B	296.8	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1806	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	482	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	10	<MDC	Metal
2	<MDC	<MDC	<MDC	86	10	<MDC	Metal
3	<MDC	<MDC	<MDC	87	10	<MDC	Metal
4	<MDC	<MDC	<MDC	83	7	<MDC	Tile
5	<MDC	<MDC	<MDC	88	7	<MDC	Tile
6	<MDC	<MDC	<MDC	86	7	<MDC	Tile
7	<MDC	<MDC	<MDC	87	7	<MDC	Tile
8	<MDC	<MDC	<MDC	84	7	<MDC	Tile
9	<MDC	<MDC	<MDC	83	7	<MDC	Metal
10	<MDC	<MDC	<MDC	89	7	<MDC	Metal
11	<MDC	<MDC	<MDC	127	10	<MDC	Metal
12	<MDC	<MDC	<MDC	95	10	<MDC	Metal
13	<MDC	<MDC	<MDC	98	10	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	160	-1055.56	200	-746.91	52.7	-32.92	10	169	-986.11
2	160	-1055.56	180	-901.23	52.7	-30.25	10	176	-932.10
3	160	-1055.56	180	-901.23	58.2	-13.27	10	156	-1086.42
4	240	-438.27	260	-283.95	62	-1.21	7	229	-523.15
5	240	-438.27	260	-283.95	52.5	-31.60	7	221	-584.88
6	240	-438.27	260	-283.95	58	-13.84	7	202	-731.48
7	200	-746.91	230	-515.43	54.8	-24.02	7	202	-731.48
8	200	-746.91	230	-515.43	58	-19.59	7	197	-770.06
9	200	-746.91	230	-515.43	55.1	-22.17	7	197	-770.06
10	200	-746.91	230	-515.43	71.5	29.35	7	172	-962.96
11	220	-592.59	240	-438.27	60.8	7.37	10	216	-623.46
12	220	-592.59	240	-438.27	65.8	11.74	10	231	-507.72
13	220	-592.59	240	-438.27	54.3	-28.33	10	223	-569.44

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	52.7	267418.4	743.62	29.47%
2	52.7	267418.4	756.83	32.07%
3	58.2	267418.4	754.5	31.65%
4	62	267418.4	760.93	32.99%
5	52.5	267418.4	751.97	31.13%
6	58	267418.4	755.2	31.79%
7	54.8	267418.4	754.44	31.64%
8	58	267418.4	759.4	32.67%
9	55.1	267418.4	760.81	32.92%
10	71.5	267418.4	751.34	31.00%
11	60.8	267418.4	699.28	21.71%
12	65.8	267418.4	741.06	28.97%
13	54.3	267418.4	739.07	28.59%

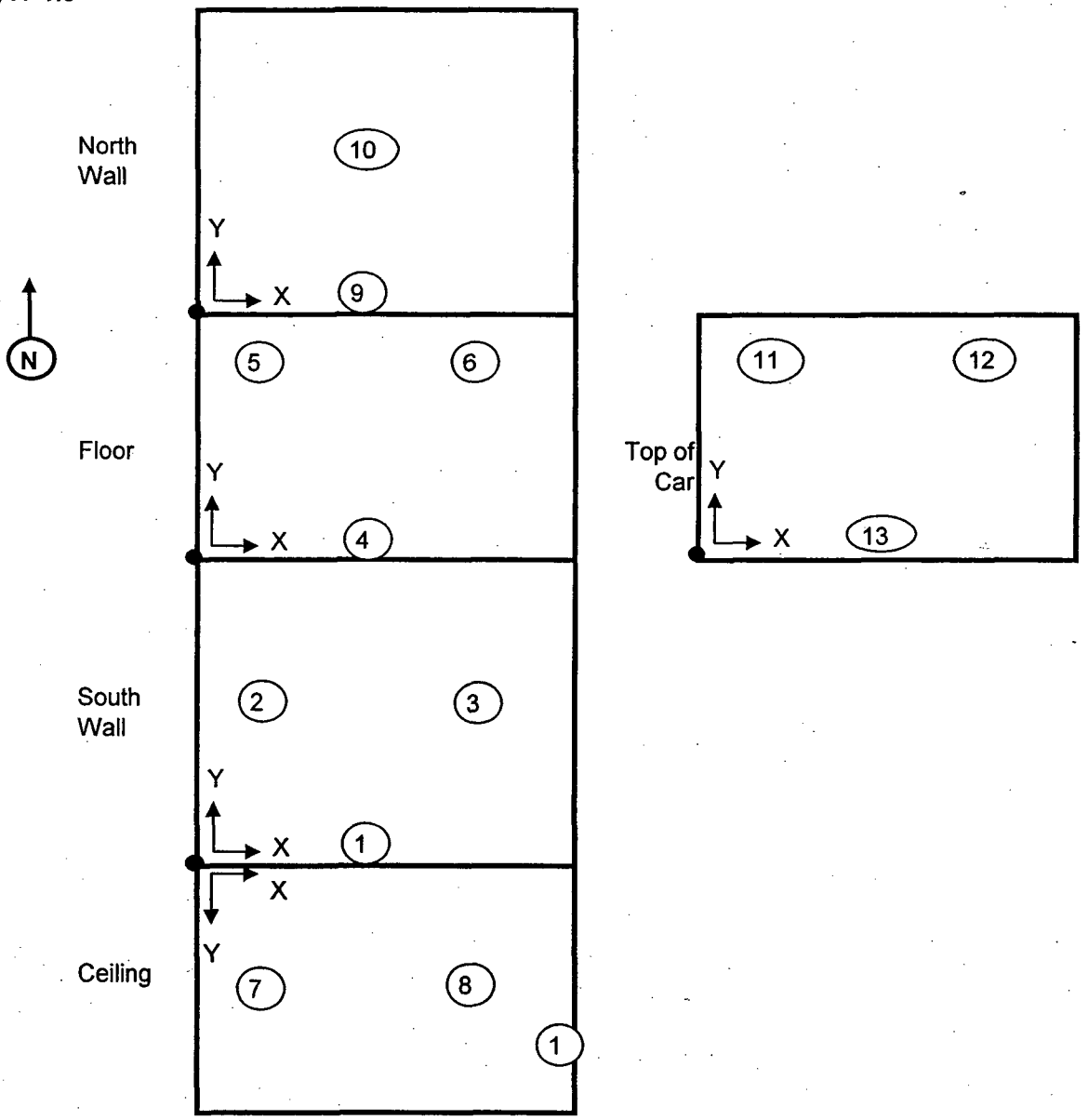
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: S-3-052

Room: Elevator car

Class 3
L=3, R=1.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: S-3-052

Room: Elevator car

Class 3
L=10.0, R=9.0

Number	X	Y	Direct	uR/hr	Smear?		Material
South Wall (Starting at TOP W Corner)							
1	2	0					
2	1.5	3					
3	3.5	3					
Floor (Starting in SW Corner)							
4	2	0					
5	1.5	3					
6	3.5	3					
Ceiling (Starting in NW Corner)							
7	1.5	2					
8	3.5	2					
North Wall (Starting at BOTTOM W Corner)							
9	2	0					
10	2	3					
Top pf Car (Starting in SW Corner)							
11	2	0					
12	1.5	3					
13	3.5	3					

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Room #:	Rooms 201 to 206 and Connecting Hallway Floors	Survey Unit:	S-3-053
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/14/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/3/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2883	Background Reading (counts)	96.2	Background Reading (counts)	2883		
BKG (cpm)	288.3	BKG (cpm)	48.1	BKG (cpm)	288.3		
MDC (dpm/100cm2)	1780	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	475		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	288.3	cpm	R_B	48.1	cpm	R_B	288.3	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1780	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	475	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	79	12	<MDC	Tile
2	<MDC	<MDC	<MDC	87	12	<MDC	Tile
3	<MDC	<MDC	<MDC	85	12	<MDC	Tile
4	<MDC	<MDC	<MDC	85	10	<MDC	Tile
5	<MDC	<MDC	<MDC	87	10	<MDC	Tile
6	<MDC	<MDC	<MDC	82	10	<MDC	Tile
7	<MDC	<MDC	<MDC	96	12	<MDC	Tile
8	<MDC	<MDC	<MDC	88	10	<MDC	Tile
9	<MDC	<MDC	<MDC	87	10	<MDC	Tile
10	<MDC	<MDC	<MDC	81	10	<MDC	Tile
11	<MDC	<MDC	<MDC	80	10	<MDC	Tile
12	<MDC	<MDC	<MDC	88	10	<MDC	Tile
13	<MDC	<MDC	<MDC	83	12	<MDC	Tile
14	<MDC	<MDC	<MDC	83	12	<MDC	Tile
15	<MDC	<MDC	<MDC	84	12	<MDC	Tile
16	<MDC	<MDC	<MDC	84	12	<MDC	Tile
17	<MDC	<MDC	<MDC	80	12	<MDC	Tile

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	260	-218.36	280	-64.04	53.7	18.19	12	253	-272.38
2	260	-218.36	280	-64.04	55.6	26.92	12	242	-357.25
3	300	90.28	320	244.60	57.7	33.44	12	252	-280.09
4	260	-218.36	280	-64.04	56	27.77	10	273	-118.06
5	280	-64.04	300	90.28	52	13.99	10	286	-17.75
6	280	-64.04	300	90.28	48.1	0.00	10	238	-388.12
7	240	-372.69	260	-218.36	38.9	-36.17	12	233	-426.70
8	240	-372.69	260	-218.36	48.6	1.80	10	263	-195.22
9	260	-218.36	280	-64.04	53.6	19.71	10	265	-179.78
10	260	-218.36	280	-64.04	53	16.25	10	244	-341.82
11	260	-218.36	280	-64.04	46.3	-5.89	10	265	-179.78
12	240	-372.69	260	-218.36	64.3	58.63	10	247	-318.67
13	260	-218.36	280	-64.04	52.3	14.29	12	261	-210.65
14	300	90.28	330	321.76	49.6	5.13	12	308	152.01
15	260	-218.36	280	-64.04	51.9	13.05	12	241	-364.97
16	260	-218.36	280	-64.04	51.6	12.08	12	265	-179.78
17	260	-218.36	280	-64.04	47	-3.60	12	287	-10.03

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	53.7	267418.4	750.26	30.78%
2	55.6	267418.4	735.22	27.88%
3	57.7	267418.4	739.69	28.71%
4	56	267418.4	738.33	28.45%
5	52	267418.4	735.35	27.89%
6	48.1	267418.4	743.75	29.49%
7	38.9	267418.4	721.83	25.43%
8	48.6	267418.4	734.42	27.71%
9	53.6	267418.4	735.47	27.91%
10	53	267418.4	747.06	30.14%
11	46.3	267418.4	749.07	30.55%
12	64.3	267418.4	733.99	27.63%
13	52.3	267418.4	743.18	29.38%
14	49.6	267418.4	742.44	29.24%
15	51.9	267418.4	741.81	29.12%
16	51.6	267418.4	741.06	28.97%
17	47	267418.4	749.07	30.55%

ENERGYSOLUTIONS

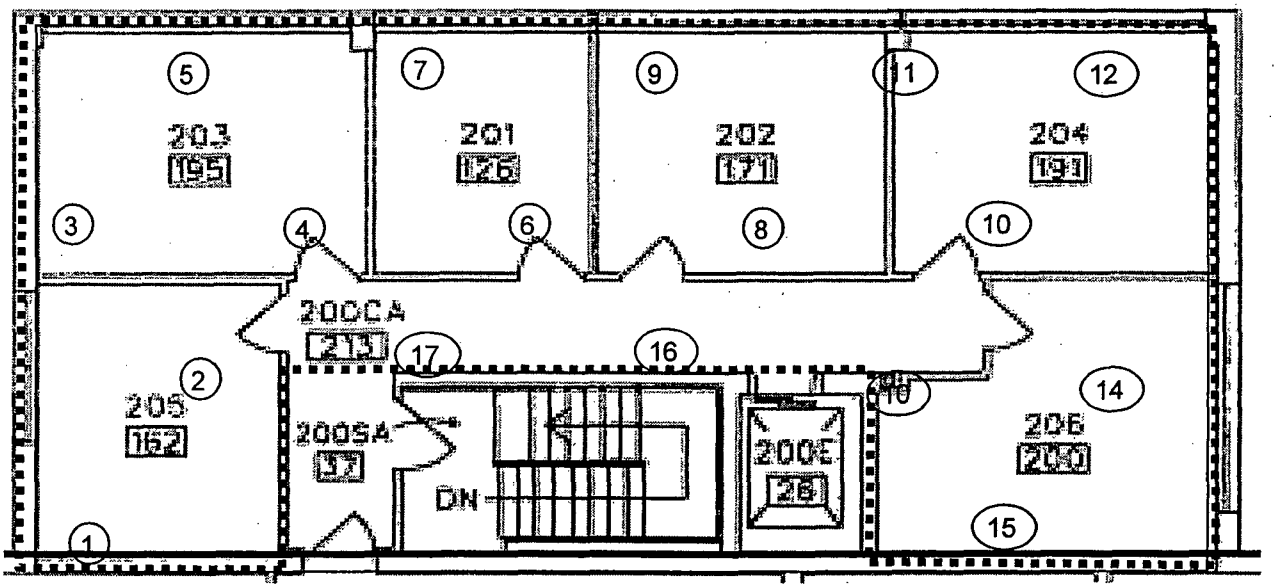
Final Status Survey Map
Ward Center, Cornell University

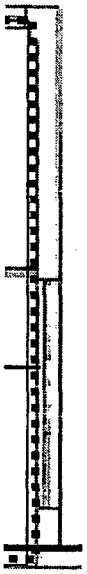
Survey Unit: S-3-053

Rooms: 201-206 and Connecting Hallway floors

Class 3
L=10.25, R=8.75

The origin for each room is the southwestern corner.
X-direction is east-west
Y-direction is north-south





ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **S-3-053**

Rooms: 201-206 and Connecting Hallway floors

Class 3
L=10.25, R=8.75

Number	Room #	X	Y	Direct	uR/hr	Smear?		Material
X and Y begin in the NW corner of each room								
1	205	3.5	0.5					
2	205	8.625	9.25					
3	203	3.5	4					
4	203	13.75	4					
5	203	8.625	12.75					
6	201	3.375	4					
7	201	8.5	12.75					
8	202	3.625	4					
9	202	8.75	12.75					
10	204	5.25	4					
11	204	0.125	12.75					
12	204	10.375	12.75					
13	206	0.125	9.25					
14	206	5.25	9.25					
15	206	10.375	0.5					
16	Hallway	4.875	0.1					
17	Hallway	15.125	0.1					

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Main Stairway (all levels)	Survey Unit:	S-3-054
Surveyor:	LeRoy Cuneo (Print)	Sign	Date: 9/12/2006
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	Date

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	Model 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	20
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3120	Background Reading (counts)		124.8	Background Reading (counts)		3120		
BKG (cpm)		312	BKG (cpm)		62.4	BKG (cpm)		312		
MDC (dpm/100cm2)		1851	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		493		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_b	312	cpm	R_b	62.4	cpm	R_b	312	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1851	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	493	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	108	20	<MDC	Tile
2	<MDC	<MDC	<MDC	111	20	<MDC	Tile
3	<MDC	<MDC	<MDC	102	20	<MDC	Concrete
4	<MDC	<MDC	<MDC	98	20	<MDC	Tile
5	<MDC	<MDC	<MDC	93	20	<MDC	Tile
6	<MDC	<MDC	<MDC	90	20	<MDC	Concrete
7	<MDC	<MDC	<MDC	90	20	<MDC	Tile
8	<MDC	<MDC	<MDC	84	20	<MDC	Concrete
9	<MDC	<MDC	<MDC	97	20	<MDC	Concrete
10	<MDC	<MDC	<MDC	101	20	<MDC	Concrete
11	<MDC	<MDC	<MDC	94	20	<MDC	Concrete
12	<MDC	<MDC	<MDC	92	20	<MDC	Concrete
13	<MDC	<MDC	<MDC	89	20	<MDC	Tile

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	280	-246.91	300	-92.59	54.6	-30.51	20	249	-486.11
2	280	-246.91	300	-92.59	60.8	-6.47	20	255	-439.81
3	300	-92.59	320	61.73	61.9	-1.85	20	323	84.88
4	280	-246.91	300	-92.59	65	9.24	20	326	108.02
5	260	-401.23	300	-92.59	59.7	-9.11	20	291	-162.04
6	300	-92.59	320	61.73	55.6	-22.32	20	299	-100.31
7	280	-246.91	300	-92.59	52.6	-31.98	20	223	-686.73
8	300	-92.59	320	61.73	59.2	-9.82	20	309	-23.15
9	300	-92.59	320	61.73	60.8	-5.66	20	325	100.31
10	300	-92.59	320	61.73	61.5	-3.32	20	295	-131.17
11	300	-92.59	320	61.73	60.7	-5.80	20	300	-92.59
12	300	-92.59	320	61.73	53.5	-29.77	20	272	-308.64
13	260	-401.23	300	-92.59	54.2	-26.66	20	232	-617.28

scan speed	0.5	detactor widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Beckman	CPM	3/9/2006	SQPE	Efficiency
1	54.6	267418.4	722.57	25.56%
2	60.8	267418.4	717.77	24.73%
3	61.9	267418.4	730.34	26.96%
4	65	267418.4	736.65	28.13%
5	59.7	267418.4	744.43	29.63%
6	55.6	267418.4	748.69	30.47%
7	52.6	267418.4	749.57	30.65%
8	59.2	267418.4	759.01	32.58%
9	60.8	267418.4	737.4	28.27%
10	61.5	267418.4	731.08	27.09%
11	60.7	267418.4	742.81	29.31%
12	53.5	267418.4	745.81	29.90%
13	54.2	267418.4	750.14	30.76%

Survey Unit: **S-3-054**

Room: Main Stairway (all levels)

Class 3
L=5.5, R=4.75

Number	LF	Location	Direct	uR/hr	Smear?		Material
Second Floor to First							
1	2.6	2.0 Land					
2	7.6	2.0 Land					
3	12.6	Step 6					
4	17.6	1.5 Land					
5	22.6	1.5 Land					
6	27.6	Step 14					
First Floor To Basement							
7	32.6	1.0 Land					
8	37.6	Step 17					
9	42.6	Step 23					
10	47.6	0.5 Land					
11	52.6	Step 25					
12	57.6	Step 31					
13	62.6	0.0 Land					
14	67.6	Closet					
15	72.6	Closet					

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Room #:	2R01 - Laboratory	Survey Unit:	S-1-055
Surveyor:	LeRoy Cuneo (Print)	Sign	9/18/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	Sign	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	8
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2752	Background Reading (counts)	108.4	Background Reading (counts)	2752		
BKG (cpm)	275.2	BKG (cpm)	54.2	BKG (cpm)	275.2		
MDC (dpm/100cm2)	1739	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	465		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	275.2	cpm	R_B	54.2	cpm	R_B	275.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1739	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	111	10	<MDC	Metal
2	<MDC	<MDC	<MDC	90	10	<MDC	Metal
3	<MDC	<MDC	<MDC	92	10	<MDC	Metal
4	<MDC	<MDC	<MDC	91	10	<MDC	Metal
5	<MDC	<MDC	<MDC	87	10	<MDC	Metal
6	<MDC	<MDC	<MDC	88	10	<MDC	Metal
7	<MDC	<MDC	<MDC	87	10	<MDC	Metal
8	<MDC	<MDC	<MDC	88	12	<MDC	Tile
9	<MDC	<MDC	<MDC	95	12	<MDC	Tile
10	<MDC	<MDC	<MDC	98	12	<MDC	Tile
11	<MDC	<MDC	<MDC	92	14	<MDC	Concrete
12	<MDC	<MDC	<MDC	93	14	<MDC	Concrete
13	<MDC	<MDC	<MDC	93	10	<MDC	M

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	120	-1197.53	200	-580.25	45.5	-37.60	10	203	-557.10
2	140	-1043.21	220	-425.93	48.8	-18.90	10	233	-325.62
3	160	-888.89	200	-580.25	53.1	-3.93	10	215	-464.51
4	120	-1197.53	200	-580.25	46.8	-26.32	10	225	-387.35
5	160	-888.89	200	-580.25	51.7	-8.43	10	183	-711.42
6	120	-1197.53	200	-580.25	47.8	-21.81	10	204	-549.38
7	120	-1197.53	270	-40.12	61.3	24.00	10	195	-618.83
8	250	-194.44	360	654.32	52.7	-5.11	12	272	-24.69
9	250	-194.44	380	808.64	43.6	-39.19	12	276	6.17
10	250	-194.44	380	808.64	40.6	-52.00	12	265	-78.70
11	300	191.36	420	1117.28	52.4	-6.45	14	288	98.77
12	280	37.04	360	654.32	53.3	-3.24	14	283	60.19
13	160	-888.89	220	-425.93	45.5	-31.37	10	174	-780.86

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221462
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221462	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	45.5	267418.4	708.25	23.14%
2	48.8	267418.4	738.95	28.57%
3	53.1	267418.4	738.09	28.02%
4	46.8	267418.4	736.59	28.12%
5	51.7	267418.4	744.5	29.64%
6	47.8	267418.4	743	29.35%
7	61.3	267418.4	744.18	29.58%
8	52.7	267418.4	742.93	29.33%
9	43.6	267418.4	730.83	27.05%
10	40.6	267418.4	725.9	26.15%
11	52.4	267418.4	735.41	27.90%
12	53.3	267418.4	734.67	27.76%
13	45.5	267418.4	734.54	27.73%

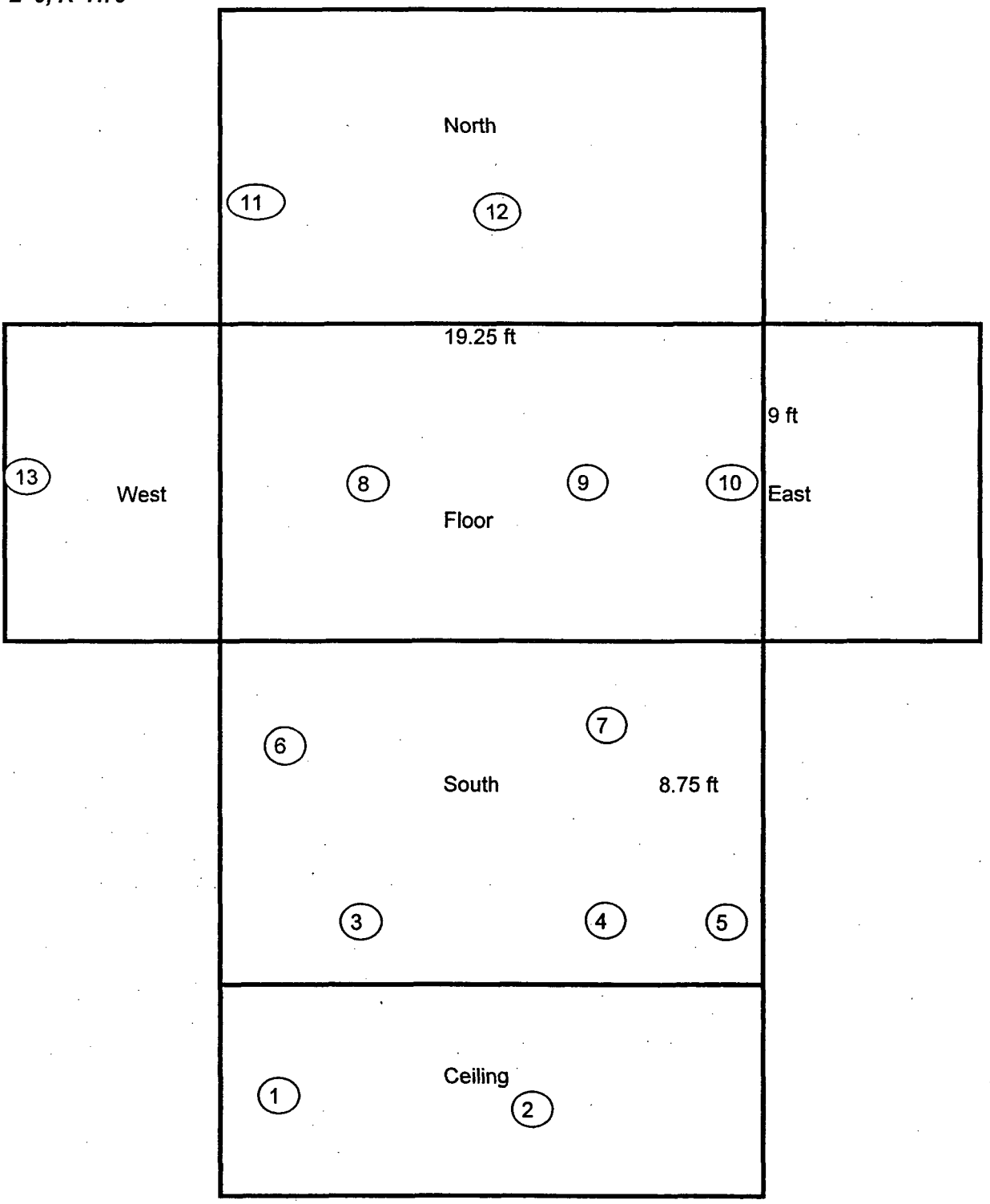
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-1-055**

Room: 2R01 - Second Floor Laboratory

Class 1
L=9, R=7.75



Survey Unit: S-1-055

Room: 2R01 - Second Floor Laboratory

Class 1
L=9, R=7.75

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Ceiling (Starting Top NW Corner)								
1	5.75	1.75						
2	14.75	1.75						
South (Starting TOP SW Corner)								
3	1.25	0.5						
4	10.25	0.5						
5	19	0.5						
6	5.75	8.5						
7	14.75	8.5						
Floor (Start in SW Corner)								
8	1.25	7.5						
9	10.25	7.5						
10	19	7.5						
North(Start in SW Corner)								
11	5.75	6.25						
12	14.75	6.25						
West (Start in SE Corner)[In Line with Floor]								
13	7.5	7.75						

ENERGYSOLUTIONS

Room #:	2R02 - Isotope Handling Room	Survey Unit:	S-1-056
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/18/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	8
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2755	Background Reading (counts)	108.4	Background Reading (counts)	2755		
BKG (cpm)	275.5	BKG (cpm)	54.2	BKG (cpm)	275.5		
MDC (dpm/100cm2)	1740	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	465		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	275.5	cpm	R_B	54.2	cpm	R_B	275.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1740	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	8	<MDC	Concrete
2	<MDC	<MDC	<MDC	109	8	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	8	<MDC	Concrete
4	<MDC	<MDC	<MDC	88	8	<MDC	Concrete
5	<MDC	<MDC	<MDC	88	8	<MDC	Metal
6	<MDC	<MDC	<MDC	90	8	<MDC	Brick
7	<MDC	<MDC	<MDC	86	8	<MDC	Concrete
8	<MDC	<MDC	<MDC	87	8	<MDC	Concrete
9	<MDC	<MDC	<MDC	85	8	<MDC	Concrete
10	<MDC	<MDC	<MDC	83	8	<MDC	Concrete
11	<MDC	<MDC	<MDC	99	8	<MDC	Concrete
12	<MDC	<MDC	<MDC	97	8	<MDC	Concrete
13	<MDC	<MDC	<MDC	97	8	<MDC	Brick
14	<MDC	<MDC	<MDC	106	8	<MDC	Brick

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	160	-891.20	240	-273.92	53.5	-2.45	8	271	-34.72
2	160	-891.20	240	-273.92	56.7	10.57	8	277	11.57
3	140	-1045.52	240	-273.92	41.4	-44.31	8	222	-412.81
4	160	-891.20	220	-428.24	49.4	-16.45	8	279	27.01
5	200	-582.56	260	-119.60	56.7	8.56	8	156	-922.07
6	200	-582.56	260	-119.60	48.9	-18.46	8	221	-420.52
7	250	-196.76	320	343.36	50.1	-13.67	8	132	-1107.25
8	280	34.72	400	960.65	62.4	27.59	8	203	-559.41
9	300	189.04	400	960.65	49.4	-15.86	8	255	-158.18
10	280	-119.60	380	806.33	52.2	-6.46	8	279	27.01
11	280	34.72	380	806.33	49.7	-17.33	8	286	81.02
12	260	-119.60	380	806.33	51.1	-11.68	8	269	-50.15
13	280	34.72	380	806.33	55.8	6.04	8	190	-659.72
14	280	34.72	380	806.33	53.9	-1.22	8	197	-605.71

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	53.5	267418.4	738.82	28.54%
2	56.7	267418.4	711.45	23.66%
3	41.4	267418.4	740.63	28.89%
4	49.4	267418.4	742.12	29.18%
5	56.7	267418.4	742.31	29.21%
6	48.9	267418.4	739.69	28.71%
7	50.1	267418.4	746.25	29.98%
8	62.4	267418.4	744.93	29.72%
9	49.4	267418.4	747.62	30.26%
10	52.2	267418.4	751.15	30.98%
11	49.7	267418.4	724.85	25.97%
12	51.1	267418.4	727.99	26.53%
13	55.8	267418.4	727.87	26.51%
14	53.9	267418.4	718.79	24.56%

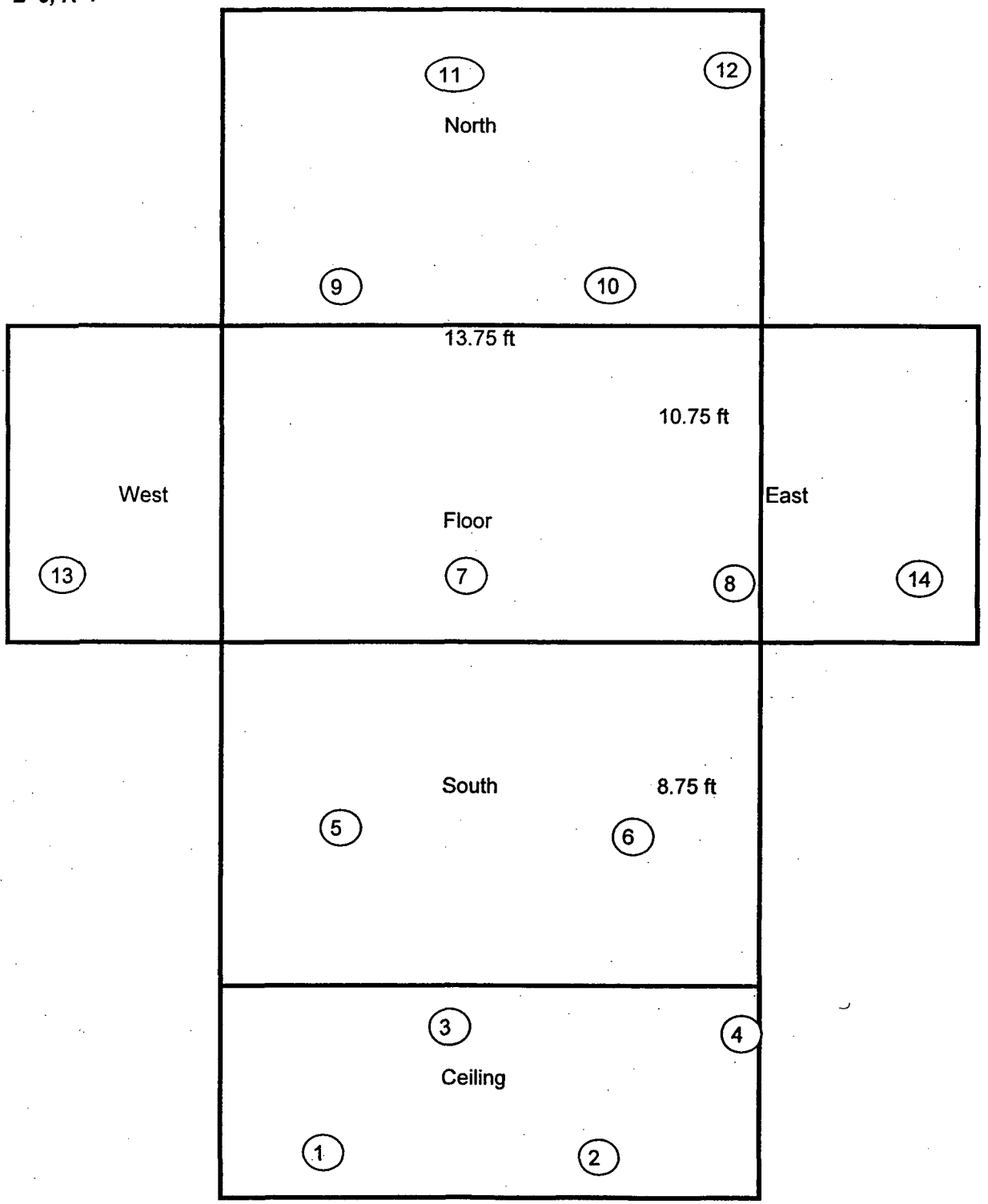
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center,
Cornell University

Survey Unit: **S-1-056**

Room: 2R02 - Isotope Handling Room

Class 1
L=8, R=7



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **S-1-056**

Room: 2R02 - Isotope Handling Room

Class 1
L=8, R=7

Number	X	Y	Direct	uR/hr	Meterial		ScanAve	ScanMax
Ceiling (Starting Top NW Corner)								
1	1.75	3.75						
2	9.75	3.75						
3	5.75	10.5						
4	13.75	10.5						
South (Starting TOP SW Corner)								
5	1.75	6.75						
6	9.75	6.75						
Floor (Start in SW Corner)								
7	5.75	5						
8	13.75	5						
North(Start in SW Corner)								
9	1.75	1.25						
10	9.75	1.25						
11	5.75	8.25						
12	13.75	8.25						
West (Start in SE Corner)[In Line with Floor]								
13	5	2.25						
East (Start in SE Corner)[In Line with Floor]								
14	5	8						

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	2R03 - Observation Room Ceiling	Survey Unit:	S-3-057
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/18/2006 (Date)
Reviewer:	Kewin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2752	Background Reading (counts)	108.4	Background Reading (counts)	2752		
BKG (cpm)	275.2	BKG (cpm)	54.2	BKG (cpm)	275.2		
MDC (dpm/100cm2)	1739	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	465		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	275.2	cpm	R_B	54.2	cpm	R_B	275.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1739	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	89	10	<MDC	Metal
2	<MDC	<MDC	<MDC	91	10	<MDC	Metal
3	<MDC	<MDC	<MDC	91	10	<MDC	Metal
4	<MDC	<MDC	<MDC	89	10	<MDC	Metal
5	<MDC	<MDC	<MDC	83	10	<MDC	Metal
6	<MDC	<MDC	<MDC	82	10	<MDC	Metal
7	<MDC	<MDC	<MDC	84	10	<MDC	Metal
8	<MDC	<MDC	<MDC	86	10	<MDC	Metal
9	<MDC	<MDC	<MDC	86	10	<MDC	Metal
10	<MDC	<MDC	<MDC	89	10	<MDC	Metal
11	<MDC	<MDC	<MDC	88	10	<MDC	Metal
12	<MDC	<MDC	<MDC	87	10	<MDC	Metal
13	<MDC	<MDC	<MDC	85	10	<MDC	Metal
14	<MDC	<MDC	<MDC	87	10	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	210	-503.09	230	-348.77	41.9	-42.65	10	201	-572.53
2	210	-503.09	230	-348.77	51.6	-9.24	10	220	-425.93
3	210	-503.09	230	-348.77	57.8	12.74	10	208	-518.52
4	210	-503.09	230	-348.77	55.7	5.21	10	218	-441.36
5	180	-734.57	220	-425.93	54.1	-0.32	10	166	-842.59
6	180	-734.57	220	-425.93	56.2	6.41	10	197	-603.40
7	180	-734.57	220	-425.93	50.6	-11.80	10	175	-773.15
8	180	-734.57	220	-425.93	43.7	-35.02	10	180	-734.57
9	180	-734.57	220	-425.93	58.8	15.46	10	196	-611.11
10	180	-734.57	220	-425.93	52	-7.62	10	193	-634.26
11	180	-734.57	220	-425.93	53.2	-3.42	10	215	-464.51
12	180	-734.57	220	-425.93	60.8	22.33	10	189	-665.12
13	180	-734.57	220	-425.93	55.1	2.98	10	179	-742.28
14	180	-734.57	220	-425.93	52.1	-7.11	10	208	-518.52

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	41.9	267418.4	740.38	28.84%
2	51.6	267418.4	736.71	28.14%
3	57.8	267418.4	737.33	28.26%
4	55.7	267418.4	740.25	28.82%
5	54.1	267418.4	751.4	31.02%
6	56.2	267418.4	752.41	31.22%
7	50.6	267418.4	748.83	30.50%
8	43.7	267418.4	746.25	29.98%
9	58.8	267418.4	745.12	29.76%
10	52	267418.4	740.57	28.88%
11	53.2	267418.4	742.25	29.20%
12	60.8	267418.4	744.06	29.55%
13	55.1	267418.4	747.56	30.24%
14	52.1	267418.4	744.06	29.55%

ENERGYSOLUTIONS

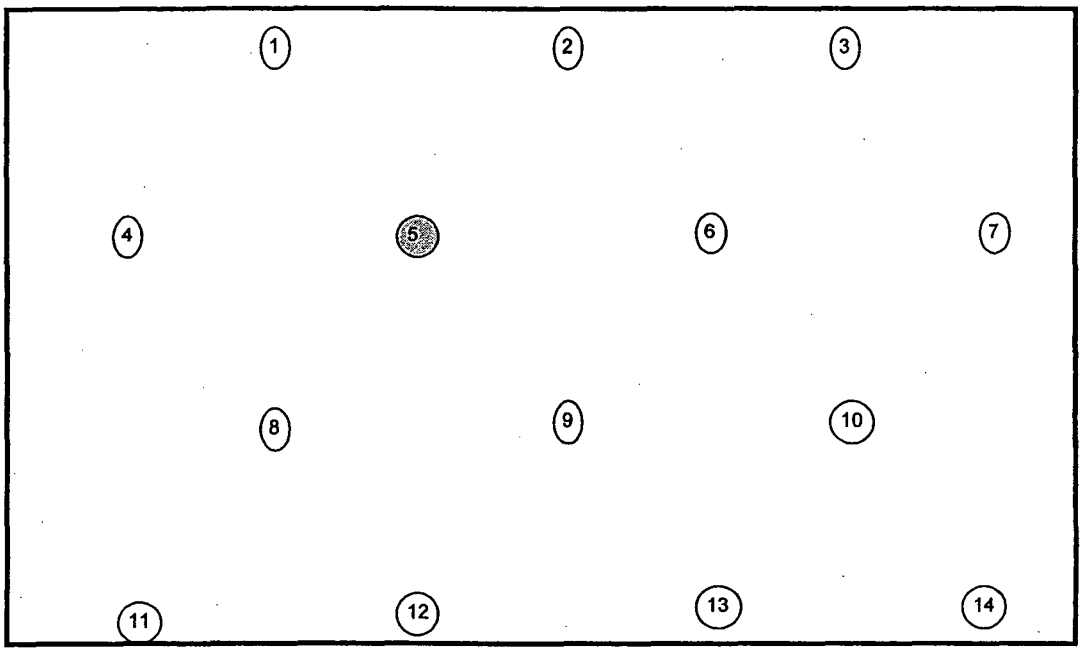
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: S-3-057

Room: 2R03 -Observation Room Ceiling

Class 3
L = 5, R=4.33

North
(looking up)



Survey Unit: **S-3-057**

Room: 2R03 -Observation Room Ceiling

Class 3
L = 5, R=4.33

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	3.85	1.18	3	10	1	2
2	8.85	1.18	8	10	1	2
3	13.85	1.18	13	10	1	2
4	1.35	5.51	1	4	5	6
5	6.35	5.51	6	4	5	6
6	11.35	5.51	11	4	5	6
7	16.35	5.51	16	4	5	6
8	3.85	9.84	3	10	9	10
9	8.85	9.84	8	10	9	10
10	13.85	9.84	13	10	9	10
11	1.35	14.17	1	4	14	2
12	6.35	14.17	6	4	14	2
13	11.35	14.17	11	4	14	2
14	16.35	14.17	16	4	14	2

ENERGYSOLUTIONS

Final Status Survey Results
82A9578

Room #:	2R03 - Observation Room Floor & Lower Walls	Survey Unit:	S-1-058
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/19/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		202455	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200136	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		22.96%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2666	Background Reading (counts)		108.4	Background Reading (counts)		2666		
BKG (cpm)		266.5	BKG (cpm)		54.2	BKG (cpm)		266.5		
MDC (dpm/100cm2)		1932	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		458		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	202455		S/N	Unknown		S/N	193629			
R_B	266.5	cpm	R_B	54.2	cpm	R_B	266.5	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	23%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1932	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	458	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	89	10	<MDC	Tile
2	<MDC	<MDC	<MDC	89	10	<MDC	Tile
3	<MDC	<MDC	<MDC	88	10	<MDC	Tile
4	<MDC	<MDC	<MDC	89	10	<MDC	Tile
5	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
6	<MDC	<MDC	<MDC	89	10	<MDC	Tile
7	<MDC	<MDC	<MDC	89	10	<MDC	Tile
8	<MDC	<MDC	<MDC	87	10	<MDC	Tile
9	<MDC	<MDC	<MDC	86	10	<MDC	Metal
10	<MDC	<MDC	<MDC	84	10	<MDC	Tile
11	<MDC	<MDC	<MDC	86	10	<MDC	Tile
12	<MDC	<MDC	<MDC	86	10	<MDC	Tile
13	<MDC	<MDC	<MDC	88	10	<MDC	Tile
14	<MDC	<MDC	<MDC	87	10	<MDC	Metal
15	<MDC	<MDC	<MDC	90	0	<MDC	Metal
16	<MDC	<MDC	<MDC	92	0	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
82A9578

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	180	-753.48	260	-56.62	67	44.07	10	257	-73.30
2	160	-927.70	260	-56.62	57.3	10.74	10	227	-304.78
3	200	-579.27	280	117.60	40	-48.79	10	298	243.06
4	200	-579.27	280	117.60	50.1	-14.13	10	276	73.30
5	320	466.03	400	1162.89	51.5	-9.37	10	318	397.38
6	160	-927.70	260	-56.62	45.8	-29.19	10	255	-68.73
7	180	-753.48	260	-56.62	55.2	3.45	10	252	-111.88
8	180	-753.48	260	-56.62	58.3	13.83	10	298	243.06
9	180	-753.48	260	-56.62	55.1	3.00	10	231	-273.92
10	300	291.81	400	1162.89	59.9	18.66	10	232	-266.20
11	300	291.81	380	988.68	51.1	-10.33	10	288	165.90
12	300	291.81	380	988.68	52.7	-4.97	10	244	-173.61
13	320	466.03	400	1162.89	56.7	8.53	10	260	-50.15
14	200	-579.27	260	-56.62	58.3	13.94	10	207	-459.10
15	200	-579.27	300	291.81	58.3	14.39	10	235	-243.06
16	200	-579.27	300	291.81	60.3	21.73	10	202	-497.69

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	67	267418.4	741.44	29.04%
2	57.3	267418.4	740.5	28.86%
3	40	267418.4	741.75	29.10%
4	50.1	267418.4	741.31	29.02%
5	51.5	267418.4	740.32	28.83%
6	45.8	267418.4	740.07	28.78%
7	55.2	267418.4	741.25	29.01%
8	58.3	267418.4	744.5	29.64%
9	55.1	267418.4	746.25	29.98%
10	59.9	267418.4	749.07	30.55%
11	51.1	267418.4	746.43	30.02%
12	52.7	267418.4	747.19	30.17%
13	56.7	267418.4	742.81	29.31%
14	58.3	267418.4	743.31	29.41%
15	58.3	267418.4	738.58	28.50%
16	60.3	267418.4	736.34	28.07%

ENERGYSOLUTIONS

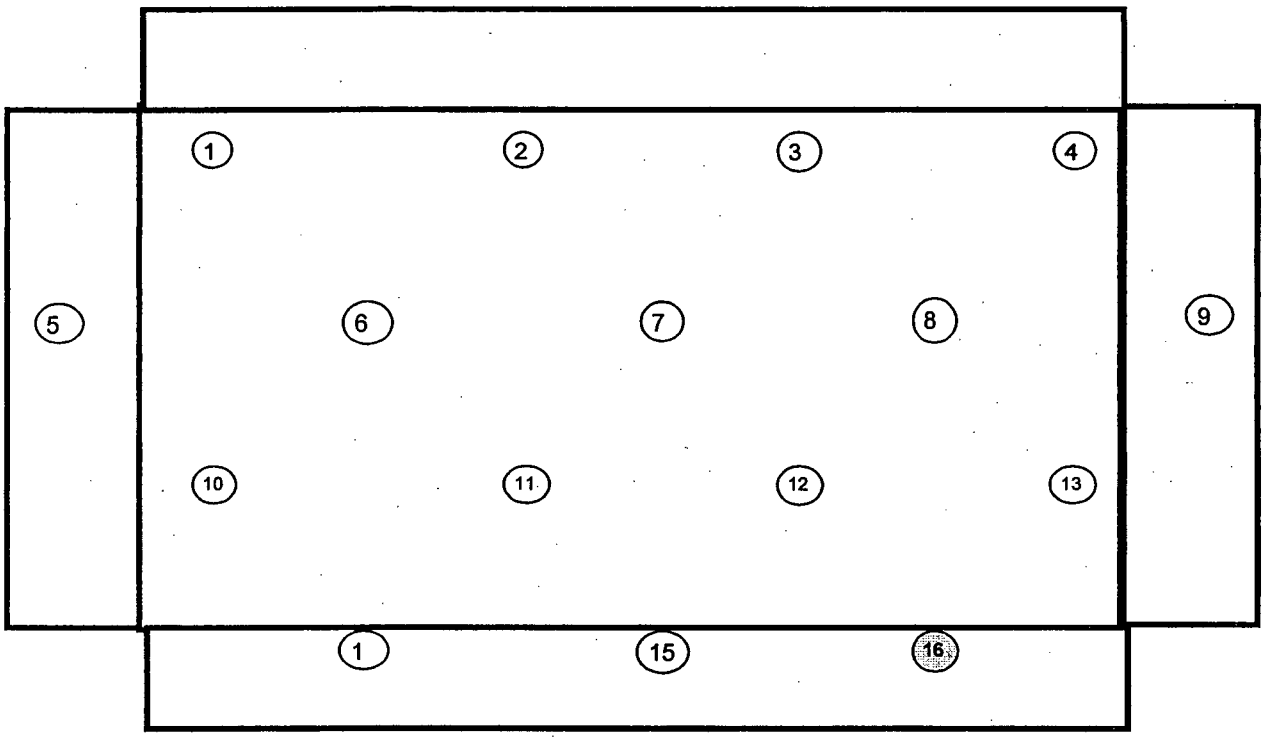
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: S-1-058

Room: 2R03 - Observation Room Floor & Lower Walls

Class 1
L = 5.79, R=5.01

North



Survey Unit: **S-1-058**

Room: 2R03 - Observation Room Floor & Lower Walls

Class 1
L = 5.79, R=5.01

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	0.00	14.60	0	0	14	7
2	6.42	14.60	6	5	14	7
3	11.58	14.60	12	-5	14	7
4	17.37	14.60	17	4	14	7
5	2.90	9.59	2	11	9	7
6	2.89	9.59	2	11	9	7
7	8.68	9.59	8	8	9	7
8	14.47	9.59	14	6	9	7
9	1.26	9.59	1	3	9	7
10	0.00	4.57	0	0	4	7
11	6.42	4.57	6	5	4	7
12	11.58	4.57	11	7	4	7
13	17.37	4.57	17	4	4	7
14	2.89	2.84	2	11	2	10
15	8.68	2.84	8	8	2	10
16	14.47	2.84	14	6	2	10

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	2R03 - Observation Room Upper Walls	Survey Unit:	S-2-059
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/19/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2665	Background Reading (counts)		108.4	Background Reading (counts)		2665		
BKG (cpm)		266.5	BKG (cpm)		54.2	BKG (cpm)		266.5		
MDC (dpm/100cm2)		1711	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		458		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	266.5	cpm	R_B	54.2	cpm	R_B	266.5	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1711	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	458	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	10	<MDC	Metal
2	<MDC	<MDC	<MDC	83	10	<MDC	Metal
3	<MDC	<MDC	<MDC	85	10	<MDC	Metal
4	<MDC	<MDC	<MDC	84	10	<MDC	Metal
5	<MDC	<MDC	<MDC	86	10	<MDC	Glass
6	<MDC	<MDC	<MDC	82	10	<MDC	Metal
7	<MDC	<MDC	<MDC	91	10	<MDC	Glass
8	<MDC	<MDC	<MDC	92	10	<MDC	Glass
9	<MDC	<MDC	<MDC	92	10	<MDC	Glass
10	<MDC	<MDC	<MDC	93	10	<MDC	Glass
11	<MDC	<MDC	<MDC	92	10	<MDC	Glass
12	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
13	<MDC	<MDC	<MDC	90	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	88	10	520.83	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	200	-513.12	230	-281.64	52.1	-7.34	10	199	-520.83
2	200	-513.12	230	-281.64	57.2	9.71	10	238	-219.91
3	200	-513.12	230	-281.64	57.8	11.83	10	315	374.23
4	200	-513.12	230	-281.64	46	-26.91	10	309	327.93
5	200	-513.12	220	-358.80	52.7	-4.99	10	194	-559.41
6	200	-513.12	220	-358.80	63.4	29.24	10	187	-613.43
7	200	-513.12	220	-358.80	45.7	-30.04	10	199	-520.83
8	200	-513.12	220	-358.80	55.6	5.00	10	215	-397.38
9	200	-513.12	220	-358.80	53.7	-1.79	10	209	-443.87
10	200	-513.12	220	-358.80	52.5	-6.14	10	201	-505.40
11	200	-513.12	220	-358.80	64.4	36.59	10	229	-289.35
12	280	104.17	300	258.49	47	-25.36	10	325	451.39
13	280	104.17	300	258.49	62.9	30.52	10	296	227.62
14	280	104.17	300	258.49	62.9	29.65	10	334	520.83

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	52.1	267418.4	739.26	28.63%
2	57.2	267418.4	750.77	30.89%
3	57.8	267418.4	748.44	30.42%
4	46	267418.4	748.69	30.47%
5	52.7	267418.4	746.56	30.05%
6	63.4	267418.4	753.61	31.47%
7	45.7	267418.4	737.52	28.29%
8	55.6	267418.4	735.91	27.99%
9	53.7	267418.4	735.47	27.91%
10	52.5	267418.4	734.36	27.70%
11	64.4	267418.4	735.29	27.87%
12	47	267418.4	738.02	28.39%
13	62.9	267418.4	738.64	28.51%
14	62.9	267418.4	743	29.35%

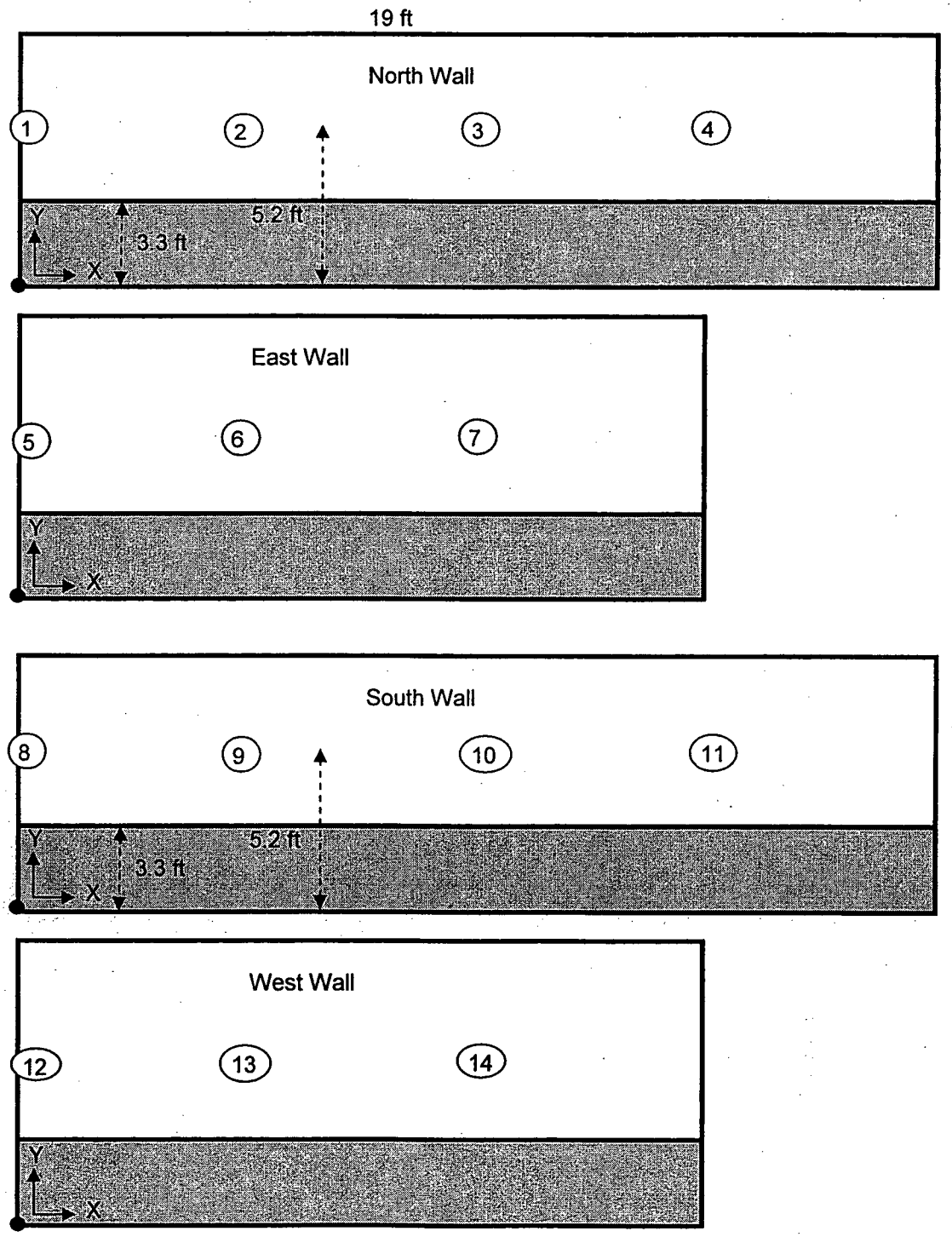
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-2-059**

Room: 2R03 - Observation Room Upper Walls

Class 2
L=5.75, R-5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **S-2-059**

Room: 2R03 - Observation Room Upper Walls

Class 2
L=5.75, R-5

Number	X	Y	Direct	uR/hr	Smear?		Material
North Wall							
1	0.5	5.2					
2	6.25	5.2					
3	12	5.2					
4	17.75	5.2					
East Wall							
5	0.5	5.2					
6	6.25	5.2					
7	12	5.2					
South Wall							
8	0.5	5.2					
9	6.25	5.2					
10	12	5.2					
11	17.75	5.2					
West Wall							
12	0.5	5.2					
13	6.25	5.2					
14	12	5.2					

All points measured from lower right corner of the wall at floor level.

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	2R05 - TRIGA Control Room Ceiling	Survey Unit:	S-3-060
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/18/2006 (Date)
Reviewer:	Kevin E. Taylor (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148162
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2762	Background Reading (counts)		108.4	Background Reading (counts)		2762		
BKG (cpm)		276.2	BKG (cpm)		54.2	BKG (cpm)		276.2		
MDC (dpm/100cm2)		1739	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		465		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	276.2	cpm	R_B	54.2	cpm	R_B	276.2	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	25%		ε_i	See Below		ε_i	25%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1739	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	10	<MDC	Metal
2	<MDC	<MDC	<MDC	89	10	<MDC	Metal
3	<MDC	<MDC	<MDC	91	10	<MDC	Metal
4	<MDC	<MDC	<MDC	91	10	<MDC	Metal
5	<MDC	<MDC	<MDC	90	10	<MDC	Metal
6	<MDC	<MDC	<MDC	89	12	<MDC	Metal
7	<MDC	<MDC	<MDC	93	10	<MDC	Metal
8	<MDC	<MDC	<MDC	95	10	<MDC	Metal
9	<MDC	<MDC	<MDC	94	10	<MDC	Metal
10	<MDC	<MDC	<MDC	92	10	<MDC	Metal
11	<MDC	<MDC	<MDC	88	10	<MDC	Metal
12	<MDC	<MDC	<MDC	88	10	<MDC	Metal
13	<MDC	<MDC	<MDC	89	10	<MDC	Metal
14	<MDC	<MDC	<MDC	87	10	<MDC	Metal
15	<MDC	<MDC	<MDC	87	10	<MDC	Metal
16	<MDC	<MDC	<MDC	84	10	<MDC	Metal
17	<MDC	<MDC	<MDC	87	10	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	240	-271.60	260	-117.28	63.4	32.16	10	216	-456.79
2	200	-580.25	230	-348.77	52.3	-8.60	10	198	-595.68
3	200	-580.25	230	-348.77	45.7	-30.03	10	215	-464.51
4	200	-580.25	230	-348.77	52.5	-8.03	10	198	-595.68
5	200	-580.25	230	-348.77	57.7	12.28	10	225	-387.35
6	200	-580.25	230	-348.77	54.7	1.72	12	224	-395.06
7	200	-580.25	230	-348.77	52.1	-7.61	10	212	-487.65
8	200	-580.25	230	-348.77	55.3	4.05	10	225	-387.35
9	200	-580.25	230	-348.77	52.5	-8.18	10	226	-379.63
10	220	-425.93	240	-271.60	47.5	-23.84	10	225	-387.35
11	220	-425.93	240	-271.60	55.7	5.15	10	229	-356.48
12	250	-194.44	260	-117.28	39.5	-50.51	10	266	-70.99
13	250	-194.44	260	-117.28	51.6	-8.97	10	238	-287.04
14	240	-271.60	260	-117.28	47.8	-21.75	10	281	44.75
15	240	-271.60	260	-117.28	45.1	-30.70	10	262	-101.85
16	240	-271.60	260	-117.28	57.1	9.51	10	231	-341.05
17	240	-271.60	260	-117.28	51.5	-9.12	10	256	-148.15

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	63.4	267418.4	739.14	28.60%
2	52.3	267418.4	740.07	28.78%
3	45.7	267418.4	737.58	28.31%
4	52.5	267418.4	737.02	28.20%
5	57.7	267418.4	738.58	28.50%
6	54.7	267418.4	741.31	29.02%
7	52.1	267418.4	733.74	27.58%
8	55.3	267418.4	731.57	27.18%
9	52.5	267418.4	733.3	27.50%
10	47.5	267418.4	736.53	28.11%
11	55.7	267418.4	742	29.15%
12	39.5	267418.4	741.75	29.10%
13	51.6	267418.4	741.06	28.97%
14	47.8	267418.4	743.43	29.43%
15	45.1	267418.4	744.5	29.64%
16	57.1	267418.4	748.88	30.51%
17	51.5	267418.4	744.37	29.61%

ENERGYSOLUTIONS

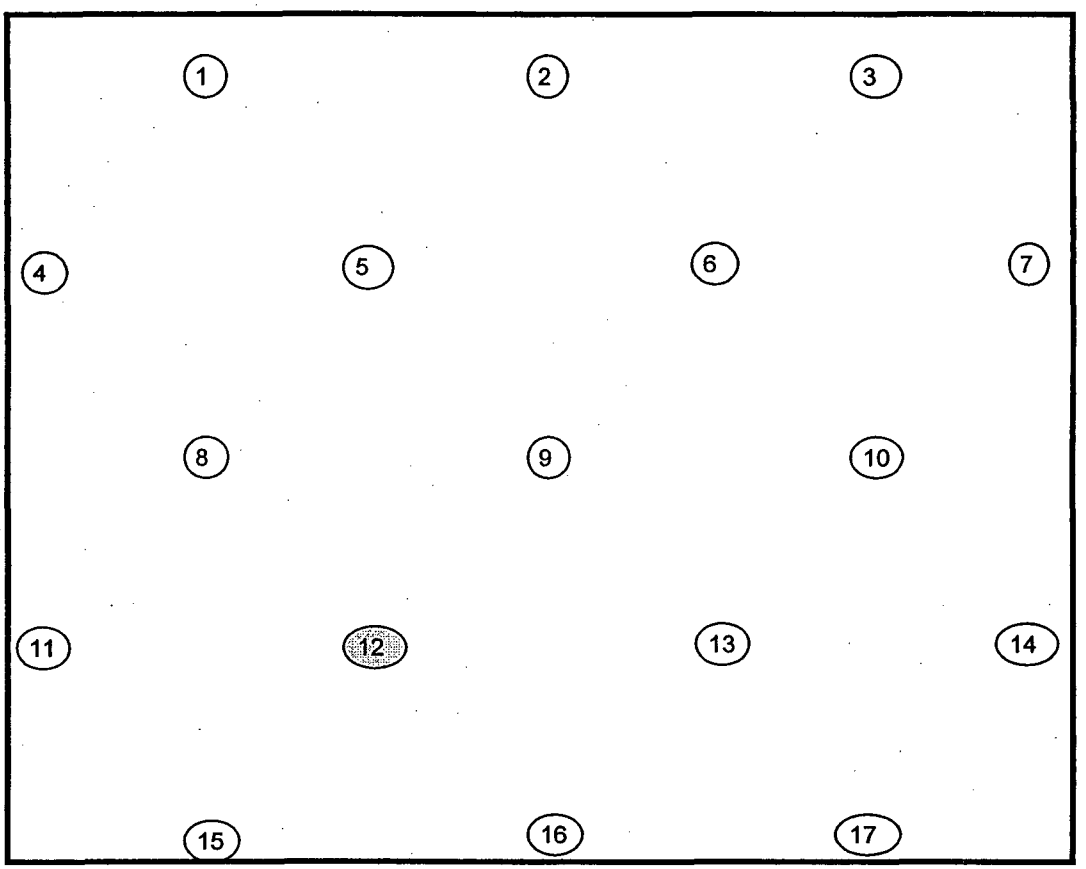
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: S-3-060

Room: 2R05 TRIGA Room Ceiling

Class 3
L = 6.12, R=5.30

North



Survey Unit: **S-3-060**

Room: 2R05 TRIGA Room Ceiling

Class 3
L = 6.12, R=5.30

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	3.50	0.70	3	6	0	8
2	9.62	0.70	9	7	0	8
3	15.74	0.70	15	9	0	8
4	0.44	6.00	0	5	6	0
5	6.56	6.00	6	7	6	0
6	12.68	6.00	12	8	6	0
7	18.80	6.00	18	10	6	0
8	3.50	11.30	3	6	11	4
9	9.62	11.30	9	7	11	4
10	15.74	11.30	15	9	11	4
11	0.44	16.60	0	5	16	7
12	6.56	16.60	6	7	16	7
13	12.68	16.60	12	8	16	7
14	18.80	16.60	18	10	16	7
15	3.50	21.90	3	6	21	11
16	9.62	21.90	9	7	21	11
17	15.74	21.90	15	9	21	11

ENERGYSOLUTIONS

Room #:	2R05 - TRIGA Control Room Floor & Lower Walls	Survey Unit:	S-1-061
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/18/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2752	Background Reading (counts)	108.4	Background Reading (counts)	2752		
BKG (cpm)	275.2	BKG (cpm)	54.2	BKG (cpm)	275.2		
MDC (dpm/100cm2)	1739	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	465		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	275.2	cpm	R_B	54.2	cpm	R_B	275.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1739	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	10	<MDC	Metal
2	<MDC	<MDC	<MDC	89	10	<MDC	Metal
3	<MDC	<MDC	<MDC	89	10	<MDC	Metal
4	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	89	10	<MDC	Tile
6	<MDC	<MDC	<MDC	91	10	<MDC	Tile
7	<MDC	<MDC	<MDC	91	10	<MDC	Metal
8	<MDC	<MDC	<MDC	92	10	<MDC	Tile
9	<MDC	<MDC	<MDC	88	10	<MDC	Tile
10	<MDC	<MDC	<MDC	88	10	<MDC	Tile
11	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
12	<MDC	<MDC	<MDC	85	10	<MDC	Tile
13	<MDC	<MDC	<MDC	86	10	<MDC	Tile
14	<MDC	<MDC	<MDC	84	10	<MDC	Tile
15	<MDC	<MDC	<MDC	95	10	<MDC	Metal
16	<MDC	<MDC	<MDC	87	10	<MDC	Metal
17	Point was inaccessible						

ENERGYSOLUTIONS

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	100	-1351.85	200	-580.25	61.3	24.34	10	231	-341.05
2	120	-1197.53	200	-580.25	48.6	-19.32	10	217	-449.07
3	120	-1197.53	200	-580.25	53.5	-2.43	10	230	-348.77
4	160	-888.89	240	-271.60	47.2	-24.27	10	331	430.56
5	280	37.04	380	808.64	63.4	32.01	10	237	-294.75
6	260	-117.28	380	808.64	59.4	18.35	10	235	-310.19
7	100	-1351.85	200	-580.25	56.1	6.73	10	240	-271.60
8	260	-117.28	380	808.64	59.3	18.27	10	258	-132.72
9	280	37.04	380	808.64	49.9	-14.76	10	261	-109.57
10	280	37.04	320	345.68	54.7	1.71	10	232	-333.33
11	160	-888.89	260	-117.28	51.1	-10.39	10	299	183.64
12	260	-117.28	380	808.64	49.9	-14.26	10	234	-317.90
13	250	-194.44	380	808.64	52	-7.37	10	264	-86.42
14	250	-194.44	380	808.64	52.5	-5.52	10	272	-24.69
15	100	-1351.85	200	-580.25	61.7	27.69	10	215	-464.51
16	120	-1197.53	200	-580.25	48.3	-19.95	10	200	-580.25
17	Point was inaccessible								

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	61.3	267418.4	742.12	29.18%
2	48.6	267418.4	741.12	28.98%
3	53.5	267418.4	740.19	28.80%
4	47.2	267418.4	740.38	28.84%
5	63.4	267418.4	739.88	28.74%
6	59.4	267418.4	737.71	28.33%
7	56.1	267418.4	737.21	28.24%
8	59.3	267418.4	735.47	27.91%
9	49.9	267418.4	741.94	29.14%
10	54.7	267418.4	742.44	29.24%
11	51.1	267418.4	745.5	29.84%
12	49.9	267418.4	747.06	30.14%
13	52	267418.4	745.5	29.84%
14	52.5	267418.4	750.33	30.80%
15	61.7	267418.4	731.02	27.08%
16	48.3	267418.4	744.18	29.58%
17	Point was inaccessible			

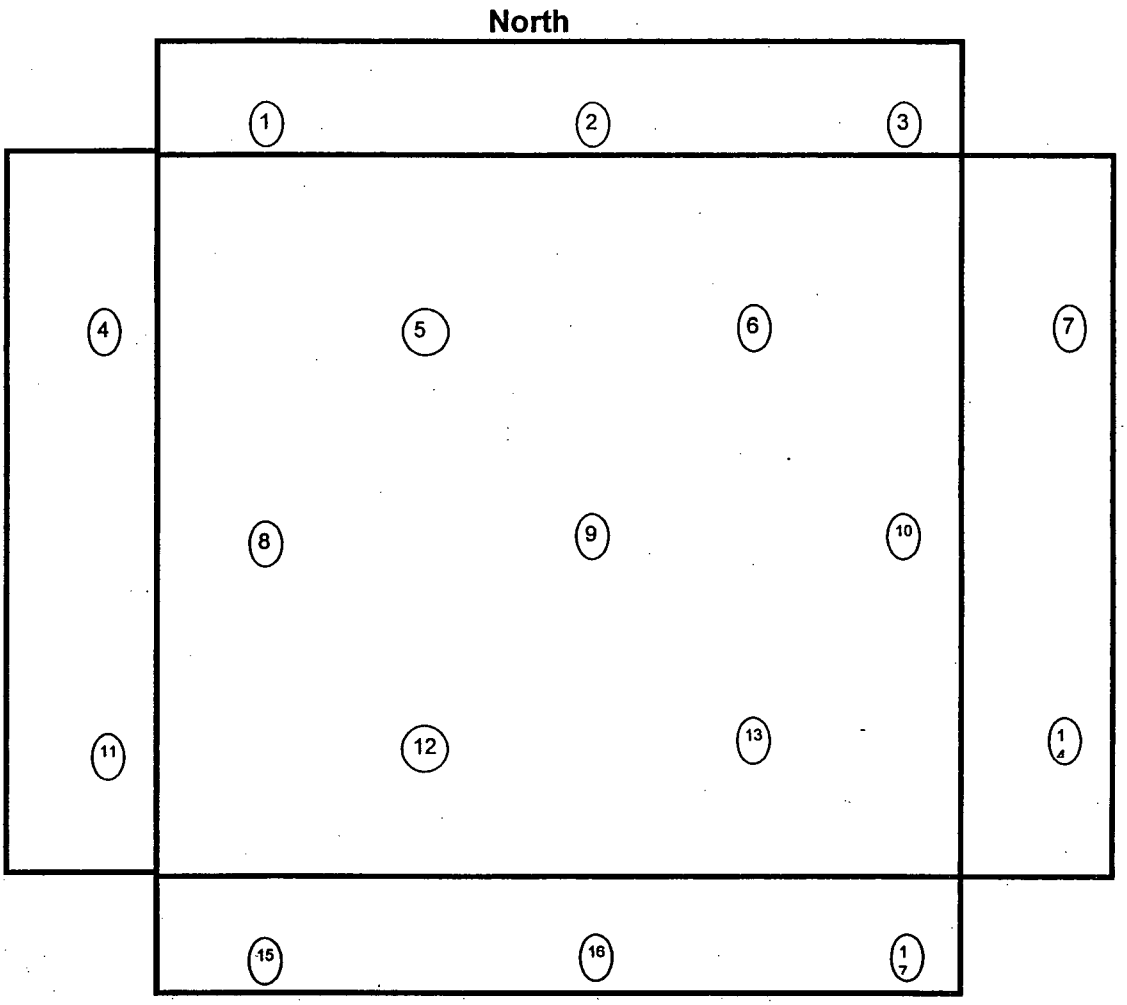
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-1-061**

Room: 2R05 - TRIGA Control Room Floor & Lower Walls

Class 1
L= 7.84, R = 6.79



Survey Unit: **S-1-061**

Room: 2R05 - TRIGA Control Room Floor & Lower Walls

Class 1
L= 7.84, R = 6.79

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	2.30	2.36	2	4	2	4
2	10.14	2.36	10	2	2	4
3	17.98	2.36	18	0	2	4
4	1.62	17.74	1	7	17	9
5	6.22	17.74	6	3	17	9
6	14.06	17.74	14	1	17	9
7	2.90	17.74	2	11	17	9
8	2.30	10.95	2	4	10	11
9	10.14	10.95	10	2	10	11
10		10.95	0	0	10	11
11	1.62	10.95	1	7	10	11
12	1.62	4.16	1	7	4	2
13	6.22	4.16	6	3	4	2
14	14.06	4.16	14	1	4	2
15	2.90	0.65	2	11	0	8
16	2.30	0.65	2	4	0	8
17	10.14	0.65	10	2	0	8

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	2R05 - TRIGA Control Room Upper Walls	Survey Unit:	S-2-062
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/18/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/10/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2752	Background Reading (counts)	108.4	Background Reading (counts)	2752		
BKG (cpm)	275.2	BKG (cpm)	54.2	BKG (cpm)	275.2		
MDC (dpm/100cm2)	1739	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	465		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	275.2	cpm	R_B	54.2	cpm	R_B	275.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	25%		ε_i	See Below		ε_i	25%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1739	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
3	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
5	<MDC	<MDC	<MDC	85	10	<MDC	Metal
6	<MDC	<MDC	<MDC	85	10	<MDC	Metal
7	<MDC	<MDC	<MDC	83	10	<MDC	Metal
8	<MDC	<MDC	<MDC	83	10	<MDC	Metal
9	<MDC	<MDC	<MDC	92	10	<MDC	Metal
10	<MDC	<MDC	<MDC	89	10	<MDC	Metal
11	<MDC	<MDC	<MDC	87	10	<MDC	Metal
12	<MDC	<MDC	<MDC	88	10	<MDC	Metal
13	<MDC	<MDC	<MDC	87	10	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	290	114.20	320	345.68	53.7	-1.73	10	288	98.77
2	290	114.20	320	345.68	45.5	-29.68	10	327	399.69
3	290	114.20	320	345.68	50.1	-13.54	10	292	129.63
4	290	114.20	320	345.68	48	-21.23	10	313	291.67
5	220	-425.93	240	-271.60	49.4	-15.93	10	232	-333.33
6	220	-425.93	240	-271.60	56.8	8.56	10	235	-310.19
7	220	-425.93	240	-271.60	50.6	-11.63	10	211	-495.37
8	220	-425.93	240	-271.60	45.2	-29.21	10	275	-1.54
9	240	-271.60	260	-117.28	52.5	-6.08	10	258	-132.72
10	240	-271.60	260	-117.28	51.5	-9.32	10	266	-70.99
11	240	-271.60	260	-117.28	47	-24.26	10	229	-356.48
12	240	-271.60	260	-117.28	51.6	-8.86	10	267	-63.27
13	240	-271.60	260	-117.28	50.6	-12.21	10	254	-163.58

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

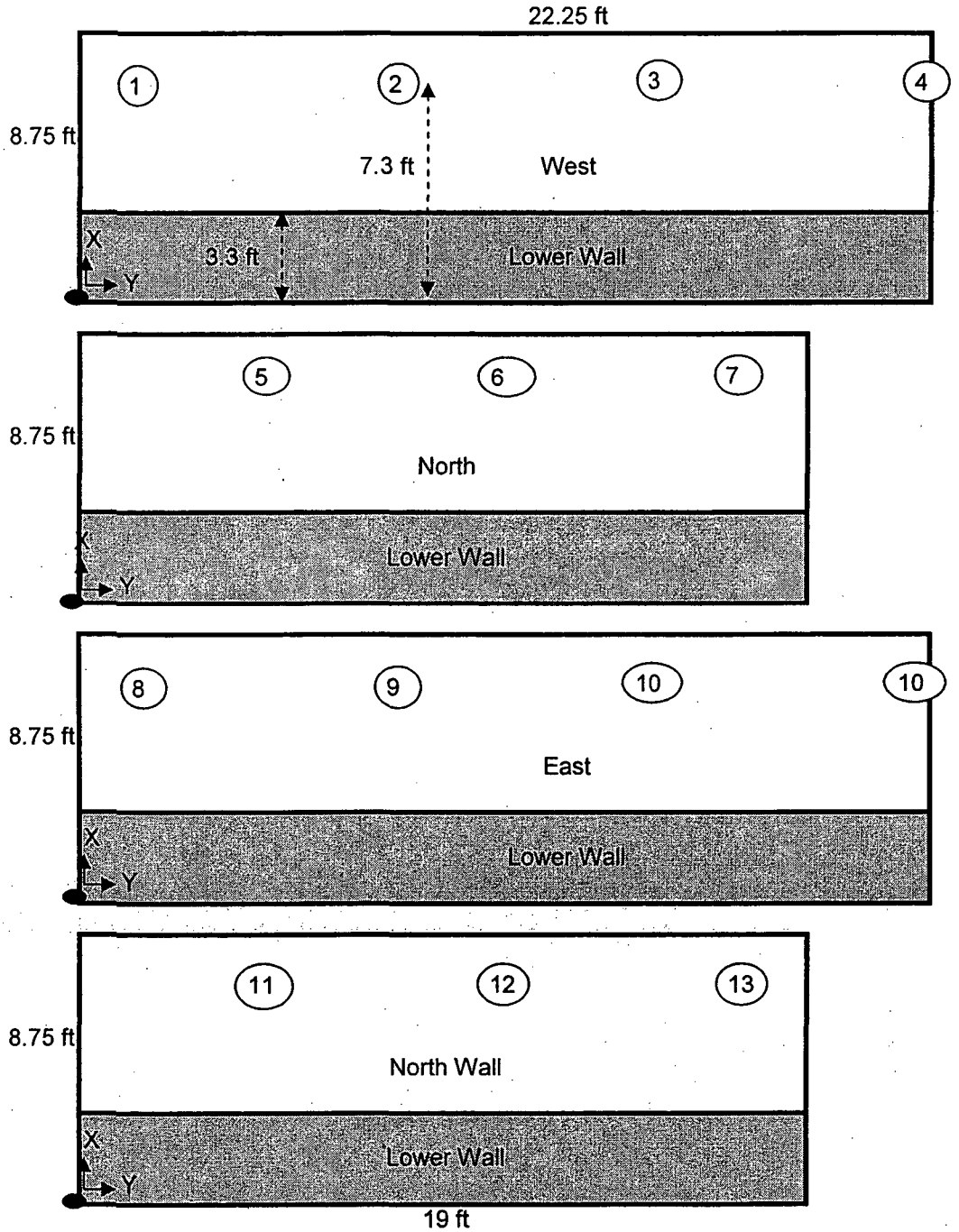
2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	53.7	267418.4	740.82	28.92%
2	45.5	267418.4	742.81	29.31%
3	50.1	267418.4	747.75	30.28%
4	48	267418.4	742.25	29.20%
5	49.4	267418.4	747	30.13%
6	56.8	267418.4	748.25	30.38%
7	50.6	267418.4	751.15	30.96%
8	45.2	267418.4	750.39	30.81%
9	52.5	267418.4	735.64	27.98%
10	51.5	267418.4	741	28.96%
11	47	267418.4	744.68	29.68%
12	51.6	267418.4	743.06	29.36%
13	50.6	267418.4	743.68	29.48%

Survey Unit: S-2-062

Room: 2R05 TRIGA Control Room Upper Walls

Class 2
L=6, R=5.2



Survey Unit: **S-2-062**

Room: 2R05 TRIGA Control Room Upper Walls

Class 2
L=6, R=5.2

Number	X	Y	Direct	uR/hr	Smear?		Material
East Wall (Starting Lower Left)							
1	4.25	7.3					
2	10.25	7.3					
3	16.25	7.3					
4	22.25	7.3					
South Wall (Starting Lower Left)							
5	4.25	7.3					
6	10.25	7.3					
7	16.25	7.3					
West Wall (Starting Lower Left)							
8	4.25	7.3					
9	10.25	7.3					
10	16.25	7.3					
11	22.25	7.3					
North Wall (Starting Lower Left)							
12	4.25	7.3					
13	10.25	7.3					
14	16.25	7.3					

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, Cornell University

Room #:	200CB - Top of ZPR Room	Survey Unit:	S-1-063
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/26/2006 (Date)
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2756	Background Reading (counts)		105	Background Reading (counts)		2756		
BKG (cpm)		275.6	BKG (cpm)		52.5	BKG (cpm)		275.6		
MDC (dpm/100cm2)		1740	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		465		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	275.6	cpm	R_B	52.5	cpm	R_B	275.6	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1740	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	465	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	83	8	<MDC	Metal
2	<MDC	<MDC	<MDC	85	8	<MDC	Concrete
3	<MDC	<MDC	<MDC	82	8	<MDC	Concrete
4	<MDC	<MDC	<MDC	90	8	<MDC	Concrete
5	<MDC	<MDC	<MDC	85	8	<MDC	Cinder Block
6	<MDC	<MDC	<MDC	85	8	<MDC	Concrete
7	<MDC	<MDC	<MDC	90	8	<MDC	Concrete
8	<MDC	<MDC	<MDC	91	8	<MDC	Concrete
9	<MDC	<MDC	<MDC	91	8	<MDC	Concrete
10	<MDC	<MDC	<MDC	92	8	<MDC	Metal
11	<MDC	<MDC	<MDC	90	8	<MDC	Concrete
12	<MDC	<MDC	<MDC	94	8	<MDC	Concrete
13	<MDC	<MDC	<MDC	90	8	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	180	-737.65	280	33.95	59.3	22.20	8	173	-791.67
2	200	-583.33	230	-351.85	46	-21.68	8	223	-405.86
3	200	-583.33	230	-351.85	55.2	8.74	8	199	-591.05
4	200	-583.33	230	-351.85	53	1.78	8	231	-344.14
5	220	-429.01	240	-274.69	50.1	-8.07	8	198	-614.20
6	220	-429.01	300	188.27	48.6	-13.09	8	204	-552.47
7	220	-429.01	280	33.95	49.6	-10.28	8	212	-490.74
8	200	-583.33	240	-274.69	46.3	-22.23	8	234	-320.99
9	230	-351.85	260	-120.37	45	-27.04	8	228	-367.28
10	210	-506.17	240	-274.69	54.7	7.95	8	198	-598.77
11	210	-506.17	240	-274.69	61.3	31.21	8	217	-452.18
12	200	-583.33	260	-120.37	44	-31.48	8	221	-421.30
13	200	-583.33	260	-120.37	51.1	-4.99	8	274	-12.35

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	59.3	267418.4	749.51	30.63%
2	46	267418.4	746.25	29.98%
3	55.2	267418.4	750.71	30.88%
4	53	267418.4	736.28	28.06%
5	50.1	267418.4	745.06	29.75%
6	48.6	267418.4	745.31	29.80%
7	49.6	267418.4	737.09	28.21%
8	46.3	267418.4	735.35	27.89%
9	45	267418.4	734.54	27.73%
10	54.7	267418.4	734.17	27.66%
11	61.3	267418.4	737.02	28.20%
12	44	267418.4	730.58	27.00%
13	51.1	267418.4	736.15	28.04%

ENERGYSOLUTIONS

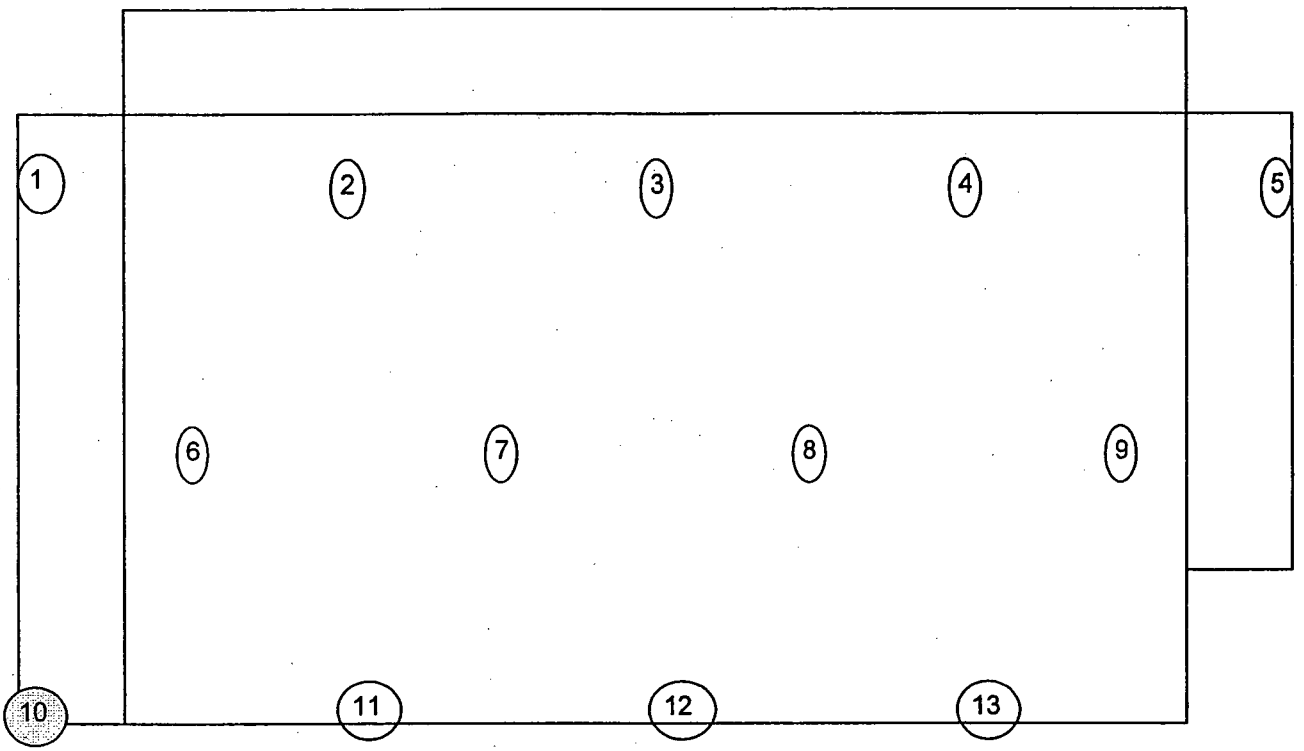
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-1-063**

Room: 200CB - Top of ZPR Room

Class 1
L = 7, R = 6.06

North



Survey Unit: **S-1-063**

Room: 200CB - Top of ZPR Room

Class 1
L = 7, R = 6.06

Number	X (ft)	Y (ft)	X (ft)	X (in)	Y (ft)	Y (in)
1	12.12	3.28	12	1	3	3
2	3.72	12.12	3	9	12	1
3	10.72	12.12	10	9	12	1
4	17.72	12.12	17	9	12	1
5	9.12	2.38	9	1	2	5
6	0.22	6.06	0	3	6	1
7	7.22	6.06	7	3	6	1
8	14.22	6.06	14	3	6	1
9	18.22	6.06	18	3	6	1
10	0.00	3.28	0	0	3	3
11	3.72	0.00	3	9	0	0
12	10.72	0.00	10	9	0	0
13	17.72	0.00	17	9	0	0

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Reactor Bay Catwalk	Survey Unit:	S-1-064
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/26/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	11/16/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2766	Background Reading (counts)	105	Background Reading (counts)	3036		
BKG (cpm)	276.6	BKG (cpm)	52.5	BKG (cpm)	303.6		
MDC (dpm/100cm2)	1740	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	487		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	276.6	cpm	R_B	52.5	cpm	R_B	303.6	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1740	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	487	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	90	12	<MDC	Concrete
2	<MDC	<MDC	<MDC	87	13	<MDC	Concrete
3	<MDC	<MDC	<MDC	87	13	<MDC	Concrete
4	<MDC	<MDC	<MDC	91	13	<MDC	Concrete
5	<MDC	<MDC	<MDC	87	13	743.83	Concrete
6	<MDC	<MDC	<MDC	87	13	<MDC	Concrete
7	<MDC	<MDC	<MDC	85	11	520.06	Concrete
8	<MDC	<MDC	<MDC	85	11	<MDC	Concrete
9	<MDC	<MDC	<MDC	92	12	<MDC	Concrete
10	<MDC	<MDC	<MDC	86	12	<MDC	Concrete
11	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
13	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
14	<MDC	<MDC	<MDC	84	12	<MDC	Concrete
15	<MDC	<MDC	<MDC	83	12	<MDC	Concrete
16	<MDC	<MDC	<MDC	87	13	<MDC	Concrete
17	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
18	<MDC	<MDC	<MDC	82	12	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	350	651.23	390	882.72	43.4	-32.24	12	340	280.86
2	340	496.91	380	805.56	54.7	7.55	13	344	311.73
3	380	805.56	400	959.88	42.9	-33.07	13	328	188.27
4	340	496.91	400	959.88	50.9	-5.75	13	359	427.47
5	340	496.91	380	805.56	59.3	23.42	13	400	743.83
6	340	496.91	380	805.56	54.7	7.52	13	352	373.46
7	340	496.91	380	805.56	44	-28.50	11	371	520.06
8	330	419.75	360	651.23	46	-21.76	11	360	435.19
9	380	805.56	400	959.88	48.1	-15.96	12	344	311.73
10	360	651.23	400	959.88	45.1	-25.07	12	347	334.88
11	360	651.23	400	959.88	49.6	-9.91	12	347	334.88
12	380	805.56	400	959.88	40.9	-38.59	12	319	118.83
13	340	496.91	380	805.56	53.7	3.99	12	308	33.95
14	320	342.59	380	805.56	58.8	20.81	12	363	458.33
15	320	342.59	380	805.56	53.7	3.95	12	333	226.85
16	340	496.91	390	882.72	38.8	-47.01	13	360	435.19
17	340	496.91	400	959.88	0	-179.86	12	373	535.49
18	340	496.91	400	959.88	38.6	-44.24	12	383	612.65

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
)	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

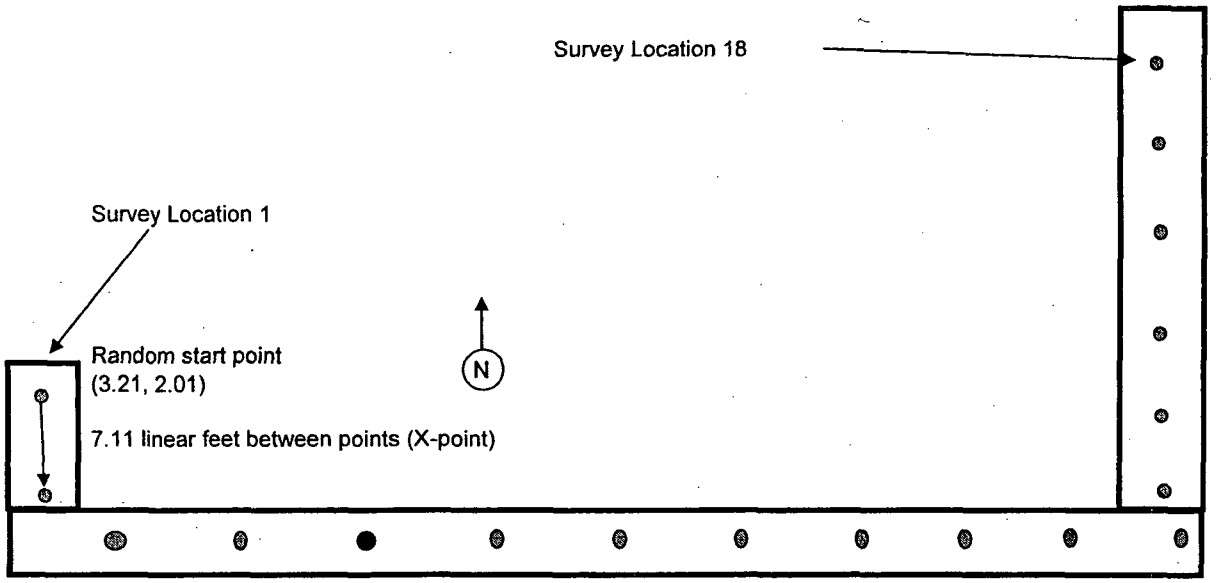
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	43.4	267418.4	737.15	28.22%
2	54.7	267418.4	742	29.15%
3	42.9	267418.4	741.38	29.03%
4	50.9	267418.4	735.1	27.84%
5	59.3	267418.4	741.38	29.03%
6	54.7	267418.4	742.56	29.26%
7	44	267418.4	745.43	29.82%
8	46	267418.4	745.68	29.87%
9	55.6	267418.4	733.68	27.57%
10	40.9	267418.4	743.87	29.52%
11	48.1	267418.4	742.58	29.26%
12	45.1	267418.4	746.62	30.06%
13	49.6	267418.4	746.56	30.05%
14	40.9	267418.4	747.69	30.27%
15	53.7	267418.4	748.32	30.40%
16	58.8	267418.4	741.95	29.14%
17	53.7	267418.4	742.19	29.19%
18	38.8	267418.4	751.15	30.96%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-1-064**

Room **Reactor Bay Catwalk**
Class **1**
***L* = 7.11 ft**



Survey Unit: **S-1-064**

Room **Reactor Bay Catwalk**
Class **1**
***L* = 7.11 ft**

Number	X (ft)	Y (ft)
1	3.12	2.01
2	10.23	2.01
3	17.34	2.01
4	24.45	2.01
5	31.56	2.01
6	38.67	2.01
7	45.78	2.01
8	52.89	2.01
9	60.00	2.01
10	67.11	2.01
11	74.22	2.01
12	81.33	2.01
13	88.44	2.01
14	95.55	2.01
15	102.66	2.01
16	109.77	2.01
17	116.88	2.01
18	123.99	2.01

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Room #:	Reactor Bay - Ceiling	Survey Unit:	S-3-065
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/27/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2657	Background Reading (counts)	105	Background Reading (counts)	2657		
BKG (cpm)	265.7	BKG (cpm)	52.5	BKG (cpm)	265.7		
MDC (dpm/100cm2)	1708	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	457		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	265.7	cpm	R_B	52.5	cpm	R_B	265.7	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1708	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	457	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	92	10	760.77	Concrete
3	<MDC	<MDC	<MDC	86	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	87	10	611.88	Concrete
5	<MDC	<MDC	<MDC	88	10	496.14	Concrete
6	<MDC	<MDC	<MDC	88	10	519.29	Concrete
7	<MDC	<MDC	<MDC	88	10	472.99	Concrete
8	<MDC	<MDC	<MDC	89	10	673.61	Concrete
9	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
10	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
11	<MDC	<MDC	<MDC	94	10	650.46	Concrete
12	<MDC	<MDC	<MDC	94	10	642.75	Concrete
13	<MDC	<MDC	<MDC	91	10	<MDC	Concrete
14	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
15	<MDC	<MDC	<MDC	88	0	<MDC	Concrete
16	<MDC	<MDC	<MDC	88	0	<MDC	Concrete

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	300	264.66	340	573.30	65.5	46.52	10	323	442.13
2	340	573.30	400	1036.27	54.8	8.37	10	363	750.77
3	340	573.30	400	1036.27	51.1	-4.74	10	310	341.82
4	340	573.30	400	1036.27	50.1	-8.22	10	345	611.86
5	340	573.30	400	1036.27	48.1	-15.35	10	330	496.14
6	300	264.66	340	573.30	60.3	27.07	10	333	519.29
7	320	418.98	380	881.94	58.8	21.87	10	327	472.99
8	320	418.98	380	881.94	44.9	-26.60	10	353	673.61
9	300	264.66	350	650.46	42.5	-34.66	10	313	364.97
10	300	264.66	350	650.46	52.2	-1.05	10	318	388.12
11	340	573.30	400	1036.27	52.6	0.37	10	350	650.46
12	340	573.30	400	1036.27	51.2	-4.80	10	349	642.75
13	300	264.66	340	573.30	53.7	4.33	10	317	395.83
14	300	264.66	340	573.30	52.6	0.35	10	310	341.82
15	300	264.66	340	573.30	46.6	-20.44	10	315	380.40
16	300	264.66	340	573.30	53.7	4.09	10	335	534.72

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers		2360 Cal Due Dates
Serial #	Probe #	11/19/2006
184941	200125	12/12/2006
193629	208657	12/13/2006
202415	221482	
202455	200135	
202475	208667	
	200130	
	193917	

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

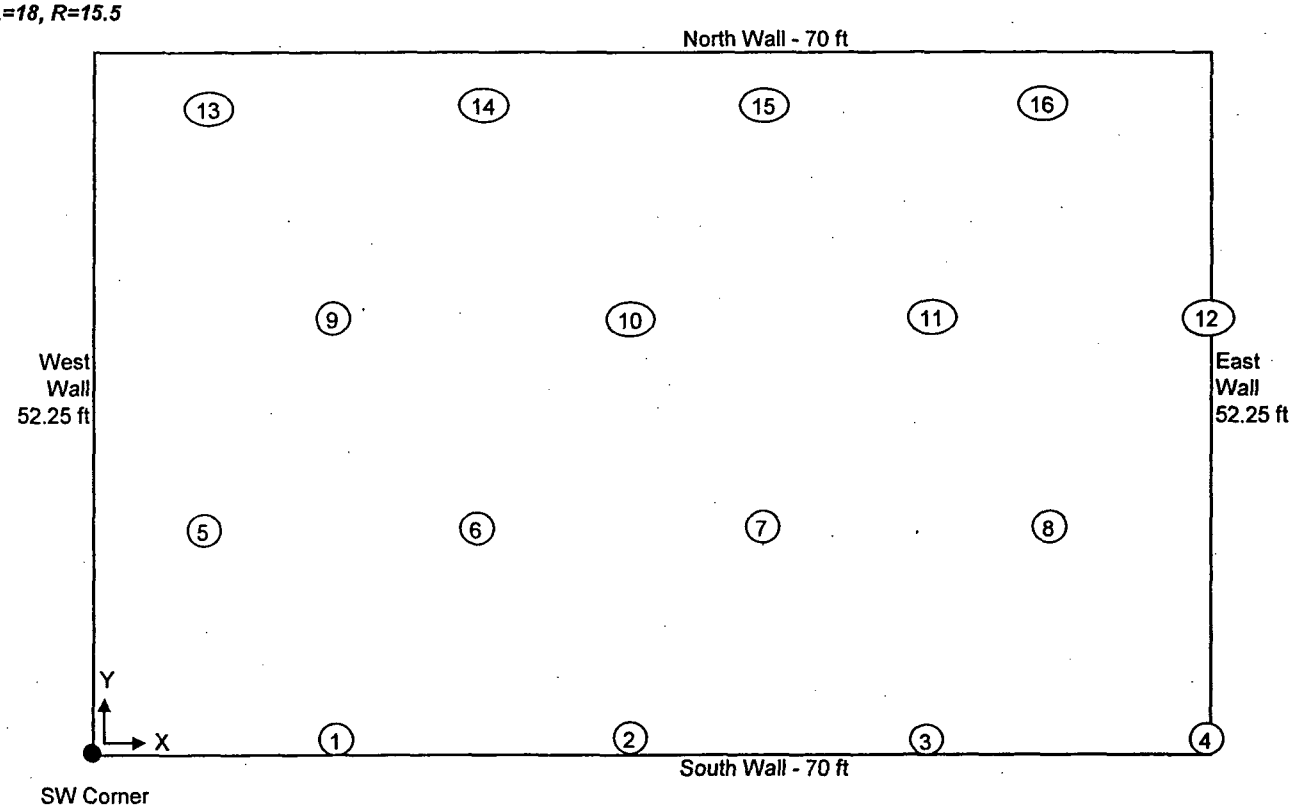
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	65.5	267418.4	735.66	27.94%
2	54.8	267418.4	733.12	27.47%
3	51.1	267418.4	744	29.54%
4	50.1	267418.4	742.31	29.21%
5	48.1	267418.4	739.45	28.66%
6	60.3	267418.4	740.25	28.82%
7	58.8	267418.4	740.19	28.80%
8	44.9	267418.4	738.95	28.57%
9	42.5	267418.4	740.44	28.85%
10	52.2	267418.4	739.14	28.60%
11	52.6	267418.4	730.89	27.06%
12	51.2	267418.4	730.89	27.06%
13	53.7	267418.4	734.42	27.71%
14	52.6	267418.4	739.45	28.66%
15	46.6	267418.4	740.5	28.86%
16	53.7	267418.4	742.93	29.33%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-3-065**

Reactor Bay Ceiling
Class 3
L=18, R=15.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell Uniersity

Survey Unit: **S-3-065**

Reactor Bay Ceiling
Class 3
L=18, R=15.5

Number	X	Y	Direct	uR/hr	Smear?		Material
Ceiling (Starting SW Corner)							
1	16	1					
2	34	1					
3	52	1					
4	70	1					
5	7	16.5					
6	25	16.5					
7	43	16.5					
8	61	16.5					
9	16	32					
10	34	32					
11	52	32					
12	70	32					
13	7	47.5					
14	25	47.5					
15	43	47.5					
16	61	47.5					

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	Reactor Bay Crane	Survey Unit:	S-2-006
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/28/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	12
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2701	Background Reading (counts)		105	Background Reading (counts)		2701		
BKG (cpm)		270.1	BKG (cpm)		52.5	BKG (cpm)		270.1		
MDC (dpm/100cm2)		1723	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		461		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	270.1	cpm	R_B	52.5	cpm	R_B	270.1	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1723	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	461	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	92	15	<MDC	Metal
2	<MDC	<MDC	<MDC	99	13	<MDC	Metal
3	<MDC	<MDC	<MDC	98	13	<MDC	Metal
4	<MDC	<MDC	<MDC	90	13	<MDC	Metal
5	<MDC	<MDC	<MDC	92	13	<MDC	Metal
6	<MDC	<MDC	<MDC	93	13	<MDC	Metal
7	<MDC	<MDC	<MDC	89	13	<MDC	Metal
8	<MDC	<MDC	<MDC	90	13	<MDC	Metal
9	<MDC	<MDC	<MDC	89	11	<MDC	Metal
10	<MDC	<MDC	<MDC	90	13	<MDC	Metal
11	<MDC	<MDC	<MDC	97	13	<MDC	Metal
12	<MDC	<MDC	<MDC	90	13	<MDC	Metal
13	<MDC	<MDC	<MDC	86	13	<MDC	Metal

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	240	-232.25	280	76.39	56.2	13.48	15	257	-101.08
2	240	-232.25	280	76.39	53.1	2.33	13	251	-147.38
3	240	-232.25	280	76.39	49.5	-11.62	13	265	-39.35
4	220	-388.57	260	-77.93	53.3	2.84	13	213	-440.59
5	180	-695.22	220	-386.57	51.6	-3.25	13	197	-564.04
6	180	-695.22	220	-386.57	44	-31.30	13	212	-448.30
7	180	-695.22	220	-386.57	42.4	-35.65	13	205	-502.31
8	180	-695.22	220	-386.57	46.5	-21.26	13	198	-556.33
9	180	-695.22	200	-540.90	55.7	11.18	11	176	-726.08
10	200	-540.90	240	-232.25	42.9	-34.24	13	209	-471.45
11	200	-540.90	240	-232.25	43.4	-34.82	13	203	-517.75
12	260	-77.93	300	230.71	48	-16.01	13	241	-224.54
13	200	-540.90	260	-77.93	49.4	-10.48	13	238	-247.69

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

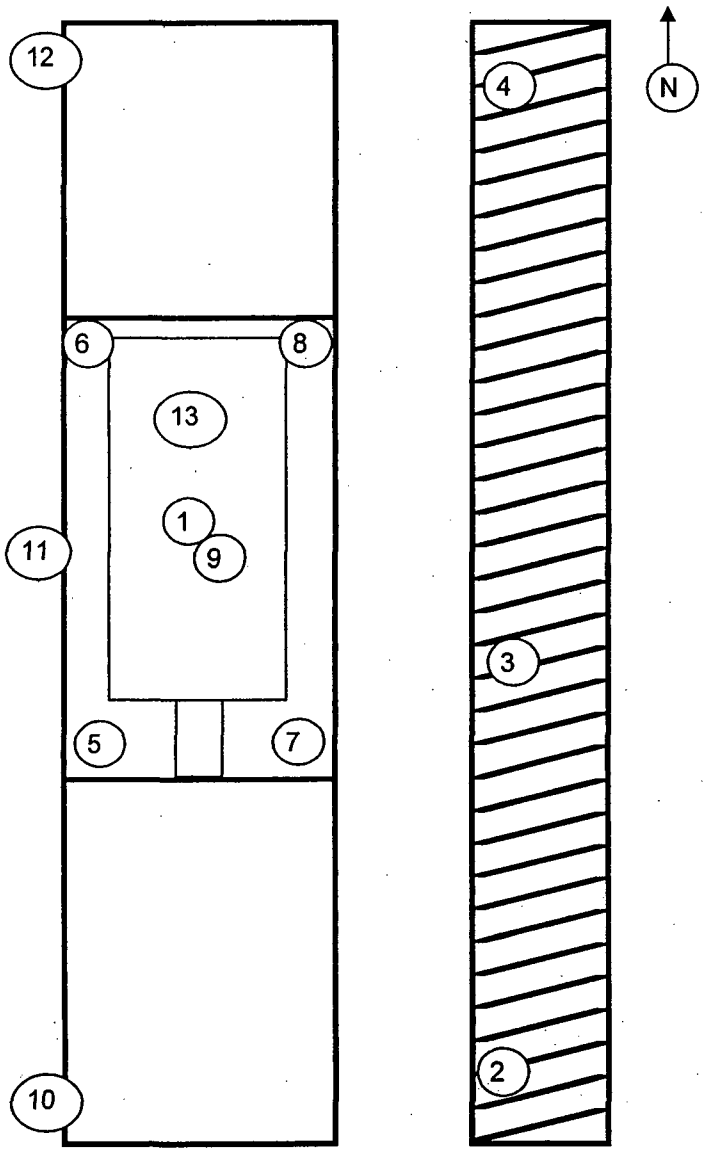
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.2	267418.4	733.06	27.46%
2	53.1	267418.4	723.38	25.71%
3	49.5	267418.4	724.05	25.82%
4	53.3	267418.4	736.65	28.13%
5	51.6	267418.4	734.11	27.65%
6	44	267418.4	731.45	27.16%
7	42.4	267418.4	737.71	28.33%
8	46.5	267418.4	737.15	28.22%
9	55.7	267418.4	739.2	28.61%
10	42.9	267418.4	738.15	28.04%
11	43.4	267418.4	725.77	26.13%
12	48	267418.4	736.53	28.11%
13	49.4	267418.4	744.18	29.58%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **S-2-066**

Reactor Bay Crane
Class 2



Point	Location
1	Hook
2	S-E Frame
3	S-E Frame - Middle
4	N-E Frame
5	S-W Trolley
6	N-W Trolley
7	S-E Trolley
8	N-E Trolley
9	Wire for Hook
10	S-W Frame
11	S-W Frame - Middle
12	N-W Frame
13	Control Box and Wire

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Room #:	Reactor Bay - Upper Walls	Survey Unit:	S-2-067
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/28/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/5/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3037	Background Reading (counts)		105	Background Reading (counts)		3037		
BKG (cpm)		303.7	BKG (cpm)		52.5	BKG (cpm)		303.7		
MDC (dpm/100cm2)		1827	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		487		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	303.7	cpm	R_B	52.5	cpm	R_B	303.7	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1827	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	487	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	10	<MDC	Concrete
2	<MDC	<MDC	<MDC	88	14	<MDC	Concrete
3	<MDC	<MDC	<MDC	89	10	<MDC	Concrete
4	<MDC	<MDC	<MDC	90	14	<MDC	Concrete
5	<MDC	<MDC	<MDC	87	11	<MDC	Concrete
6	<MDC	<MDC	<MDC	84	15	<MDC	Concrete
7	<MDC	<MDC	<MDC	81	11	<MDC	Concrete
8	<MDC	<MDC	<MDC	87	10	<MDC	Concrete
9	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
10	<MDC	<MDC	<MDC	84	12	1005.40	Concrete
11	<MDC	<MDC	<MDC	87	12	<MDC	Concrete
12	<MDC	<MDC	<MDC	89	12	566.59	Concrete
13	<MDC	<MDC	<MDC	88	11	<MDC	Concrete
14	<MDC	<MDC	<MDC	90	14	<MDC	Metal
15	<MDC	<MDC	<MDC	87	0	<MDC	Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	360	434.41	400	743.06	51.6	-3.12	10	356	403.55
2	320	125.77	360	434.41	52.7	0.70	14	322	141.20
3	300	-28.55	360	434.41	53.7	4.22	10	254	-383.49
4	300	-28.55	360	434.41	49	-12.37	14	295	-87.13
5	320	125.77	400	743.06	46.5	-20.54	11	310	48.61
6	320	125.77	400	743.06	55.7	10.62	15	342	295.52
7	320	125.77	400	743.06	56.7	13.38	11	361	442.13
8	300	-28.55	360	434.41	59.3	23.36	10	318	94.91
9	300	-28.55	360	434.41	49.1	-11.63	12	328	187.50
10	380	588.73	450	1128.88	56.2	12.28	12	434	1005.40
11	320	125.77	360	434.41	46	-22.25	12	327	179.78
12	340	280.09	420	897.38	52.7	0.70	12	377	565.59
13	320	125.77	360	434.41	49.6	-10.04	11	324	156.64
14	220	-645.83	280	-182.87	44.2	-29.57	14	254	-383.49
15	220	-645.83	240	-491.51	39.9	-43.47	10	219	-653.55

scan speed	0.5	detector widths per second
probe width	8.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

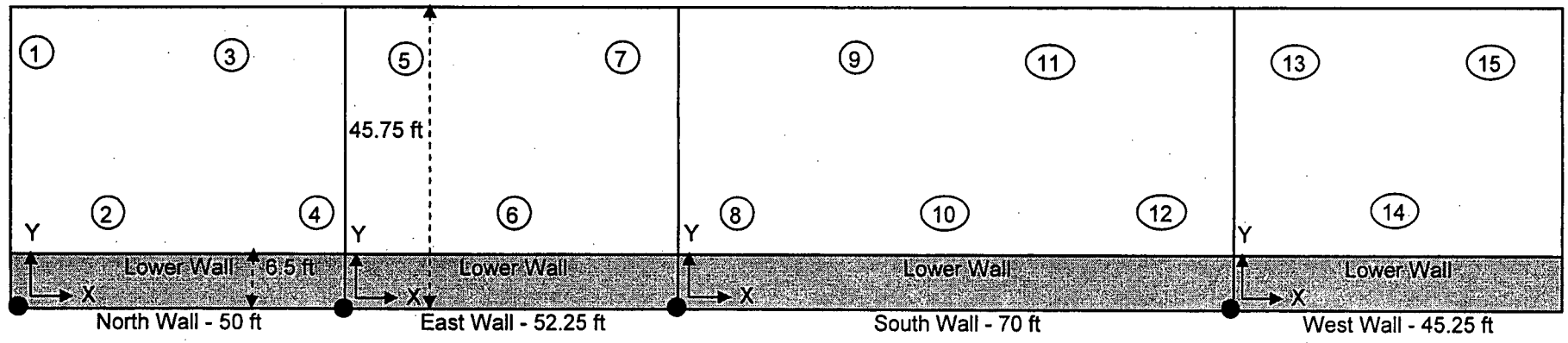
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	51.6	267418.4	740.63	28.89%
2	52.7	267418.4	739.32	28.64%
3	53.7	267418.4	738.2	28.42%
4	49	267418.4	737.58	28.31%
5	46.5	267418.4	742.31	29.21%
6	55.7	267418.4	747	30.13%
7	56.7	267418.4	753.3	31.40%
8	59.3	267418.4	741.75	29.10%
9	49.1	267418.4	742.44	29.24%
10	56.2	267418.4	746.94	30.12%
11	46	267418.4	742.31	29.21%
12	52.7	267418.4	738.39	28.46%
13	49.6	267418.4	740.63	28.89%
14	44.2	267418.4	736.34	28.07%
15	39.9	267418.4	741.13	28.98%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: S-2-067

Reactor Bay Upper Walls
Class 2
L=8, R=7



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **S-2-067**

Reactor Bay Upper Walls
Class 2
L=8, R=7

Number	X	Y	Direct	uR/hr	Smear?		Material
North Wall (Starting BOTTOM W Corner)							
1	6	33.5					
2	19.75	10					
3	33.5	33.5					
4	47.25	10					
East Wall (Starting BOTTOM N Corner)							
5	11	33.5					
6	24.75	10					
7	38.5	33.5					
South Wall (Starting BOTTOM E Corner)							
8	7	10					
9	20.75	33.5					
10	34.5	10					
11	48.25	33.5					
12	62	10					
Wast Wall (Starting BOTTOM S Corner)							
13	5.75	33.5					
14	19.75	10					
15	33.25	33.5					

Y - values measured from the floor, not the bottom of the survey unit

APPENDIX D

MISCELLANEOUS SURVEY UNIT DATA REPORTS

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	Ward Center Basement Level Floor Drains	Survey Unit:	M-1-019
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/3/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/6/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	26.92%	Efficiency (%)	See Below	Efficiency (%)	26.92%	BKG (uR/hr)	11
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2843	Background Reading (counts)	105	Background Reading (counts)	2843		
BKG (cpm)	284.3	BKG (cpm)	52.5	BKG (cpm)	284.3		
MDC (dpm/100cm2)	1767	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	472		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	284.3	cpm	R_B	52.5	cpm	R_B	284.3	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1767	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	472	dpm/100cm^2

Note: Drains 16 and 19 initially showed higher levels of beta/gamma and alpha activity. Once the drains were allowed to vent, the activity levels decreased back to normal. High levels likely attributed to radon gas.

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	87	10	<MDC	Concrete/Metal
2	<MDC	<MDC	<MDC	117	13	<MDC	Concrete/Metal
3	<MDC	<MDC	<MDC	87	11	<MDC	Concrete/Metal
4	<MDC	<MDC	<MDC	96	11	<MDC	Concrete/Metal
5	<MDC	<MDC	<MDC	87	12	<MDC	Concrete/Metal
6	<MDC	<MDC	<MDC	123	13	<MDC	Concrete/Metal
7	<MDC	<MDC	<MDC	89	13	<MDC	Concrete/Metal
8	<MDC	<MDC	<MDC	92	13	<MDC	Concrete/Metal
9	<MDC	<MDC	<MDC	82	13	<MDC	Concrete/Metal
10	<MDC	<MDC	<MDC	120	11	<MDC	Concrete/Metal
11	<MDC	<MDC	<MDC	93	11	<MDC	Concrete/Metal
12	<MDC	<MDC	<MDC	84	11	<MDC	Concrete/Metal
13	<MDC	<MDC	<MDC	90	11	<MDC	Concrete/Metal
14	<MDC	<MDC	<MDC	84	9	<MDC	Concrete/Metal
15	<MDC	<MDC	<MDC	85	10	<MDC	Concrete/Metal
16	<MDC	<MDC	<MDC	83	10	<MDC	Concrete/Metal
17	<MDC	<MDC	<MDC	83	10	<MDC	Concrete/Metal
18	<MDC	<MDC	<MDC	92	10	<MDC	Concrete/Metal
19	<MDC	<MDC	<MDC	89	11	<MDC	Concrete/Metal
20	<MDC	<MDC	<MDC	82	12	<MDC	Concrete/Metal
21	<MDC	<MDC	<MDC	83	11	<MDC	Concrete/Metal
22	<MDC	<MDC	<MDC	85	10	<MDC	Concrete/Metal

ENERGYSOLUTIONS

Final Status Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	300	121.14	340	429.78	44.2	-28.45	10	301	128.86
2	300	121.14	340	429.78	49.4	-14.28	13	277	-56.33
3	300	121.14	340	429.78	45.8	-22.88	11	345	468.36
4	300	121.14	340	429.78	54.1	6.08	11	228	-434.41
5	300	121.14	340	429.78	46.8	-19.59	12	286	13.12
6	300	121.14	340	429.78	45	-36.36	13	272	-94.91
7	300	121.14	340	429.78	52.4	-0.35	13	269	-118.06
8	300	121.14	340	429.78	59.9	26.95	13	310	198.30
9	300	121.14	340	429.78	51.1	-4.52	13	279	-40.90
10	300	121.14	340	429.78	44.5	-37.76	11	275	-71.76
11	300	121.14	340	429.78	52.2	-1.11	11	320	275.46
12	300	121.14	340	429.78	44.2	-27.51	11	138	-1128.86
13	300	121.14	340	429.78	45	-26.65	11	155	-997.69
14	300	121.14	340	429.78	52.4	-0.33	9	222	-480.71
15	300	121.14	340	429.78	44.9	-25.62	10	306	187.44
16	300	121.14	340	429.78	52.3	-0.66	10	345	468.36
17	300	121.14	340	429.78	53.9	4.58	10	246	-295.52
18	300	121.14	340	429.78	51.8	-2.54	10	265	-148.92
19	300	121.14	340	429.78	51.6	-3.17	11	273	-87.19
20	300	121.14	340	429.78	54.7	7.13	12	292	59.41
21	300	121.14	340	429.78	41.1	-37.54	11	232	-403.55
22	300	121.14	340	429.78	60.3	26.05	10	233	-395.83

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

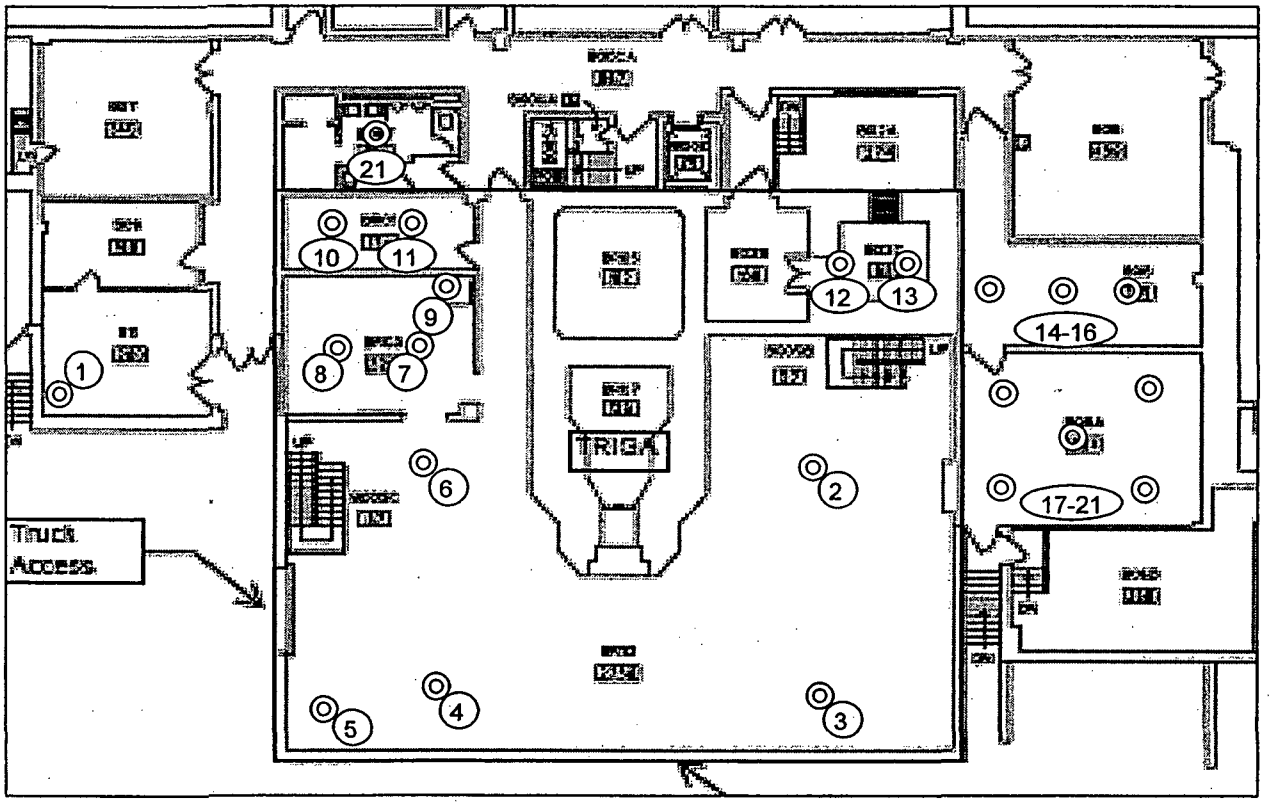
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	44.2	267418.4	742.12	29.18%
2	49.4	267418.4	699.28	21.71%
3	45.8	267418.4	742.68	29.28%
4	54.1	267418.4	726.82	26.32%
5	46.8	267418.4	741.69	29.09%
6	45	267418.4	692.18	20.63%
7	52.4	267418.4	738.82	28.54%
8	59.9	267418.4	733.06	27.46%
9	51.1	267418.4	751.27	30.99%
10	44.5	267418.4	695.89	21.19%
11	52.2	267418.4	731.26	27.13%
12	44.2	267418.4	747.19	30.17%
13	45	267418.4	736.71	28.14%
14	52.4	267418.4	747.81	30.29%
15	44.9	267418.4	744.62	29.66%
16	52.3	267418.4	748.25	30.38%
17	53.9	267418.4	749.26	30.58%
18	51.8	267418.4	733.37	27.52%
19	51.6	267418.4	738.02	28.39%
20	54.7	267418.4	750.52	30.84%
21	41.1	267418.4	748.19	30.37%
22	60.3	267418.4	746.06	29.95%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: M-1-019

Ward Center Basement Level Floor Drains



Drain	Location	Drain	Location	Drain	Location
1	Electrical Room	9	Reactor Equip. Room	17	Chem Lab Storage
2	Reactor Bay	10	Gamma Cell	18	Chem Lab Storage
3	Reactor Bay	11	Gamma Cell	19	Chem Lab Storage
4	Reactor Bay	12	Chem Lab	20	Chem Lab Storage
5	Reactor Bay	13	Chem Lab	21	Chem Lab Storage
6	Reactor Bay	14	Chem Lab	22	Bathroom
7	Reactor Equip. Room	15	Chem Lab		
8	Reactor Equip. Room	16	Chem Lab		

Note: Drains 16 and 19 initially showed higher levels of beta/gamma and alpha activity. Once the drains were allowed to vent, the activity levels decreased back to normal. High levels likely attributed to radon gas.

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Room #:	Asphalt Driveway to Reactor Bay	Survey Unit:	M-3-020
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/9/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2802	Background Reading (counts)	112.8	Background Reading (counts)	2802		
BKG (cpm)	280.2	BKG (cpm)	56.4	BKG (cpm)	280.2		
MDC (dpm/100cm2)	1754	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	469		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	280.2	cpm	R_B	56.4	cpm	R_B	280.2	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1754	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	469	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	95	10	<MDC	Asphalt
2	<MDC	<MDC	<MDC	100	10	<MDC	Asphalt
3	<MDC	<MDC	<MDC	104	10	<MDC	Asphalt
4	<MDC	<MDC	<MDC	113	10	<MDC	Asphalt
5	<MDC	<MDC	<MDC	107	10	<MDC	Asphalt
6	<MDC	<MDC	<MDC	106	10	<MDC	Asphalt
7	<MDC	<MDC	<MDC	110	10	<MDC	Asphalt
8	<MDC	<MDC	<MDC	108	10	<MDC	Asphalt
9	<MDC	<MDC	<MDC	105	10	<MDC	Asphalt
10	<MDC	<MDC	<MDC	107	10	<MDC	Asphalt
11	<MDC	<MDC	<MDC	109	10	<MDC	Asphalt
12	<MDC	<MDC	<MDC	106	10	<MDC	Asphalt
13	<MDC	<MDC	<MDC	118	10	<MDC	Asphalt
14	<MDC	<MDC	<MDC	109	10	<MDC	Asphalt

ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	240	-310.19	280	-1.54	51.5	-17.73	10	257	-179.01
2	240	-310.19	280	-1.54	56.2	-0.76	10	291	83.33
3	240	-310.19	280	-1.54	50.7	-22.65	10	282	13.89
4	240	-310.19	280	-1.54	53.6	-12.05	10	238	-325.62
5	240	-310.19	280	-1.54	49.6	-27.67	10	279	-9.26
6	240	-310.19	280	-1.54	41.7	-59.49	10	256	-186.73
7	240	-310.19	280	-1.54	45.2	-46.99	10	258	-171.30
8	240	-310.19	280	-1.54	50.5	-24.40	10	254	-202.16
9	240	-310.19	280	-1.54	45.1	-45.17	10	268	-94.14
10	240	-310.19	280	-1.54	47.9	-34.67	10	249	-240.74
11	240	-310.19	280	-1.54	52.7	-15.36	10	263	-132.72
12	240	-310.19	280	-1.54	53.2	-12.98	10	280	-1.54
13	240	-310.19	280	-1.54	44.1	-55.33	10	261	-148.15
14	240	-310.19	280	-1.54	51	-22.56	10	243	-287.04

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

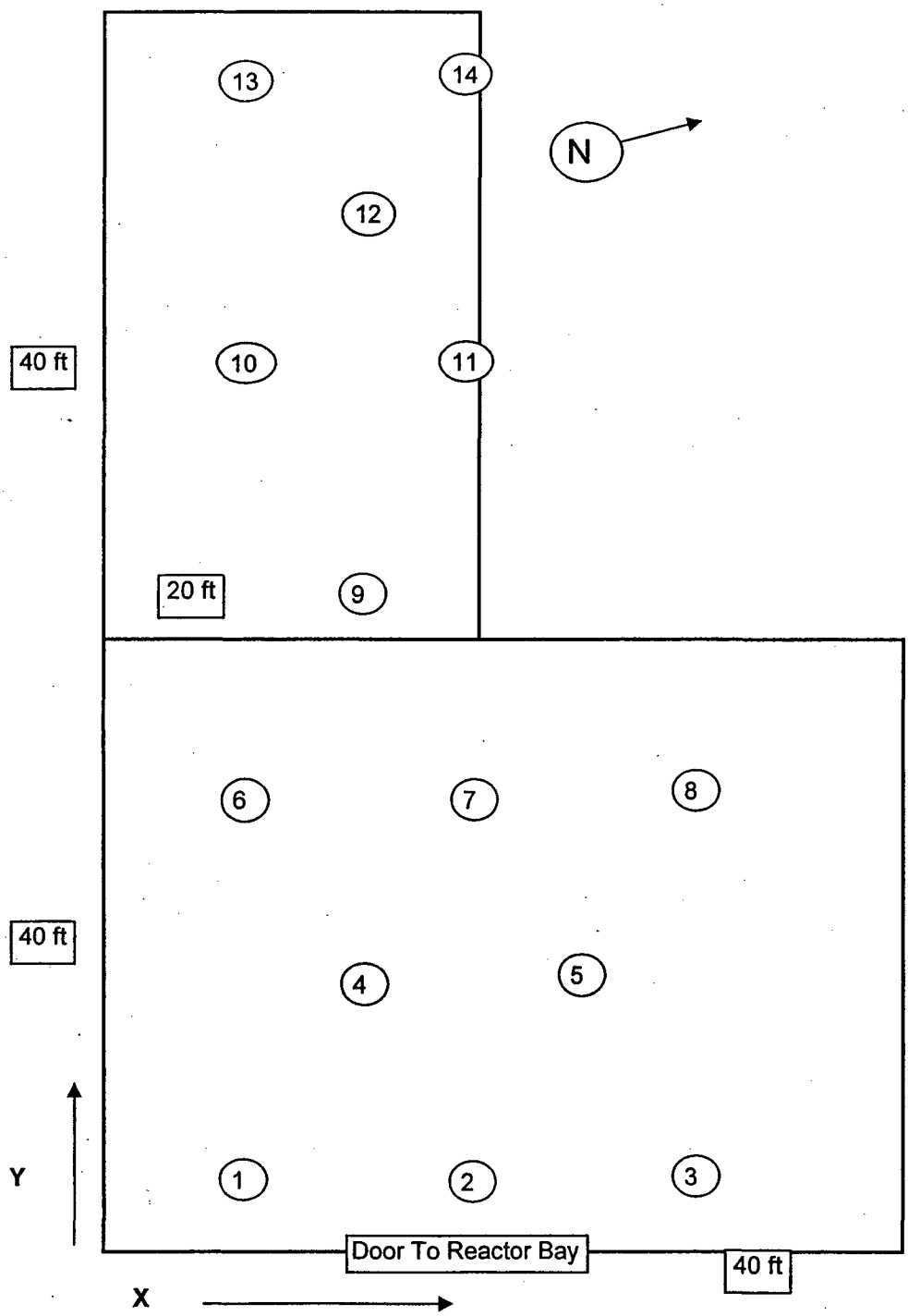
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	51.5	267418.4	734.05	27.64%
2	56.2	267418.4	726.2	26.21%
3	50.7	267418.4	720.29	25.16%
4	53.6	267418.4	708.87	23.24%
5	49.6	267418.4	716.85	24.57%
6	41.7	267418.4	717.65	24.71%
7	45.2	267418.4	712.49	23.84%
8	50.5	267418.4	714.57	24.19%
9	45.1	267418.4	719.43	25.02%
10	47.9	267418.4	718.54	24.52%
11	52.7	267418.4	714.03	24.09%
12	53.2	267418.4	717.37	24.66%
13	44.1	287418.4	702.6	22.23%
14	51	287418.4	713.1	23.94%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **M-3-020**

Asphalt Driveway to Reactor Bay
Class 3
L=14.5, R=12.5



ENERGYSOLUTIONS

Final Status Survey Points
Ward Center, Cornell University

Survey Unit: **M-3-020**

Asphalt Driveway to Reactor Bay
Class 3
L=14.5, R=12.5

Number	X	Y	Direct	uR/hr	Meterial
1	5	3			
2	19.5	3			
3	34	3			
4	12.25	15.75			
5	26.75	15.75			
6	5	28.25			
7	19.5	28.25			
8	34	28.25			
9	12.25	41			
10	5	53.25			
11	19.5	53.25			
12	12.25	66			
13	5	78.5			
14	19.5	78.5			

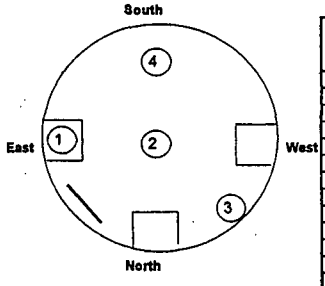
ENERGYSOLUTIONS

Final State Survey Results
Ward Center, Cornell University

Room #:	Manhole located Northwest of the Ward Center	Survey Unit:	M-1-021
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/6/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	(Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/8/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	11
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2716	Background Reading (counts)			Background Reading (counts)		2716		
BKG (cpm)		271.6	BKG (cpm)		0.0	BKG (cpm)		271.6		
MDC (dpm/100cm2)		1727	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		462		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	271.6	cpm	R_B	0	cpm	R_B	271.6	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1727	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	462	dpm/100cm^2		



Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	2842.59	3305.56	197.52	7	15	3367.28	
2	6391.98	7183.58	200.67	6	15	6631.17	
3	1762.35	2379.63	568.43	22	15	1932.10	
4	2533.95	2919.75	396.39	17	15	2240.74	
1	Drain pipe						
2	Bottom						
3	Wall						
4	Wall						

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	640	2842.59	700	3305.56	40.8	197.62	15	708	3367.28
2	1100	6391.98	1200	7163.58	49.9	200.67	15	1131	6631.17
3	500	1762.35	580	2379.63	38	568.43	15	522	1932.10
4	600	2533.95	650	2919.75	35.4	396.39	15	562	2240.74
5		-2095.68							
6		-2095.68							
7		-2095.68							
8		-2095.68							
9		-2095.68							
10		-2095.68							
11		-2095.68							
12		-2095.68							
13		-2095.68							

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	40.8	267418.4	692.31	20.65%
2	49.9	267418.4	718.57	24.87%
3	38	267418.4	541.1	6.69%
4	35.4	267418.4	582.36	8.93%
5		267418.4		20.42%
6		267418.4		20.42%
7		267418.4		20.42%
8		267418.4		20.42%
9		267418.4		20.42%
10		267418.4		20.42%
11		267418.4		20.42%
12		267418.4		20.42%
13		267418.4		20.42%

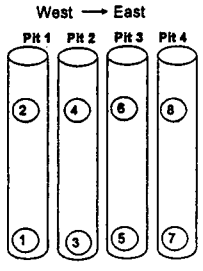
ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	Reactor Bay - Pool Source Storage Pits	Survey Unit:	M-1-027
Surveyor:	LeRoy Cunoe (Print)	(Sign)	10/6/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	11/16/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	11
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		2716	Background Reading (counts)		112.8	Background Reading (counts)		2716		
BKG (cpm)		271.6	BKG (cpm)		56.4	BKG (cpm)		271.6		
MDC (dpm/100cm2)		1727	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		462		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	271.6	cpm	R_B	56.4	cpm	R_B	271.6	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1727	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	462	dpm/100cm^2		



Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	88	15	876.00	Concrete
2	<MDC	<MDC	<MDC	87	15	<MDC	Concrete
3	<MDC	<MDC	<MDC	90	15	1098.77	Concrete
4	<MDC	<MDC	<MDC	90	15	<MDC	Concrete
5	<MDC	<MDC	<MDC	95	15	<MDC	Concrete
6	<MDC	<MDC	<MDC	97	15	<MDC	Concrete
7	<MDC	<MDC	<MDC	95	15	<MDC	Concrete
8	<MDC	<MDC	<MDC	93	15	<MDC	Concrete

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	360	682.10	400	990.74	54.6	-6.03		385	875.00
2	280	64.81	320	373.46	52.7	-12.34		239	-251.54
3	420	1145.06	460	1453.70	50.6	-19.84		414	1098.77
4	200	-552.47	240	-243.83	52.9	-11.98		239	-251.54
5	280	64.81	320	373.46	51.9	-16.28		253	-143.52
6	260	-89.51	300	219.14	52.2	-15.48		240	-243.83
7	280	64.81	320	373.46	49.6	-24.69		316	342.59
8	200	-552.47	240	-243.83	49.9	-23.02		237	-266.98

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
i	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	54.6	267418.4	745.5	29.84%
2	52.7	267418.4	746.25	29.98%
3	50.6	267418.4	742.44	29.24%
4	52.9	267418.4	742.37	29.22%
5	51.9	267418.4	734.05	27.64%
6	52.2	267418.4	731.26	27.13%
7	49.6	267418.4	733.49	27.54%
8	49.9	267418.4	737.21	28.24%

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Location:	Reactor Bay Beam Port Plug Storage (East Wall)	Survey Unit:	M-1-022
Surveyor:	John Albert (Print)	Sign	Date: 10/9/2006
Reviewer:	Kevin Taylor, CHP (Print)	Sign	Date: 11/16/2006

Survey Meters

LSC Instrumentation		Direct Measurement Instrumentation		Exposure Rate Instrument	
Meter Model #	Wallac 1400	Meter Model #	L2221	Meter Model #	19
Meter Serial #	Unknown	Meter Serial #	68537	Meter Serial #	148152
Probe Serial #	NA	Probe Serial #	226943	Probe Serial #	
Cal Due	NA	Cal Due	12/20/2006	Cal Due	3/6/2007
Efficiency (%)	See Below	Efficiency (%)	22.46%	Efficiency (%)	
Type	beta/gamma	Type	gamma	Type	gamma
Sample Time (min)	2	Sample Time (min)	1	Sample Time (min)	
Background Time (min)	2	Background Time (min)	10	Background Time (min)	
Background Reading (counts)	112.8	Background Reading (counts)	141509	Background Reading (counts)	
BKG (cpm)	56.4	BKG (cpm)	14150.9	BKG (uR/hr)	11
MDC (dpm/100cm2)	100-110				

Moving right to left

Sample Number	LSC Smear Results		Storage Tube	Outside Measurement (cpm)	Inside Measurment (cpm)	Net Inside Countrate (cpm)	Exposure Rate (uR/hr)
	CPM	dpm/100cm^2					
1	49.7	< MDC	1	9,303	8,226	-1,077	12
2	44.4	< MDC	2	8,225	8,366	141	12
3	59.3	< MDC	3	9,499	7,299	-2,200	12
4	43.8	< MDC	4	7,395	7,076	-319	12
5	49.1	< MDC	5	8,307	8,320	13	12
6	57.2	< MDC	6	8,740	8,087	-653	12
7	51.2	< MDC	7	8,833	8,224	-609	12
8	49.3	< MDC	8	8,871	9,515	644	12

ENERGYSOLUTIONS

Survey Record
Ward Center, Cornell University

Survey Unit: M-1-068

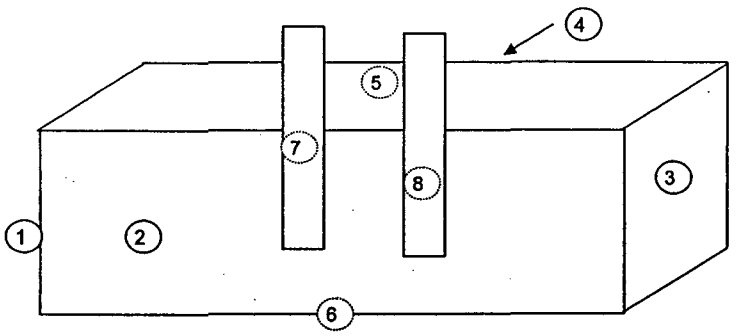
Surveyor: Chris Higgins (Print) _____ (Sign) 9/22/2006 (Date)

R[redacted]r: Mike Pries (Print) _____ (Sign) 9/22/2006 (Date)

Survey Meters

Direct Frisk		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #		Meter Model #	Ludlum 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #		Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #		Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due		Type	gamma
Efficiency (%)	26%	Efficiency (%)	See Below	Efficiency (%)		BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type			
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)		Meter Model #	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)		Meter Serial #	NA
Background Reading (counts)	2823	Background Reading (count	108.4	Background Reading (counts)		Cal Due	NA
BKG (cpm)	282.3	BKG (cpm)	54.2	BKG (cpm)		Type	gamma
MDC (dpm/100cm2)	469	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)		BKG (μR/hr)	25
Guideline (dpm/100cm²)	NA	Guideline (dpm/100cm²)	NA	Guideline (dpm/100cm²)			
Action Level (dpm/100cm²)	NA	Action Level (dpm/100cm²)	NA	Action Level (dpm/100cm²)			

L[redacted]ON: Reactor Equipment Room Sump
PU[redacted]OSE: FSS



Location	Direct dpm/100cm² Beta/G - Direct	Smear dpm/100cm² Beta/G	dpm/100cm² Alpha	uR/hr Dose Rate
1	<MDA	<MDA		9.00
2	<MDA	<MDA		9.00
3	<MDA	<MDA		9.00
4	<MDA	<MDA		9.00
5	<MDA	<MDA		9.00
6	<MDA	<MDA		9.00
7	<MDA	<MDA		9.00
8	<MDA	<MDA		9.00

Smears Run on LSC

	Direct Gross cpm	Smear Net Cpm	(total beta)
1	196	56.20	
2	206	52.70	
3	190	44.20	
4	202	35.60	
5	177	56.80	
6	206	52.30	
7	214	65.20	
8	199	49.70	

[redacted] $\frac{3 + 3.29\sqrt{RB\,t_s(1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\text{efficiency})}$

where: Rb = background counting rate
Tb = background counting time
Ts = sample count time
AI = action level

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Room #:	Ventilation System - Data Set 1 (Reactor Bay)	Survey Unit:	M-3-069
Surveyor:	LeRoy Cuneo (Print)	(Sign)	9/27/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	12
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	2655	Background Reading (counts)	105	Background Reading (counts)	2655		
BKG (cpm)	265.5	BKG (cpm)	52.5	BKG (cpm)	265.5		
MDC (dpm/100cm2)	1708	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	457		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	265.5	cpm	R_B	52.5	cpm	R_B	265.5	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1708	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	457	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	93	10	<MDC	Metal
2	<MDC	<MDC	<MDC	93	11	<MDC	Metal
3	<MDC	<MDC	<MDC	92	11	<MDC	Metal
4	<MDC	<MDC	<MDC	86	10	<MDC	Metal
5	<MDC	<MDC	<MDC	89	11	<MDC	Metal
6	<MDC	<MDC	<MDC	86	11	<MDC	Metal
7	<MDC	<MDC	<MDC	94	11	<MDC	Metal
8	<MDC	<MDC	<MDC	90	11	<MDC	Metal
9	<MDC	<MDC	<MDC	92	11	<MDC	Metal
10	<MDC	<MDC	<MDC	94	10	<MDC	Metal
11	<MDC	<MDC	<MDC	88	11	<MDC	Metal
12	<MDC	<MDC	<MDC	101	11	497.69	Metal
13	<MDC	<MDC	<MDC	98	11	<MDC	Metal
14	<MDC	<MDC	<MDC	96	11	<MDC	Metal
15	<MDC	<MDC	<MDC	99	11	<MDC	Metal
16	<MDC	<MDC	<MDC	95	11	<MDC	Metal
17	<MDC	<MDC	<MDC	94	10	<MDC	Metal
18	<MDC	<MDC	<MDC	100	11	<MDC	Metal
19	<MDC	<MDC	<MDC	108	11	<MDC	Metal
20	<MDC	<MDC	<MDC	107	11	<MDC	Metal
21	<MDC	<MDC	<MDC	106	11	<MDC	Metal

ENERGYSOLUTIONS

Final Stat[illegible]rvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	380	883.49	340	574.85	42.6	-38.28	10	300	266.20
2	280	111.88	340	574.85	44.5	-29.50	11	282	127.31
3	250	-119.60	300	266.20	54.8	8.39	11	270	34.72
4	250	-119.60	300	266.20	48.4	-13.90	10	239	-204.48
5	250	-119.60	300	266.20	47.5	-17.59	11	262	-27.01
6	250	-119.60	300	266.20	51.6	-3.05	11	256	-73.30
7	250	-119.60	300	266.20	51.1	-5.17	11	263	-19.29
8	250	-119.60	300	266.20	49.1	-12.12	11	233	-250.77
9	250	-119.60	300	266.20	43.6	-32.26	11	241	-189.04
10	250	-119.60	330	497.69	46.3	-22.90	10	303	289.35
11	280	111.88	330	497.69	48.6	-13.53	11	293	212.19
12	280	111.88	330	497.69	55.1	10.36	11	330	497.69
13	280	111.88	340	574.85	45.9	-25.41	11	285	150.46
14	300	266.20	300	266.20	50.9	-6.05	11	261	-34.72
15	250	-119.60	300	266.20	49.7	-10.90	11	264	-11.57
16	250	-119.60	300	266.20	49.9	-9.76	11	255	-81.02
17	250	-119.60	300	266.20	0	-193.86	10	237	-219.91
18	250	-119.60	300	266.20	0	-208.09	11	257	-65.59
19	250	-119.60	300	266.20	0	-224.09	11	249	-127.31
20	250	-119.60	300	266.20	0	-221.87	11	250	-119.60
21	250	-119.60	300	266.20	0	-219.68	11	255	-81.02

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

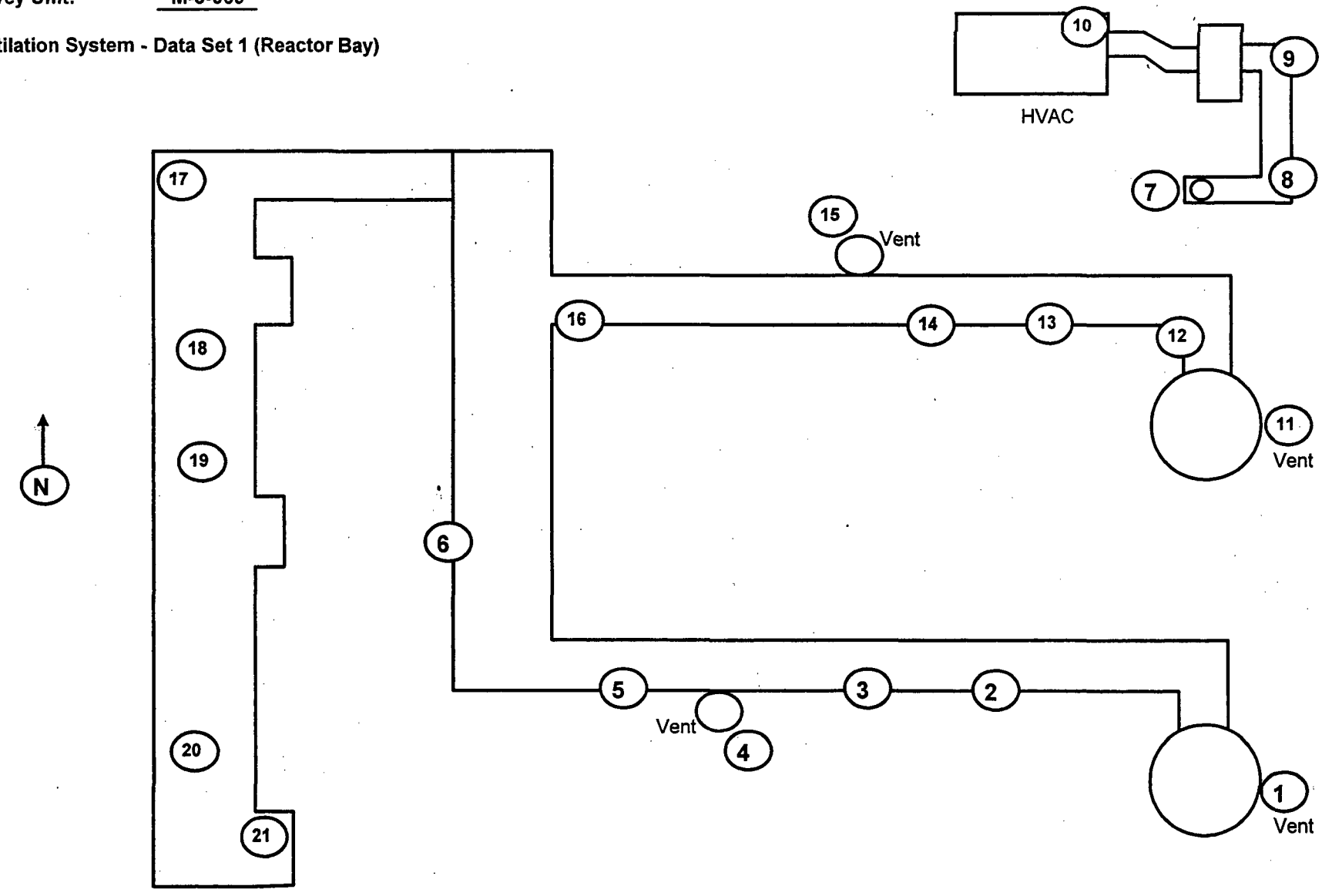
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2008	SQPE	Efficiency
1	42.6	267418.4	732.13	27.29%
2	44.5	267418.4	731.2	27.11%
3	51.3	267418.4	732.87	27.42%
4	51.5	267418.4	743.81	29.50%
5	49.2	267418.4	738.2	28.42%
6	52.1	267418.4	743.75	29.49%
7	47.5	267418.4	731.02	27.08%
8	54.8	267418.4	736.28	28.05%
9	48.4	267418.4	733.74	27.58%
10	47.5	267418.4	730.96	27.07%
11	51.6	267418.4	740.25	28.82%
12	51.1	267418.4	719.93	25.10%
13	49.1	267418.4	724.91	25.98%
14	43.6	267418.4	727.5	26.44%
15	46.3	267418.4	723.26	25.68%
16	48.6	267418.4	728.81	26.64%
17	55.1	267418.4	731.02	27.08%
18	45.9	267418.4	720.66	25.23%
19	50.9	267418.4	710.03	23.43%
20	49.7	267418.4	711.45	23.68%
21	49.9	267418.4	712.86	23.90%

ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: M-3-069

Ventilation System - Data Set 1 (Reactor Bay)



M-3-071(1)

ENERGYSOLUTIONS

Final Sta[illegible]urvey Results
Ward Center, Cornell University

Room #:	Ventilation Systems - Data Set 2	Survey Unit:	M-3-070
Surveyor:	LeRoy Cuneo (Print)	(Sign)	10/4/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)	(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation			LSC Instrumentation			Direct Measurement Instrumentation			Dose Rate Instrumentation	
Meter Model #		L2360	Meter Model #		Wallac 1400	Meter Model #		L2360	Meter Model #	L 19
Meter Serial #		193629	Meter Serial #		Unknown	Meter Serial #		193629	Meter Serial #	148152
Probe Serial #		200130	Probe Serial #		NA	Probe Serial #		200130	Cal Due	3/6/2007
Cal Due		11/19/2006	Cal Due		NA	Cal Due		11/19/2006	Type	beta/gamma
Efficiency (%)		25.92%	Efficiency (%)		See Below	Efficiency (%)		25.92%	BKG (uR/hr)	10
Type		beta/gamma	Type		beta/gamma	Type		beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)		1	Sample Time (min)		2	Sample Time (min)		1	Action Level (mR/hr)	NA
Background Time (min)		10	Background Time (min)		2	Background Time (min)		10		
Background Reading (counts)		3100	Background Reading (counts)		108	Background Reading (counts)		3100		
BKG (cpm)		310	BKG (cpm)		54.0	BKG (cpm)		310		
MDC (dpm/100cm2)		1845	MDC (dpm/100cm2)		See Below	MDC (dpm/100cm2)		492		
Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA	Guideline (dpm/100cm^2)		NA		
Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA	Action Level (dpm/100cm^2)		NA		
Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360			
S/N	193629		S/N	Unknown		S/N	193629			
R_B	310	cpm	R_B	54	cpm	R_B	310	cpm		
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes		
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes		
ε_s	0.5		ε_s	1		ε_s	0.5			
ε_i	26%		ε_i	See Below		ε_i	26%			
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2		
MDC	1845	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	492	dpm/100cm^2		

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	91	8	<MDC	Metal
2	<MDC	<MDC	<MDC	87	8	<MDC	Metal
3	<MDC	<MDC	<MDC	88	10	<MDC	Metal
4	<MDC	<MDC	<MDC	88	10	<MDC	Metal
5	<MDC	<MDC	<MDC	86	8	<MDC	Metal
6	<MDC	<MDC	<MDC	89	6	<MDC	Metal
7	<MDC	<MDC	<MDC	95	10	<MDC	Metal
8	<MDC	<MDC	<MDC	87	10	<MDC	Metal
9	<MDC	<MDC	<MDC	97	8	<MDC	Metal
10	<MDC	<MDC	<MDC	171	8	<MDC	Metal
11	<MDC	<MDC	<MDC	107	10	<MDC	Metal
12	<MDC	<MDC	<MDC	95	8	<MDC	Metal
13	<MDC	<MDC	<MDC	91	9	<MDC	Metal
14	<MDC	<MDC	<MDC	90	8	<MDC	Metal
15	<MDC	<MDC	<MDC	83	8	<MDC	Metal
16	<MDC	<MDC	<MDC	84	8	<MDC	Metal
17	<MDC	<MDC	<MDC	83	10	<MDC	Metal
18	<MDC	<MDC	<MDC	82	10	<MDC	Metal
19	<MDC	<MDC	<MDC	86	8	<MDC	Metal
20	<MDC	<MDC	<MDC	88	8	<MDC	Metal
21	<MDC	<MDC	<MDC	85	8	<MDC	Metal
22	<MDC	<MDC	<MDC	84	10	<MDC	Metal

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	200	-848.77	250	-462.96	56.2	7.80	8	216	-725.31
2	200	-848.77	250	-462.96	45	-30.55	8	202	-833.33
3	180	-1003.09	230	-617.28	51.1	-9.93	10	206	-802.47
4	200	-848.77	250	-462.96	43.7	-35.24	10	198	-864.20
5	200	-848.77	250	-462.96	49.7	-14.43	8	235	-578.70
6	240	-540.12	290	-154.32	51.6	-8.32	6	251	-455.25
7	240	-540.12	290	-154.32	47.8	-23.04	10	248	-478.40
8	240	-540.12	290	-154.32	54.7	2.38	10	234	-586.42
9	300	-77.16	350	308.64	56.2	8.30	8	327	131.17
10	260	-385.80	310	0.00	43.2	-71.87	8	224	-663.58
11	260	-385.80	310	0.00	46.8	-29.90	10	279	-239.20
12	260	-385.80	310	0.00	57.8	14.05	8	226	-648.15
13	260	-385.80	310	0.00	39.9	-50.08	9	277	-254.63
14	200	-848.77	250	-462.96	57.7	12.92	8	226	-648.15
15	260	-385.80	310	0.00	52	-6.43	8	278	-246.91
16	260	-385.80	310	0.00	47	-22.90	8	259	-393.52
17	260	-385.80	310	0.00	49.6	-14.15	10	283	-208.33
18	230	-617.28	280	-231.48	53.7	-0.96	10	262	-370.37
19	200	-848.77	250	-462.96	51.6	-8.06	8	225	-655.86
20	220	-694.44	270	-308.64	45	-30.92	8	253	-439.81
21	220	-694.44	270	-308.64	45.5	-28.00	8	231	-609.57
22	220	-694.44	270	-308.64	51.7	-7.49	10	237	-563.27

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
1	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

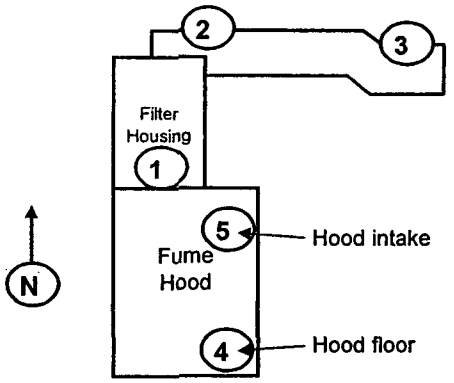
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	56.2	267418.4	737.09	28.21%
2	45	267418.4	743.56	29.46%
3	51.1	267418.4	742.25	29.20%
4	43.7	267418.4	742.37	29.22%
5	49.7	267418.4	745.31	29.80%
6	51.6	267418.4	740.38	28.84%
7	47.8	267418.4	730.09	26.91%
8	54.7	267418.4	743.25	29.40%
9	56.2	267418.4	727.87	26.51%
10	43.2	267418.4	649.73	15.03%
11	46.8	267418.4	713.96	24.08%
12	57.8	267418.4	730.83	27.05%
13	39.9	267418.4	736.76	28.15%
14	57.7	267418.4	739.38	28.65%
15	52	267418.4	751.9	31.12%
16	47	267418.4	749.19	30.57%
17	49.6	267418.4	751.78	31.09%
18	53.7	267418.4	753.11	31.36%
19	51.6	267418.4	745.18	29.77%
20	45	267418.4	741.75	29.10%
21	45.5	267418.4	748.13	30.36%
22	51.7	267418.4	749.82	30.70%

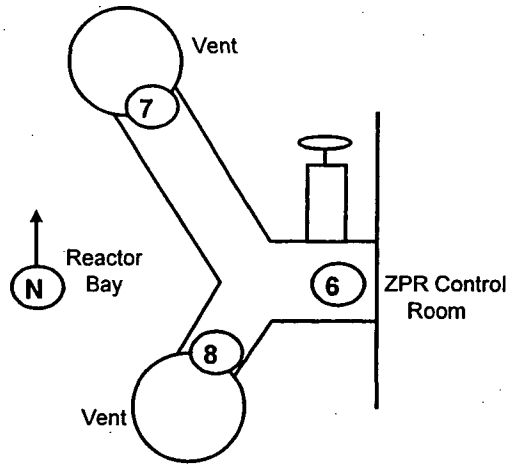
ENERGYSOLUTIONS

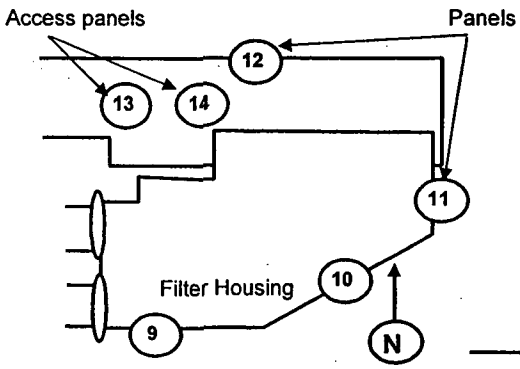
Final Status Survey Map
Ward Center, Cornell University

Survey Unit: M-3-070

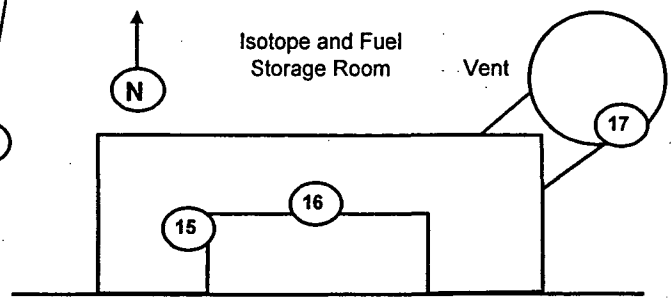
Ventilation Systems - Data Set 2



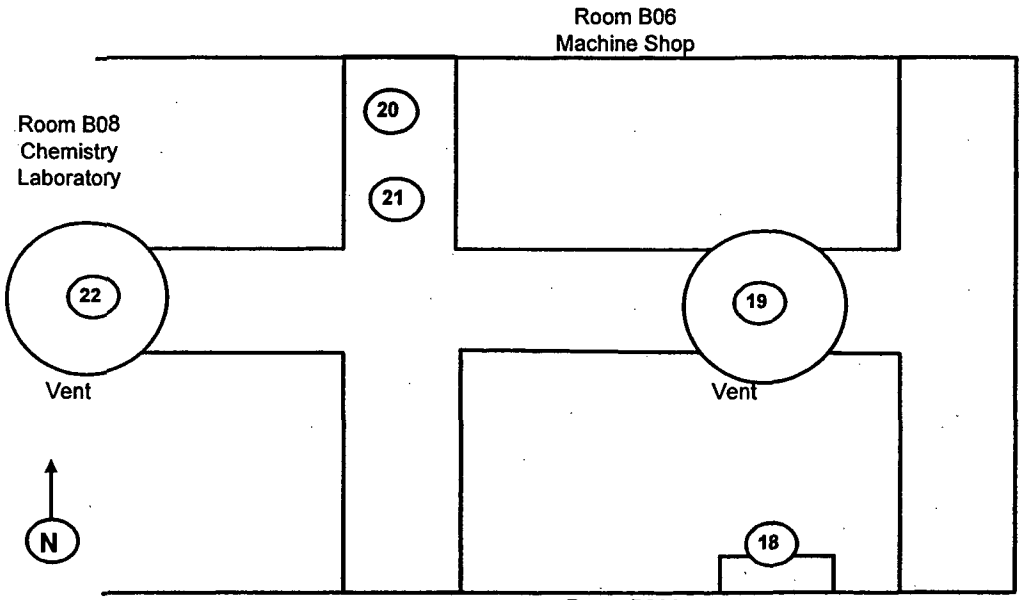




System in Reactor Equipment Room



Reactor Equipment Room



Room B08A
Chemistry Laboratory Storage

ENERGYSOLUTIONS

Final Survey Results
Ward Center, Cornell University

Room #:	Ventilation Systems - Data Set 3	Survey Unit:	M-3-071
Surveyor:	LeRoy Cuneo (Print)	Sign	Date: 10/4/2006
Reviewer:	Kevin Taylor, CHP (Print)	Sign	Date: 10/13/2006

Survey Meters

Scan Instrumentation		LSC Instrumentation		Direct Measurement Instrumentation		Dose Rate Instrumentation	
Meter Model #	L2360	Meter Model #	Wallac 1400	Meter Model #	L2360	Meter Model #	L 19
Meter Serial #	193629	Meter Serial #	Unknown	Meter Serial #	193629	Meter Serial #	148152
Probe Serial #	200130	Probe Serial #	NA	Probe Serial #	200130	Cal Due	3/5/2007
Cal Due	11/19/2006	Cal Due	NA	Cal Due	11/19/2006	Type	beta/gamma
Efficiency (%)	25.92%	Efficiency (%)	See Below	Efficiency (%)	25.92%	BKG (uR/hr)	10
Type	beta/gamma	Type	beta/gamma	Type	beta/gamma	Guideline (mR/hr)	NA
Sample Time (min)	1	Sample Time (min)	2	Sample Time (min)	1	Action Level (mR/hr)	NA
Background Time (min)	10	Background Time (min)	2	Background Time (min)	10		
Background Reading (counts)	3100	Background Reading (counts)	112.8	Background Reading (counts)	3100		
BKG (cpm)	310	BKG (cpm)	56.4	BKG (cpm)	310		
MDC (dpm/100cm2)	1845	MDC (dpm/100cm2)	See Below	MDC (dpm/100cm2)	492		
Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA		
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA		

Instrument	L2360		Instrument	Wallac 1400		Instrument	L2360	
S/N	193629		S/N	Unknown		S/N	193629	
R_B	310	cpm	R_B	56.4	cpm	R_B	310	cpm
t_s	1	minutes	t_s	2	minutes	t_s	1	minutes
t_b	10	minutes	t_b	2	minutes	t_b	10	minutes
ε_s	0.5		ε_s	1		ε_s	0.5	
ε_i	26%		ε_i	See Below		ε_i	26%	
probe area	100	cm^2	probe area	NA	cm^2	probe area	100	cm^2
MDC	1845	dpm/100cm^2	MDC	See Below	dpm/100cm^2	MDC	492	dpm/100cm^2

Location	Beta/G - Scan Ave Results (dpm/100cm^2)	Beta/G - Scan Max Results (dpm/100cm^2)	LSC Smear Results (dpm/100cm2)		Dose Rate Results (µR/hr)	Direct Reading Results (dpm/100cm^2)	Material
			Evaluation	MDC			
1	<MDC	<MDC	<MDC	86	10	<MDC	Metal
2	<MDC	<MDC	<MDC	85	10	<MDC	Metal
3	<MDC	<MDC	<MDC	84	10	<MDC	Metal
4	<MDC	<MDC	<MDC	88	10	<MDC	Metal
5	<MDC	<MDC	<MDC	86	10	<MDC	Metal
6	<MDC	<MDC	<MDC	84	10	<MDC	Metal
7	<MDC	<MDC	<MDC	90	10	<MDC	Metal
8	<MDC	<MDC	<MDC	87	10	<MDC	Metal
9	<MDC	<MDC	<MDC	90	10	<MDC	Metal
10	<MDC	<MDC	<MDC	88	10	<MDC	Metal
11	<MDC	<MDC	<MDC	85	10	<MDC	Metal
12	<MDC	<MDC	<MDC	83	10	<MDC	Metal
13	<MDC	<MDC	<MDC	82	10	<MDC	Metal
14	<MDC	<MDC	<MDC	86	11	<MDC	Metal
15	<MDC	<MDC	<MDC	86	11	<MDC	Metal
16	<MDC	<MDC	<MDC	90	9	<MDC	Metal
17	<MDC	<MDC	<MDC	89	8	<MDC	Metal
18	<MDC	<MDC	<MDC	86	9	<MDC	Metal

ENERGYSOLUTIONS

Final Sta[illegible]rvey Results
Ward Center, Cornell University

Data Input

Location	Beta/G - Scan Ave Results CPM	Beta/G - Scan Ave Results dpm/100cm²	Beta/G - Scan Max Results CPM	Beta/G - Scan Max Results dpm/100cm²	LSC Smear Results CPM	LSC Smear Results dpm/100cm²	Dose Rate Dose Rate Results µR/hr	Direct Reading Results CPM	Direct Reading Results dpm/100cm²
1	240	-540.12	310	0.00	45.5	-35.91	10	251	-455.25
2	240	-540.12	310	0.00	51.7	-15.31	10	269	-316.36
3	240	-540.12	310	0.00	49.6	-21.82	10	248	-478.40
4	240	-540.12	310	0.00	46	-34.84	10	267	-331.79
5	240	-540.12	310	0.00	53.2	-10.46	10	269	-316.36
6	240	-540.12	310	0.00	47.8	-27.70	10	241	-532.41
7	240	-540.12	310	0.00	52.2	-14.38	10	281	-223.77
8	240	-540.12	310	0.00	54.2	-7.33	10	251	-455.25
9	220	-694.44	300	-77.16	48.4	-27.44	10	262	-370.37
10	220	-694.44	300	-77.16	52.2	-14.13	10	274	-277.78
11	220	-694.44	300	-77.16	47	-30.62	10	239	-547.84
12	220	-694.44	300	-77.16	51	-17.15	10	255	-424.38
13	220	-694.44	300	-77.16	53.2	-9.96	10	237	-563.27
14	200	-848.77	240	-540.12	45.7	-35.30	11	203	-825.62
15	200	-848.77	240	-540.12	50.4	-19.58	11	192	-910.49
16	200	-848.77	240	-540.12	45.5	-37.51	9	177	-1026.23
17	200	-848.77	240	-540.12	58.2	6.08	8	200	-848.77
18	200	-848.77	240	-540.12	53.7	-8.88	9	153	-1211.42

scan speed	0.5	detector widths per second
probe width	6.93	cm
probe width	2.73	inches
scan speed	1.37	inches per second
scan speed	3.47	cm per second
I	2	

2360 Serial Numbers	
Serial #	Probe #
184941	200125
193629	208657
202415	221482
202455	200135
202475	208667
	200130
	193917

2360 Cal Due Dates
11/19/2006
12/12/2006
12/13/2006

2360 Efficiencies		
Serial #	Probe #	Eff (%)
184941	200125	21.46%
193629	200130	25.92%
193629	208657	23.72%
202415	193917	13.28%
202415	221482	15.68%
202455	200135	22.96%
202475	208667	17.98%

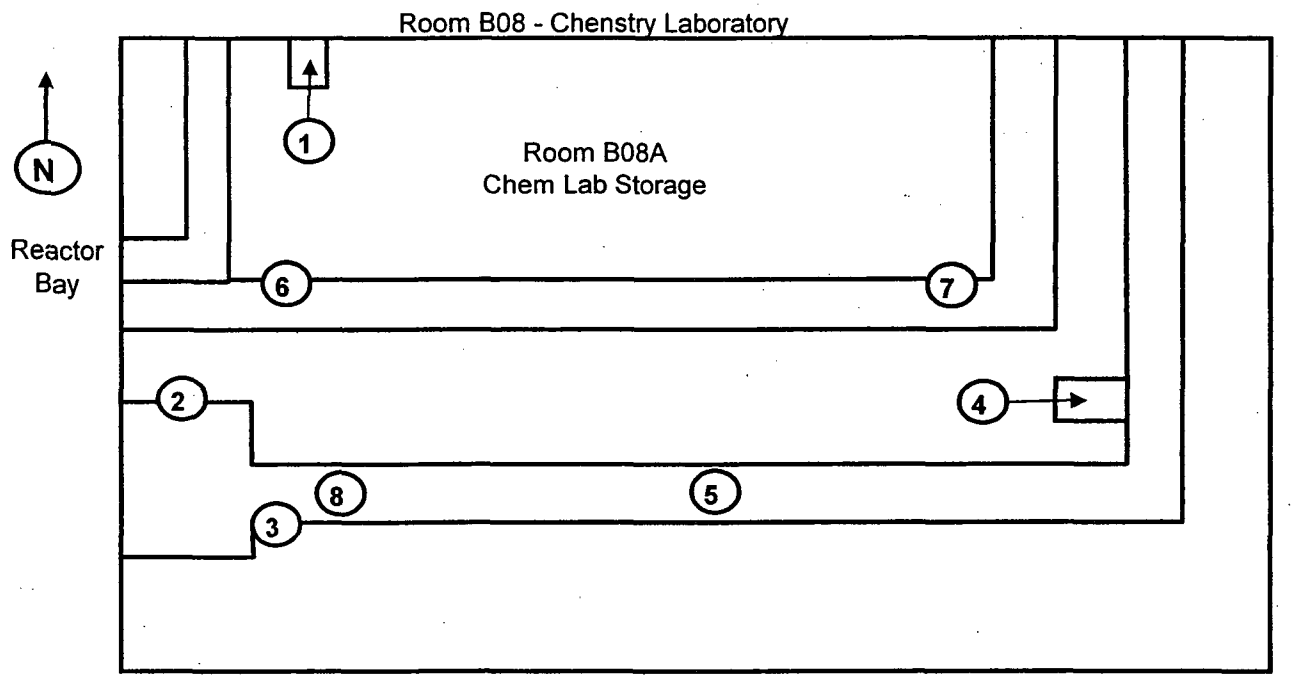
		Standards (on std bottles)		
	from EH&S LSC	dpm/100cm2	from EH&S LSC	
Wallac 1400	CPM	3/9/2006	SQPE	Efficiency
1	45.5	267418.4	748.13	30.36%
2	51.7	267418.4	749.82	30.70%
3	49.6	267418.4	752.18	31.17%
4	46	267418.4	745.56	29.85%
5	53.2	267418.4	749.36	30.60%
6	47.8	267418.4	751.53	31.04%
7	52.2	267418.4	742.25	29.20%
8	54.2	267418.4	746.5	30.03%
9	48.4	267418.4	742	29.15%
10	52.2	267418.4	744.93	29.72%
11	47	267418.4	749.83	30.70%
12	51	267418.4	753.74	31.49%
13	53.2	267418.4	756.79	32.12%
14	45.7	267418.4	747.88	30.31%
15	50.4	267418.4	749.57	30.65%
16	45.5	267418.4	741.5	29.06%
17	58.2	267418.4	744.25	29.59%
18	53.7	267418.4	748.38	30.41%

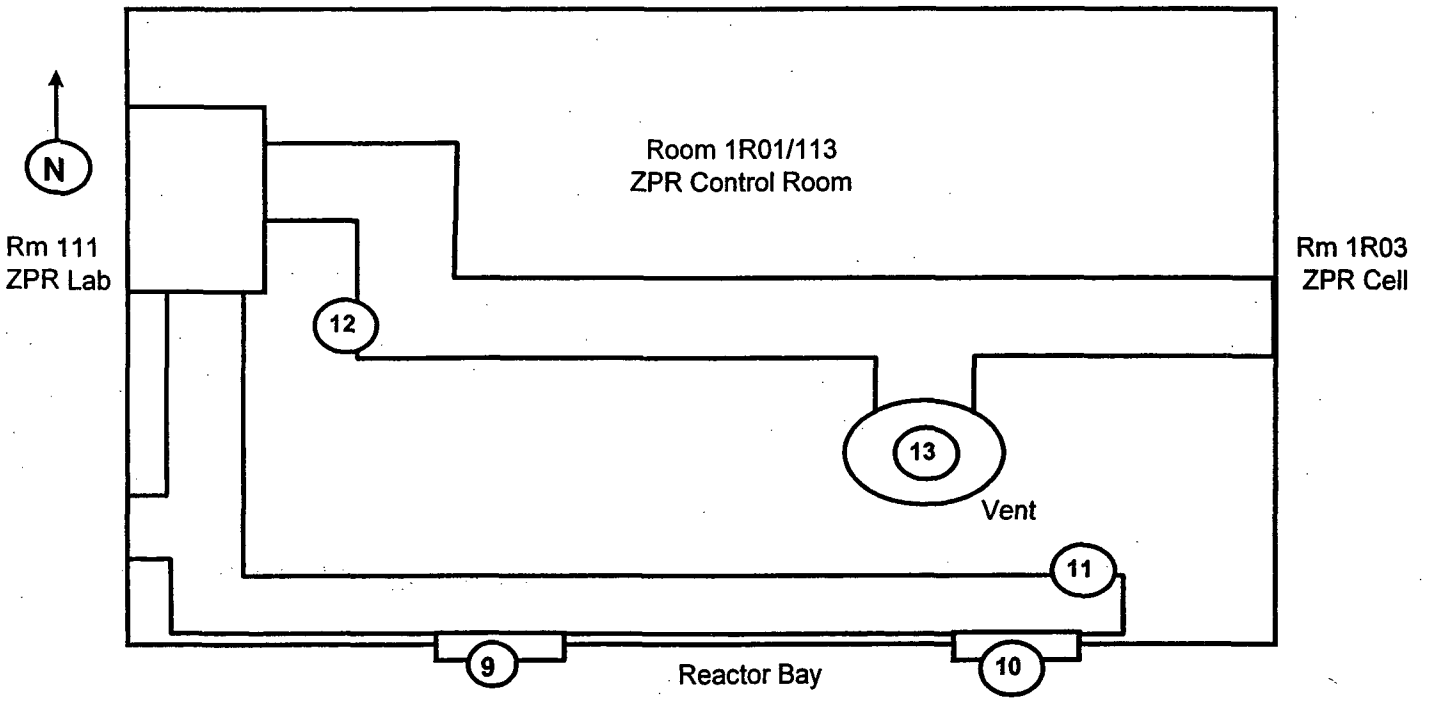
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **M-3-071**

Ventilation Systems - Data Set 3 (Page 1 of 2)





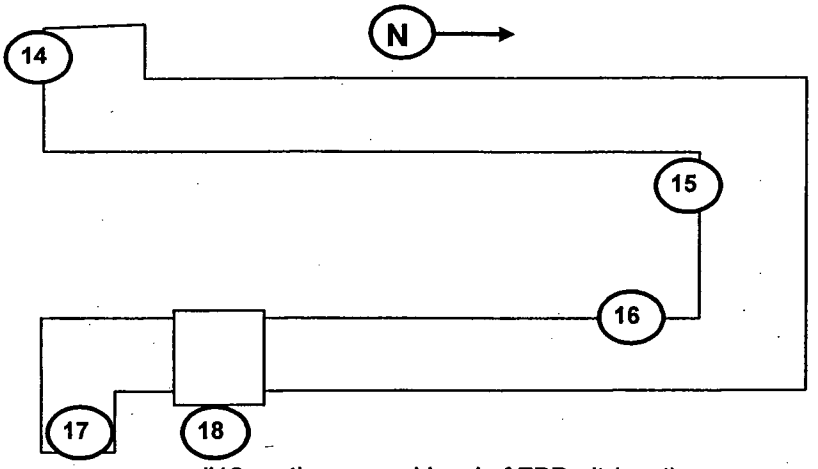
ENERGYSOLUTIONS

Final Status Survey Map
Ward Center, Cornell University

Survey Unit: **M-3-071**

Ventilation Systems - Data Set 3 (Page 2 of 2)

Room 1R03 - ZPR Cell and Pit



#18 on the second level of ZPR pit (vent)

ENERGYSOLUTIONS

Final Status Survey
Ward Center, Cornell University

Survey Unit: M-1-073

Su[redacted]: Johnny Albert (Print) _____ (Sign) 10/6/2006

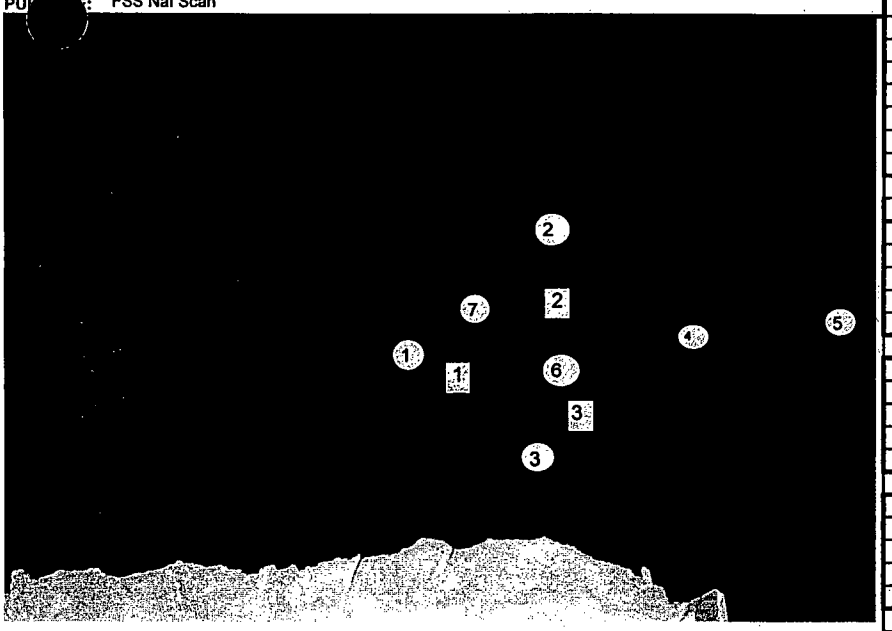
Reviewer: Kevin Taylor, CHP (Print) _____ (Sign) 11/16/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221	Meter Model #	2929	Meter Model #	2929	Meter Model #	19
Meter Serial #	68537/226943	Meter Serial #	176107	Meter Serial #	176107	Meter Serial #	148152
Cal Due	12/20/2006	Cal Due	12/5/2006	Cal Due	12/5/2006	Cal Due	3/5/2007
Efficiency (%)	23%	Efficiency (%)	37%	Efficiency (%)	77%	Efficiency (%)	NA
Type	gamma	Type	beta/gamma	Type	alpha	Type	gamma
Sample Time (min)	NA	Sample Time (min)	1	Sample Time (min)	1	Sample Time (min)	NA
Background Time (min)	10	Background Time (min)	30	Background Time (min)	30	Background Time (min)	NA
BKG (cpm)	14221.5	BKG (cpm)	100.2	BKG (cpm)	0.3	BKG (uR/hr)	10
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)	199	MDC (dpm/100cm2)	13	MDC (dpm/100cm2)	NA
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA	Guideline (dpm/100cm^2)	NA
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)	NA

LOCATION: Reactor Bay Floor Excavation Hole

PU[redacted]: FSS NaI Scan



NOTE: Blocked numbers are soil sample locations

Location	Scans (Gross cpm)	Beta/G dpm	Alpha dpm	Gross uR/hr
Direct Gamma		Smears		
1	16997	< MDC	< MDC	10
2	16003	< MDC	< MDC	15
3	19962	< MDC	< MDC	12
4	19539	< MDC	< MDC	15
5	16212	< MDC	< MDC	15
6	19687		< MDC	15
7	19595	< MDC	< MDC	15
Soil Samples (pCi/g)				
	H-3	C-14	Mn-54	Fe-55
1	< MDC	< MDC	< MDC	< MDC
2	< MDC	< MDC	< MDC	< MDC
3	< MDC	< MDC	< MDC	< MDC
MDC	6	2	0.1	20
	Ni-63	Co-60	Nb-94	Cs-137
1	< MDC	1.17	< MDC	< MDC
2	< MDC	1.03	< MDC	< MDC
3	< MDC	0.73	< MDC	< MDC
MDC	4	0.1	1	0.1
	Eu-152	Eu-154	Sr-90	
1	< MDC	< MDC	< MDC	
2	< MDC	< MDC	< MDC	
3	0.202	< MDC	< MDC	
MDC	0.2	0.5	2	

M[redacted] $= \dfrac{3. + 3.29\sqrt{RB_b(1+t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100cm^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100cm^2 = \dfrac{\text{gross cpm} - \text{bkg cpm}}{(\text{efficiency})}$

where: Rb = background counting rate
Tb = background counting time
Ts = sample count time
AI = action level

ENERGYSOLUTIONS

Final Stat[illegible]vey Results
Ward Center, Cornell University

Location:	Soil Outside Ward Center	Survey Unit:	M-3-074	
Surveyor:	LeRoy Cuneo (Print)		(Sign)	9/15/2006 (Date)
Reviewer:	Kevin Taylor, CHP (Print)		(Sign)	10/13/2006 (Date)

Survey Meters

Scan Instrumentation		Direct Measurement Instrumentation	
Meter Model #	L2221	Meter Model #	L2221
Meter Serial #	68537	Meter Serial #	68537
Probe Serial #	226943	Probe Serial #	226943
Cal Due	12/20/2006	Cal Due	12/20/2006
Efficiency (%)	22.46%	Efficiency (%)	22.46%
Type	gamma	Type	gamma
Sample Time (min)	1	Sample Time (min)	1
Background Time (min)	1	Background Time (min)	1
Background Reading (counts)	11684	Background Reading (counts)	12333
BKG (cpm)	11684	BKG (cpm)	12333

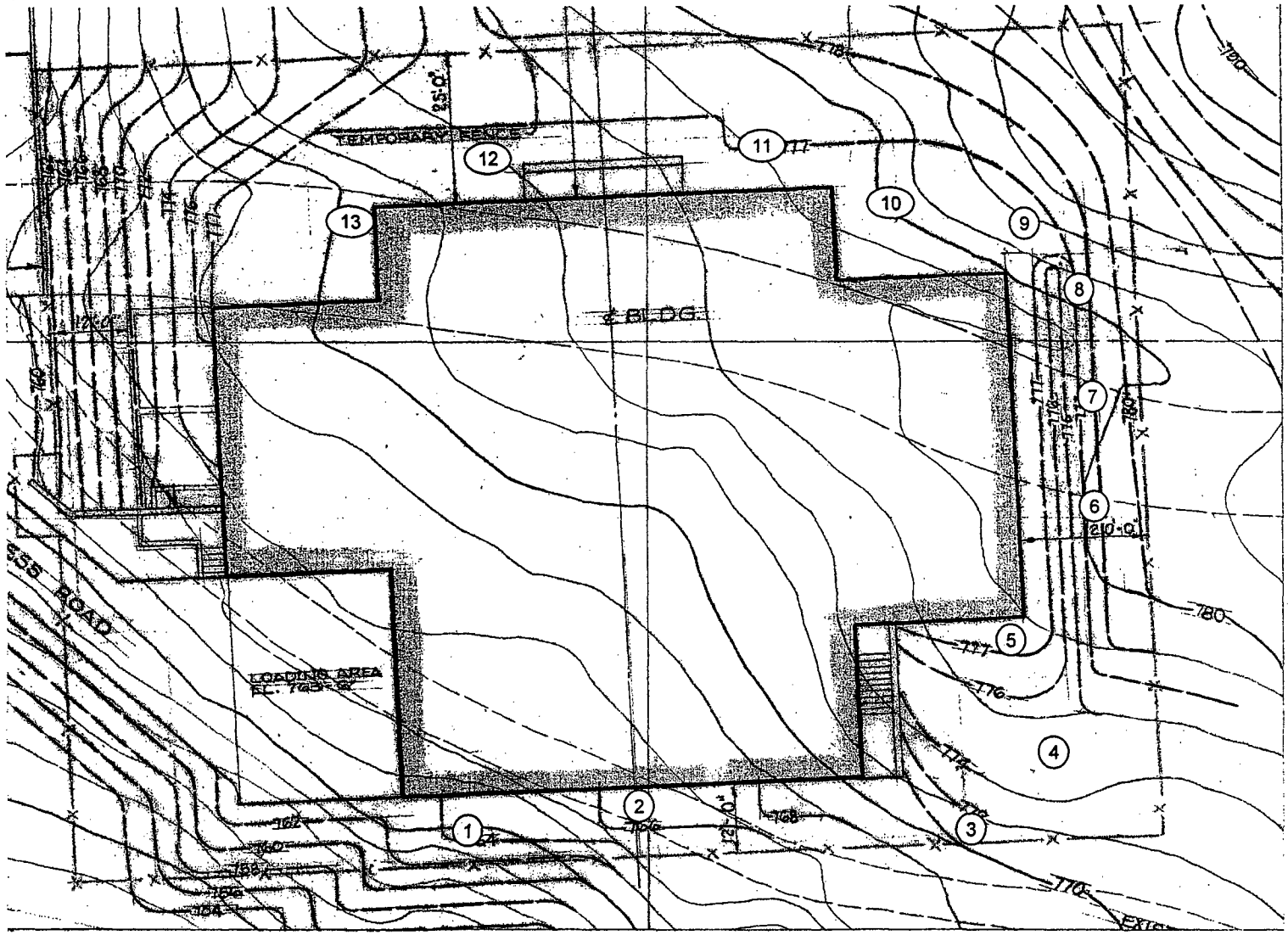
Location	Gamma - Scan Ave Results (gross cpm)	Gamma - Scan Max Results (gross cpm)	Direct Reading Results (gross cpm)	Net Reading (cpm)
1	11,800	12,100	12,795	1,111
2	12,500	13,500	13,058	1,374
3	10,900	11,400	10,058	-1,626
4	15,800	16,300	15,504	3,820
5	11,000	11,700	10,696	-988
6	9,900	10,400	10,288	-1,396
7	10,200	11,100	10,792	-892
8	9,900	10,400	10,044	-1,640
9	9,900	10,100	9,692	-1,992
10	10,200	11,000	10,009	-1,675
11	9,900	10,200	10,002	-1,682
12	10,500	11,200	10,796	-888
13	11,200	12,000	10,922	-762

ENERGYSOLUTIONS

Final State Survey Map
Ward Center, Cornell University

Survey Unit: M-3-074

Perimeter of Ward Center
Class 3



APPENDIX E

ALPHA MEASUREMENTS

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-1-008	R02A Floor and N, S, and E Walls	1	4
B-1-008	R02A Floor and N, S, and E Walls	2	2
B-1-008	R02A Floor and N, S, and E Walls	3	5
B-1-008	R02A Floor and N, S, and E Walls	4	1
B-1-008	R02A Floor and N, S, and E Walls	5	3
B-1-008	R02A Floor and N, S, and E Walls	6	4
B-1-008	R02A Floor and N, S, and E Walls	7	5
B-1-008	R02A Floor and N, S, and E Walls	8	1
B-1-008	R02A Floor and N, S, and E Walls	9	1
B-1-008	R02A Floor and N, S, and E Walls	10	4
B-1-008	R02A Floor and N, S, and E Walls	11	1
B-1-008	R02A Floor and N, S, and E Walls	12	5
B-1-008	R02A Floor and N, S, and E Walls	13	2
B-1-007	B02A Ceiling and West Wall	1	4
B-1-007	B02A Ceiling and West Wall	2	2
B-1-007	B02A Ceiling and West Wall	3	5
B-1-007	B02A Ceiling and West Wall	4	1
B-1-007	B02A Ceiling and West Wall	5	3
B-1-007	B02A Ceiling and West Wall	6	4
B-1-007	B02A Ceiling and West Wall	7	5
B-1-007	B02A Ceiling and West Wall	8	1
B-1-007	B02A Ceiling and West Wall	9	1
B-1-007	B02A Ceiling and West Wall	10	4
B-1-007	B02A Ceiling and West Wall	11	1
B-1-007	B02A Ceiling and West Wall	12	5
B-1-007	B02A Ceiling and West Wall	13	2
B-1-009	Room R02B	1	9
B-1-009	Room R02B	2	3
B-1-009	Room R02B	3	2
B-1-009	Room R02B	4	9
B-1-009	Room R02B	5	3
B-1-009	Room R02B	6	2
B-1-009	Room R02B	7	6
B-1-009	Room R02B	8	4
B-1-009	Room R02B	9	0
B-1-009	Room R02B	10	7
B-1-009	Room R02B	11	2
B-1-009	Room R02B	12	4
B-1-009	Room R02B	13	0
B-1-009	Room R02B	14	4
B-1-009	Room R02B	15	3
B-1-010	Room R02C	1	4
B-1-010	Room R02C	2	3
B-1-010	Room R02C	3	0
B-1-010	Room R02C	4	2
B-1-010	Room R02C	5	3
B-1-010	Room R02C	6	1
B-1-010	Room R02C	7	2
B-1-010	Room R02C	8	4
B-1-010	Room R02C	9	5
B-1-010	Room R02C	10	1
B-1-010	Room R02C	11	1
B-1-010	Room R02C	12	4

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-1-010	Room R02C	13	5
F-1-045	ZPR Hallway	1	2
F-1-045	ZPR Hallway	2	3
F-1-045	ZPR Hallway	3	3
F-1-045	ZPR Hallway	4	6
F-1-045	ZPR Hallway	5	5
F-1-045	ZPR Hallway	6	6
F-1-045	ZPR Hallway	7	5
F-1-045	ZPR Hallway	8	4
F-1-045	ZPR Hallway	9	1
F-1-045	ZPR Hallway	10	7
F-1-045	ZPR Hallway	11	1
F-1-045	ZPR Hallway	12	4
F-1-045	ZPR Hallway	13	5
F-1-042	ZPR Tank Room Floor & North Wall	1	3
F-1-042	ZPR Tank Room Floor & North Wall	2	1
F-1-042	ZPR Tank Room Floor & North Wall	3	3
F-1-042	ZPR Tank Room Floor & North Wall	4	7
F-1-042	ZPR Tank Room Floor & North Wall	5	2
F-1-042	ZPR Tank Room Floor & North Wall	6	0
F-1-042	ZPR Tank Room Floor & North Wall	7	4
F-1-042	ZPR Tank Room Floor & North Wall	8	2
F-1-042	ZPR Tank Room Floor & North Wall	9	4
F-1-042	ZPR Tank Room Floor & North Wall	10	3
F-1-042	ZPR Tank Room Floor & North Wall	11	3
F-1-042	ZPR Tank Room Floor & North Wall	12	4
F-1-042	ZPR Tank Room Floor & North Wall	13	4
F-1-042	ZPR Tank Room Floor & North Wall	14	5
F-1-042	ZPR Tank Room Floor & North Wall	15	2
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	1	2
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	2	2
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	3	2
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	4	3
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	5	2
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	6	6
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	7	5
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	8	5
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	9	4
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	10	3
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	11	5
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	12	4
F-1-041	Room ZPR Tank Room Ceiling, South, East & West Walls	13	5
F-1-049	Room 111 Floor & Lower Walls	1	0
F-1-049	Room 111 Floor & Lower Walls	2	3
F-1-049	Room 111 Floor & Lower Walls	3	2
F-1-049	Room 111 Floor & Lower Walls	4	2
F-1-049	Room 111 Floor & Lower Walls	5	2
F-1-049	Room 111 Floor & Lower Walls	6	0
F-1-049	Room 111 Floor & Lower Walls	7	3
F-1-049	Room 111 Floor & Lower Walls	8	1
F-1-049	Room 111 Floor & Lower Walls	9	2
F-1-049	Room 111 Floor & Lower Walls	10	3
F-1-049	Room 111 Floor & Lower Walls	11	2

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
F-1-049	Room 111 Floor & Lower Walls	12	2
F-1-049	Room 111 Floor & Lower Walls	13	2
F-1-049	Room 111 Floor & Lower Walls	14	1
F-2-038	Room 111 (ZPR Lab) - Upper Walls	1	4
F-2-038	Room 111 (ZPR Lab) - Upper Walls	2	0
F-2-038	Room 111 (ZPR Lab) - Upper Walls	3	5
F-2-038	Room 111 (ZPR Lab) - Upper Walls	4	3
F-2-038	Room 111 (ZPR Lab) - Upper Walls	5	1
F-2-038	Room 111 (ZPR Lab) - Upper Walls	6	4
F-2-038	Room 111 (ZPR Lab) - Upper Walls	7	2
F-2-038	Room 111 (ZPR Lab) - Upper Walls	8	1
F-2-038	Room 111 (ZPR Lab) - Upper Walls	9	1
F-2-038	Room 111 (ZPR Lab) - Upper Walls	10	4
F-2-038	Room 111 (ZPR Lab) - Upper Walls	11	5
F-2-038	Room 111 (ZPR Lab) - Upper Walls	12	2
F-2-038	Room 111 (ZPR Lab) - Upper Walls	13	3
F-2-038	Room 111 (ZPR Lab) - Upper Walls	14	5
F-3-047	Room 111 Ceiling	1	3
F-3-047	Room 111 Ceiling	2	3
F-3-047	Room 111 Ceiling	3	5
F-3-047	Room 111 Ceiling	4	0
F-3-047	Room 111 Ceiling	5	2
F-3-047	Room 111 Ceiling	6	8
F-3-047	Room 111 Ceiling	7	0
F-3-047	Room 111 Ceiling	8	1
F-3-047	Room 111 Ceiling	9	3
F-3-047	Room 111 Ceiling	10	4
F-3-047	Room 111 Ceiling	11	0
F-3-047	Room 111 Ceiling	12	3
F-3-047	Room 111 Ceiling	13	1
F-3-047	Room 111 Ceiling	14	1
B-1-015	Room B15	1	3
B-1-015	Room B15	2	2
B-1-015	Room B15	3	1
B-1-015	Room B15	4	3
B-1-015	Room B15	5	6
B-1-015	Room B15	6	3
B-1-015	Room B15	7	3
B-1-015	Room B15	8	4
B-1-015	Room B15	9	3
B-1-015	Room B15	10	2
B-1-015	Room B15	11	2
B-1-015	Room B15	12	8
B-1-015	Room B15	13	1
F-1-044	ZPR Upper Level Floor & North Wall	1	3
F-1-044	ZPR Upper Level Floor & North Wall	2	3
F-1-044	ZPR Upper Level Floor & North Wall	3	3
F-1-044	ZPR Upper Level Floor & North Wall	4	3
F-1-044	ZPR Upper Level Floor & North Wall	5	0
F-1-044	ZPR Upper Level Floor & North Wall	6	6
F-1-044	ZPR Upper Level Floor & North Wall	7	2
F-1-044	ZPR Upper Level Floor & North Wall	8	1
F-1-044	ZPR Upper Level Floor & North Wall	9	0

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
F-1-044	ZPR Upper Level Floor & North Wall	10	9
F-1-044	ZPR Upper Level Floor & North Wall	11	3
F-1-044	ZPR Upper Level Floor & North Wall	12	3
F-1-044	ZPR Upper Level Floor & North Wall	13	4
F-1-044	ZPR Upper Level Floor & North Wall	14	4
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	1	3
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	2	2
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	3	5
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	4	2
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	5	5
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	6	1
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	7	5
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	8	2
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	9	4
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	10	5
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	11	4
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	12	4
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	13	1
F-1-043	ZPR Room Upper Level Ceiling, South, East & West Walls	14	3
F-3-035	Rooms 100 - 108 and hallway (floors only)	1	3
F-3-035	Rooms 100 - 108 and hallway (floors only)	2	2
F-3-035	Rooms 100 - 108 and hallway (floors only)	3	4
F-3-035	Rooms 100 - 108 and hallway (floors only)	4	3
F-3-035	Rooms 100 - 108 and hallway (floors only)	5	2
F-3-035	Rooms 100 - 108 and hallway (floors only)	6	7
F-3-035	Rooms 100 - 108 and hallway (floors only)	7	1
F-3-035	Rooms 100 - 108 and hallway (floors only)	8	4
F-3-035	Rooms 100 - 108 and hallway (floors only)	9	10
F-3-035	Rooms 100 - 108 and hallway (floors only)	10	8
F-3-035	Rooms 100 - 108 and hallway (floors only)	11	9
F-3-035	Rooms 100 - 108 and hallway (floors only)	12	5
F-3-035	Rooms 100 - 108 and hallway (floors only)	13	4
F-3-035	Rooms 100 - 108 and hallway (floors only)	14	1
F-3-035	Rooms 100 - 108 and hallway (floors only)	15	7
F-3-040	Room 112, 114, 116, 118 Hall Floor	1	6
F-3-040	Room 112, 114, 116, 118 Hall Floor	2	2
F-3-040	Room 112, 114, 116, 118 Hall Floor	3	3
F-3-040	Room 112, 114, 116, 118 Hall Floor	4	4
F-3-040	Room 112, 114, 116, 118 Hall Floor	5	4
F-3-040	Room 112, 114, 116, 118 Hall Floor	6	5
F-3-040	Room 112, 114, 116, 118 Hall Floor	7	0
F-3-040	Room 112, 114, 116, 118 Hall Floor	8	3
F-3-040	Room 112, 114, 116, 118 Hall Floor	9	2
F-3-040	Room 112, 114, 116, 118 Hall Floor	10	5
F-3-040	Room 112, 114, 116, 118 Hall Floor	11	6
F-3-040	Room 112, 114, 116, 118 Hall Floor	12	5
F-3-040	Room 112, 114, 116, 118 Hall Floor	13	6
F-3-040	Room 112, 114, 116, 118 Hall Floor	14	4
F-3-040	Room 112, 114, 116, 118 Hall Floor	15	2
F-3-040	Room 112, 114, 116, 118 Hall Floor	16	2
F-3-034	Janitor's Closet	1	2
F-3-034	Janitor's Closet	2	4
F-3-034	Janitor's Closet	3	1

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
F-3-034	Janitor's Closet	4	1
F-3-034	Janitor's Closet	5	3
F-3-034	Janitor's Closet	6	2
F-3-034	Janitor's Closet	7	3
F-3-034	Janitor's Closet	8	1
F-3-034	Janitor's Closet	9	3
F-3-034	Janitor's Closet	10	0
F-3-034	Janitor's Closet	11	3
F-3-034	Janitor's Closet	12	3
F-3-034	Janitor's Closet	13	2
F-3-036	Room 109 Floor	1	1
F-3-036	Room 109 Floor	2	3
F-3-036	Room 109 Floor	3	1
F-3-036	Room 109 Floor	4	3
F-3-036	Room 109 Floor	5	1
F-3-036	Room 109 Floor	6	2
F-3-036	Room 109 Floor	7	0
F-3-036	Room 109 Floor	8	2
F-3-036	Room 109 Floor	9	2
F-3-036	Room 109 Floor	10	6
F-3-036	Room 109 Floor	11	1
F-3-036	Room 109 Floor	12	1
F-3-036	Room 109 Floor	13	2
F-3-036	Room 109 Floor	14	2
F-3-036	Room 109 Floor	15	3
F-3-036	Room 109 Floor	16	1
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	1	3
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	2	6
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	3	3
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	4	2
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	5	5
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	6	2
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	7	3
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	8	3
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	9	2
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	10	4
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	11	3
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	12	2
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	13	4
F-2-033	1st Floor Corridor Outside Rooms 109 & 111	14	1
S-3-054	Stairway	1	3
S-3-054	Stairway	2	0
S-3-054	Stairway	3	3
S-3-054	Stairway	4	4
S-3-054	Stairway	5	5
S-3-054	Stairway	6	1
S-3-054	Stairway	7	3
S-3-054	Stairway	8	6
S-3-054	Stairway	9	2
S-3-054	Stairway	10	0
S-3-054	Stairway	11	1
S-3-054	Stairway	12	6
S-3-054	Stairway	13	6

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-3-006	Room H1, B3, B1, B4 & H2	1	0
B-3-006	Room H1, B3, B1, B4 & H2	2	4
B-3-006	Room H1, B3, B1, B4 & H2	3	3
B-3-006	Room H1, B3, B1, B4 & H2	4	7
B-3-006	Room H1, B3, B1, B4 & H2	5	2
B-3-006	Room H1, B3, B1, B4 & H2	6	5
B-3-006	Room H1, B3, B1, B4 & H2	7	2
B-3-006	Room H1, B3, B1, B4 & H2	8	0
B-3-006	Room H1, B3, B1, B4 & H2	9	2
B-3-006	Room H1, B3, B1, B4 & H2	10	4
B-3-006	Room H1, B3, B1, B4 & H2	11	5
B-3-006	Room H1, B3, B1, B4 & H2	12	0
B-3-006	Room H1, B3, B1, B4 & H2	13	5
B-3-005	Room2 B6, 6A, 6B & 6C	1	2
B-3-005	Room2 B6, 6A, 6B & 6C	2	2
B-3-005	Room2 B6, 6A, 6B & 6C	3	3
B-3-005	Room2 B6, 6A, 6B & 6C	4	1
B-3-005	Room2 B6, 6A, 6B & 6C	5	2
B-3-005	Room2 B6, 6A, 6B & 6C	6	2
B-3-005	Room2 B6, 6A, 6B & 6C	7	3
B-3-005	Room2 B6, 6A, 6B & 6C	8	6
B-3-005	Room2 B6, 6A, 6B & 6C	9	7
B-3-005	Room2 B6, 6A, 6B & 6C	10	6
B-3-005	Room2 B6, 6A, 6B & 6C	11	5
B-3-005	Room2 B6, 6A, 6B & 6C	12	3
B-3-005	Room2 B6, 6A, 6B & 6C	13	3
B-3-005	Room2 B6, 6A, 6B & 6C	14	4
B-3-005	Room2 B6, 6A, 6B & 6C	15	7
B-3-005	Room2 B6, 6A, 6B & 6C	16	1
B-2-001	Room B05	1	3
B-2-001	Room B05	2	2
B-2-001	Room B05	3	0
B-2-001	Room B05	4	2
B-2-001	Room B05	5	3
B-2-001	Room B05	6	1
B-2-001	Room B05	7	3
B-2-001	Room B05	8	2
B-2-001	Room B05	9	2
B-2-001	Room B05	10	1
B-2-001	Room B05	11	2
B-2-001	Room B05	12	1
B-2-001	Room B05	13	2
B-2-002	Basement Outside Reactor Bay	1	3
B-2-002	Basement Outside Reactor Bay	2	3
B-2-002	Basement Outside Reactor Bay	3	2
B-2-002	Basement Outside Reactor Bay	4	2
B-2-002	Basement Outside Reactor Bay	5	1
B-2-002	Basement Outside Reactor Bay	6	2
B-2-002	Basement Outside Reactor Bay	7	2
B-2-002	Basement Outside Reactor Bay	8	2
B-2-002	Basement Outside Reactor Bay	9	2
B-2-002	Basement Outside Reactor Bay	10	3
B-2-002	Basement Outside Reactor Bay	11	4

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-2-002	Basement Outside Reactor Bay	12	1
B-2-002	Basement Outside Reactor Bay	13	1
S-3-052	Elevator	1	2
S-3-052	Elevator	2	4
S-3-052	Elevator	3	3
S-3-052	Elevator	4	5
S-3-052	Elevator	5	2
S-3-052	Elevator	6	1
S-3-052	Elevator	7	2
S-3-052	Elevator	8	0
S-3-052	Elevator	9	2
S-3-052	Elevator	10	2
S-3-052	Elevator	11	2
S-3-052	Elevator	12	3
S-3-052	Elevator	13	0
B-3-004	Room BR7, 9, 11 Hall	14	1
B-3-004	Room BR7, 9, 11 Hall	15	2
B-3-004	Room BR7, 9, 11 Hall	16	4
B-3-004	Room BR7, 9, 11 Hall	17	3
B-3-004	Room BR7, 9, 11 Hall	18	1
B-3-004	Room BR7, 9, 11 Hall	19	2
B-3-004	Room BR7, 9, 11 Hall	20	2
B-3-004	Room BR7, 9, 11 Hall	21	1
B-3-004	Room BR7, 9, 11 Hall	22	2
B-3-004	Room BR7, 9, 11 Hall	23	2
B-3-004	Room BR7, 9, 11 Hall	24	3
B-3-004	Room BR7, 9, 11 Hall	25	1
B-3-004	Room BR7, 9, 11 Hall	26	2
B-3-003	Room BR13	1	1
B-3-003	Room BR13	2	3
B-3-003	Room BR13	3	2
B-3-003	Room BR13	4	1
B-3-003	Room BR13	5	4
B-3-003	Room BR13	6	6
B-3-003	Room BR13	7	8
B-3-003	Room BR13	8	6
B-3-003	Room BR13	9	4
B-3-003	Room BR13	10	5
B-3-003	Room BR13	11	6
B-3-003	Room BR13	12	2
B-3-003	Room BR13	13	2
B-1-012	Room 8 Ceiling & West Wall	1	10
B-1-012	Room 8 Ceiling & West Wall	2	2
B-1-012	Room 8 Ceiling & West Wall	3	0
B-1-012	Room 8 Ceiling & West Wall	4	1
B-1-012	Room 8 Ceiling & West Wall	5	5
B-1-012	Room 8 Ceiling & West Wall	6	3
B-1-012	Room 8 Ceiling & West Wall	7	3
B-1-012	Room 8 Ceiling & West Wall	8	2
B-1-012	Room 8 Ceiling & West Wall	9	2
B-1-012	Room 8 Ceiling & West Wall	10	5
B-1-012	Room 8 Ceiling & West Wall	11	5
B-1-012	Room 8 Ceiling & West Wall	12	2

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-1-012	Room 8 Ceiling & West Wall	13	3
B-1-012	Room 8 Ceiling & West Wall	14	2
B-1-013	Room 8 Floor & South Wall	1	1
B-1-013	Room 8 Floor & South Wall	2	1
B-1-013	Room 8 Floor & South Wall	3	0
B-1-013	Room 8 Floor & South Wall	4	5
B-1-013	Room 8 Floor & South Wall	5	3
B-1-013	Room 8 Floor & South Wall	6	2
B-1-013	Room 8 Floor & South Wall	7	4
B-1-013	Room 8 Floor & South Wall	8	1
B-1-013	Room 8 Floor & South Wall	9	7
B-1-013	Room 8 Floor & South Wall	10	3
B-1-013	Room 8 Floor & South Wall	11	4
B-1-013	Room 8 Floor & South Wall	12	1
B-1-013	Room 8 Floor & South Wall	13	4
B-1-013	Room 8 Floor & South Wall	14	3
B-1-014	Room 8 North & East Wall	1	1
B-1-014	Room 8 North & East Wall	2	1
B-1-014	Room 8 North & East Wall	3	3
B-1-014	Room 8 North & East Wall	4	3
B-1-014	Room 8 North & East Wall	5	2
B-1-014	Room 8 North & East Wall	6	1
B-1-014	Room 8 North & East Wall	7	2
B-1-014	Room 8 North & East Wall	8	4
B-1-014	Room 8 North & East Wall	9	4
B-1-014	Room 8 North & East Wall	10	0
B-1-014	Room 8 North & East Wall	11	4
B-1-014	Room 8 North & East Wall	12	1
B-1-014	Room 8 North & East Wall	13	3
B-1-014	Room 8 North & East Wall	14	4
B-1-014	Room 8 North & East Wall	15	3
S-2-051	2nd Floor Corridor Outside Reactor Bay	1	1
S-2-051	2nd Floor Corridor Outside Reactor Bay	2	4
S-2-051	2nd Floor Corridor Outside Reactor Bay	3	3
S-2-051	2nd Floor Corridor Outside Reactor Bay	4	4
S-2-051	2nd Floor Corridor Outside Reactor Bay	5	4
S-2-051	2nd Floor Corridor Outside Reactor Bay	6	0
S-2-051	2nd Floor Corridor Outside Reactor Bay	7	3
S-2-051	2nd Floor Corridor Outside Reactor Bay	8	0
S-2-051	2nd Floor Corridor Outside Reactor Bay	9	2
S-2-051	2nd Floor Corridor Outside Reactor Bay	10	2
S-2-051	2nd Floor Corridor Outside Reactor Bay	11	1
S-2-051	2nd Floor Corridor Outside Reactor Bay	12	3
S-2-051	2nd Floor Corridor Outside Reactor Bay	13	1
S-2-051	2nd Floor Corridor Outside Reactor Bay	14	1
S-2-051	2nd Floor Corridor Outside Reactor Bay	15	0
S-3-053	Rooms 201-206 & Hallway (Floors Only)	1	5
S-3-053	Rooms 201-206 & Hallway (Floors Only)	2	3
S-3-053	Rooms 201-206 & Hallway (Floors Only)	3	3
S-3-053	Rooms 201-206 & Hallway (Floors Only)	4	3
S-3-053	Rooms 201-206 & Hallway (Floors Only)	5	2
S-3-053	Rooms 201-206 & Hallway (Floors Only)	6	5
S-3-053	Rooms 201-206 & Hallway (Floors Only)	7	1

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
S-3-053	Rooms 201-206 & Hallway (Floors Only)	8	1
S-3-053	Rooms 201-206 & Hallway (Floors Only)	9	2
S-3-053	Rooms 201-206 & Hallway (Floors Only)	10	0
S-3-053	Rooms 201-206 & Hallway (Floors Only)	11	4
S-3-053	Rooms 201-206 & Hallway (Floors Only)	12	2
S-3-053	Rooms 201-206 & Hallway (Floors Only)	13	1
S-3-053	Rooms 201-206 & Hallway (Floors Only)	14	0
S-3-053	Rooms 201-206 & Hallway (Floors Only)	15	4
S-3-053	Rooms 201-206 & Hallway (Floors Only)	16	2
S-3-053	Rooms 201-206 & Hallway (Floors Only)	17	0
B-3-011	Room 6D	1	4
B-3-011	Room 6D	2	2
B-3-011	Room 6D	3	5
B-3-011	Room 6D	4	3
B-3-011	Room 6D	5	5
B-3-011	Room 6D	6	2
B-3-011	Room 6D	7	4
B-3-011	Room 6D	8	5
B-3-011	Room 6D	9	3
B-3-011	Room 6D	10	7
B-3-011	Room 6D	11	3
B-3-011	Room 6D	12	5
B-3-011	Room 6D	13	7
S-1-055	Room R201	1	0
S-1-055	Room R201	2	1
S-1-055	Room R201	3	2
S-1-055	Room R201	4	1
S-1-055	Room R201	5	2
S-1-055	Room R201	6	3
S-1-055	Room R201	7	0
S-1-055	Room R201	8	4
S-1-055	Room R201	9	1
S-1-055	Room R201	10	1
S-1-055	Room R201	11	2
S-1-055	Room R201	12	4
S-1-055	Room R201	13	3
S-1-056	Room R202	1	4
S-1-056	Room R202	2	1
S-1-056	Room R202	3	2
S-1-056	Room R202	4	3
S-1-056	Room R202	5	5
S-1-056	Room R202	6	7
S-1-056	Room R202	7	3
S-1-056	Room R202	8	0
S-1-056	Room R202	9	3
S-1-056	Room R202	10	3
S-1-056	Room R202	11	6
S-1-056	Room R202	12	3
S-1-056	Room R202	13	1
S-1-056	Room R202	14	0
S-3-060	Room 2R05 Ceiling	1	2
S-3-060	Room 2R05 Ceiling	2	1
S-3-060	Room 2R05 Ceiling	3	4

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
S-3-060	Room 2R05 Ceiling	4	3
S-3-060	Room 2R05 Ceiling	5	3
S-3-060	Room 2R05 Ceiling	6	5
S-3-060	Room 2R05 Ceiling	7	0
S-3-060	Room 2R05 Ceiling	8	1
S-3-060	Room 2R05 Ceiling	9	4
S-3-060	Room 2R05 Ceiling	10	3
S-3-060	Room 2R05 Ceiling	11	3
S-3-060	Room 2R05 Ceiling	12	4
S-3-060	Room 2R05 Ceiling	13	1
S-3-060	Room 2R05 Ceiling	14	4
S-3-060	Room 2R05 Ceiling	15	4
S-3-060	Room 2R05 Ceiling	16	2
S-3-060	Room 2R05 Ceiling	17	3
S-1-061	Room 2R05 Floor & Lower Walls	1	0
S-1-061	Room 2R05 Floor & Lower Walls	2	0
S-1-061	Room 2R05 Floor & Lower Walls	3	1
S-1-061	Room 2R05 Floor & Lower Walls	4	4
S-1-061	Room 2R05 Floor & Lower Walls	5	4
S-1-061	Room 2R05 Floor & Lower Walls	6	1
S-1-061	Room 2R05 Floor & Lower Walls	7	5
S-1-061	Room 2R05 Floor & Lower Walls	8	1
S-1-061	Room 2R05 Floor & Lower Walls	9	2
S-1-061	Room 2R05 Floor & Lower Walls	10	1
S-1-061	Room 2R05 Floor & Lower Walls	11	1
S-1-061	Room 2R05 Floor & Lower Walls	12	1
S-1-061	Room 2R05 Floor & Lower Walls	13	3
S-1-061	Room 2R05 Floor & Lower Walls	14	3
S-1-061	Room 2R05 Floor & Lower Walls	15	1
S-1-061	Room 2R05 Floor & Lower Walls	16	1
S-1-061	Room 2R05 Floor & Lower Walls	17	**Survey Point Not Used**
S-2-062	Room 2R05 Upper Walls	1	2
S-2-062	Room 2R05 Upper Walls	2	2
S-2-062	Room 2R05 Upper Walls	3	5
S-2-062	Room 2R05 Upper Walls	4	1
S-2-062	Room 2R05 Upper Walls	5	2
S-2-062	Room 2R05 Upper Walls	6	4
S-2-062	Room 2R05 Upper Walls	7	3
S-2-062	Room 2R05 Upper Walls	8	2
S-2-062	Room 2R05 Upper Walls	9	2
S-2-062	Room 2R05 Upper Walls	10	5
S-2-062	Room 2R05 Upper Walls	11	3
S-2-062	Room 2R05 Upper Walls	12	1
S-2-062	Room 2R05 Upper Walls	13	1
S-1-058	Room 2R03 Floor & Lower Walls	1	1
S-1-058	Room 2R03 Floor & Lower Walls	2	2
S-1-058	Room 2R03 Floor & Lower Walls	3	0
S-1-058	Room 2R03 Floor & Lower Walls	4	0
S-1-058	Room 2R03 Floor & Lower Walls	5	4
S-1-058	Room 2R03 Floor & Lower Walls	6	3
S-1-058	Room 2R03 Floor & Lower Walls	7	5
S-1-058	Room 2R03 Floor & Lower Walls	8	3
S-1-058	Room 2R03 Floor & Lower Walls	9	6

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
S-1-058	Room 2R03 Floor & Lower Walls	10	3
S-1-058	Room 2R03 Floor & Lower Walls	11	4
S-1-058	Room 2R03 Floor & Lower Walls	12	4
S-1-058	Room 2R03 Floor & Lower Walls	13	1
S-1-058	Room 2R03 Floor & Lower Walls	14	2
S-1-058	Room 2R03 Floor & Lower Walls	15	4
S-1-058	Room 2R03 Floor & Lower Walls	16	5
S-2-062	Room 2R03 Upper Walls	1	3
S-2-062	Room 2R03 Upper Walls	2	1
S-2-062	Room 2R03 Upper Walls	3	2
S-2-062	Room 2R03 Upper Walls	4	2
S-2-062	Room 2R03 Upper Walls	5	3
S-2-062	Room 2R03 Upper Walls	6	3
S-2-062	Room 2R03 Upper Walls	7	1
S-2-062	Room 2R03 Upper Walls	8	3
S-2-062	Room 2R03 Upper Walls	9	1
S-2-062	Room 2R03 Upper Walls	10	1
S-2-062	Room 2R03 Upper Walls	11	4
S-2-062	Room 2R03 Upper Walls	12	1
S-2-062	Room 2R03 Upper Walls	13	0
S-2-062	Room 2R03 Upper Walls	14	7
S-3-057	Room 2R03 Ceiling	1	2
S-3-057	Room 2R03 Ceiling	2	1
S-3-057	Room 2R03 Ceiling	3	4
S-3-057	Room 2R03 Ceiling	4	5
S-3-057	Room 2R03 Ceiling	5	1
S-3-057	Room 2R03 Ceiling	6	6
S-3-057	Room 2R03 Ceiling	7	2
S-3-057	Room 2R03 Ceiling	8	2
S-3-057	Room 2R03 Ceiling	9	1
S-3-057	Room 2R03 Ceiling	10	1
S-3-057	Room 2R03 Ceiling	11	1
S-3-057	Room 2R03 Ceiling	12	1
S-3-057	Room 2R03 Ceiling	13	1
S-3-057	Room 2R03 Ceiling	14	1
B-1-050	Room R1	1	2
B-1-050	Room R1	2	1
B-1-050	Room R1	3	1
B-1-050	Room R1	4	1
B-1-050	Room R1	5	5
B-1-050	Room R1	6	4
B-1-050	Room R1	7	2
B-1-050	Room R1	8	2
B-1-050	Room R1	9	3
B-1-050	Room R1	10	5
B-1-050	Room R1	11	3
B-1-050	Room R1	12	6
B-1-050	Room R1	13	2
	Outside Driveway	1	1
	Outside Driveway	2	2
	Outside Driveway	3	4
	Outside Driveway	4	2
	Outside Driveway	5	5

Survey Unit	Description	Location No.	Alpha (gross cpm)
	Outside Driveway	6	3
	Outside Driveway	7	4
	Outside Driveway	8	9
	Outside Driveway	9	5
	Outside Driveway	10	6
	Outside Driveway	11	2
	Outside Driveway	12	2
	Outside Driveway	13	3
	Outside Driveway	14	1
M-1-068	MRE Sump	1	1
M-1-068	MRE Sump	2	4
M-1-068	MRE Sump	3	0
M-1-068	MRE Sump	4	2
M-1-068	MRE Sump	5	2
M-1-068	MRE Sump	6	4
M-1-068	MRE Sump	7	1
M-1-068	MRE Sump	8	1
B-1-023	Room 8A Ceiling & West Wall	1	2
B-1-023	Room 8A Ceiling & West Wall	2	2
B-1-023	Room 8A Ceiling & West Wall	3	3
B-1-023	Room 8A Ceiling & West Wall	4	5
B-1-023	Room 8A Ceiling & West Wall	5	2
B-1-023	Room 8A Ceiling & West Wall	6	2
B-1-023	Room 8A Ceiling & West Wall	7	2
B-1-023	Room 8A Ceiling & West Wall	8	5
B-1-023	Room 8A Ceiling & West Wall	9	3
B-1-023	Room 8A Ceiling & West Wall	10	2
B-1-023	Room 8A Ceiling & West Wall	11	3
B-1-023	Room 8A Ceiling & West Wall	12	0
B-1-023	Room 8A Ceiling & West Wall	13	2
B-1-025	Room 8A Floor and South Wall	1	5
B-1-025	Room 8A Floor and South Wall	2	1
B-1-025	Room 8A Floor and South Wall	3	3
B-1-025	Room 8A Floor and South Wall	4	1
B-1-025	Room 8A Floor and South Wall	5	3
B-1-025	Room 8A Floor and South Wall	6	1
B-1-025	Room 8A Floor and South Wall	7	3
B-1-025	Room 8A Floor and South Wall	8	4
B-1-025	Room 8A Floor and South Wall	9	0
B-1-025	Room 8A Floor and South Wall	10	2
B-1-025	Room 8A Floor and South Wall	11	7
B-1-025	Room 8A Floor and South Wall	12	3
B-1-025	Room 8A Floor and South Wall	13	3
B-1-025	Room 8A Floor and South Wall	14	2
B-1-025	Room 8A Floor and South Wall	15	0
B-1-024	Room 8A North And East Walls	1	3
B-1-024	Room 8A North And East Walls	2	6
B-1-024	Room 8A North And East Walls	3	5
B-1-024	Room 8A North And East Walls	4	3
B-1-024	Room 8A North And East Walls	5	4
B-1-024	Room 8A North And East Walls	6	7
B-1-024	Room 8A North And East Walls	7	1
B-1-024	Room 8A North And East Walls	8	1

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-1-024	Room 8A North And East Walls	9	3
B-1-024	Room 8A North And East Walls	10	2
B-1-024	Room 8A North And East Walls	11	4
B-1-024	Room 8A North And East Walls	12	3
B-1-024	Room 8A North And East Walls	13	6
F-3-047	Room 113 - Ceiling	1	3
F-3-047	Room 113 - Ceiling	2	5
F-3-047	Room 113 - Ceiling	3	4
F-3-047	Room 113 - Ceiling	4	1
F-3-047	Room 113 - Ceiling	5	5
F-3-047	Room 113 - Ceiling	6	3
F-3-047	Room 113 - Ceiling	7	4
F-3-047	Room 113 - Ceiling	8	0
F-3-047	Room 113 - Ceiling	9	1
F-3-047	Room 113 - Ceiling	10	1
F-3-047	Room 113 - Ceiling	11	2
F-3-047	Room 113 - Ceiling	12	4
F-3-047	Room 113 - Ceiling	13	2
F-3-047	Room 113 - Ceiling	14	3
F-2-038	Room 113 - Upper Walls	1	4
F-2-038	Room 113 - Upper Walls	2	5
F-2-038	Room 113 - Upper Walls	3	3
F-2-038	Room 113 - Upper Walls	4	1
F-2-038	Room 113 - Upper Walls	5	5
F-2-038	Room 113 - Upper Walls	6	1
F-2-038	Room 113 - Upper Walls	7	5
F-2-038	Room 113 - Upper Walls	8	0
F-2-038	Room 113 - Upper Walls	9	3
F-2-038	Room 113 - Upper Walls	10	3
F-2-038	Room 113 - Upper Walls	11	3
F-2-038	Room 113 - Upper Walls	12	4
F-2-038	Room 113 - Upper Walls	13	1
F-1-039	Room 113 - Floor and Lower Walls	1	0
F-1-039	Room 113 - Floor and Lower Walls	2	1
F-1-039	Room 113 - Floor and Lower Walls	3	3
F-1-039	Room 113 - Floor and Lower Walls	4	0
F-1-039	Room 113 - Floor and Lower Walls	5	2
F-1-039	Room 113 - Floor and Lower Walls	6	1
F-1-039	Room 113 - Floor and Lower Walls	7	3
F-1-039	Room 113 - Floor and Lower Walls	8	2
F-1-039	Room 113 - Floor and Lower Walls	9	4
F-1-039	Room 113 - Floor and Lower Walls	10	5
F-1-039	Room 113 - Floor and Lower Walls	11	2
F-1-039	Room 113 - Floor and Lower Walls	12	5
F-1-039	Room 113 - Floor and Lower Walls	13	2
F-1-039	Room 113 - Floor and Lower Walls	14	2
F-1-039	Room 113 - Floor and Lower Walls	15	5
S-1-064	Rx Bay Cat Walk	1	5
S-1-064	Rx Bay Cat Walk	2	6
S-1-064	Rx Bay Cat Walk	3	5
S-1-064	Rx Bay Cat Walk	4	1
S-1-064	Rx Bay Cat Walk	5	7
S-1-064	Rx Bay Cat Walk	6	5

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
S-1-064	Rx Bay Cat Walk	7	3
S-1-064	Rx Bay Cat Walk	8	1
S-1-064	Rx Bay Cat Walk	9	0
S-1-064	Rx Bay Cat Walk	10	2
S-1-064	Rx Bay Cat Walk	11	4
S-1-064	Rx Bay Cat Walk	12	2
S-1-064	Rx Bay Cat Walk	13	0
S-1-064	Rx Bay Cat Walk	14	3
S-1-064	Rx Bay Cat Walk	15	4
S-1-064	Rx Bay Cat Walk	16	7
S-1-064	Rx Bay Cat Walk	17	2
S-1-064	Rx Bay Cat Walk	18	5
S-1-063	Room 200CB	1	4
S-1-063	Room 200CB	2	2
S-1-063	Room 200CB	3	4
S-1-063	Room 200CB	4	1
S-1-063	Room 200CB	5	3
S-1-063	Room 200CB	6	5
S-1-063	Room 200CB	7	0
S-1-063	Room 200CB	8	4
S-1-063	Room 200CB	9	1
S-1-063	Room 200CB	10	1
S-1-063	Room 200CB	11	1
S-1-063	Room 200CB	12	5
S-1-063	Room 200CB	13	3
F-1-046	Rm 1R07	1	4
F-1-046	Rm 1R07	2	3
F-1-046	Rm 1R07	3	1
F-1-046	Rm 1R07	4	5
F-1-046	Rm 1R07	5	7
F-1-046	Rm 1R07	6	1
F-1-046	Rm 1R07	7	3
F-1-046	Rm 1R07	8	1
F-1-046	Rm 1R07	9	3
F-1-046	Rm 1R07	10	2
F-1-046	Rm 1R07	11	4
F-1-046	Rm 1R07	12	6
F-1-046	Rm 1R07	13	3
F-1-046	Rm 1R07	14	4
S-3-065	Rx Bay Ceiling	1	3
S-3-065	Rx Bay Ceiling	2	4
S-3-065	Rx Bay Ceiling	3	3
S-3-065	Rx Bay Ceiling	4	1
S-3-065	Rx Bay Ceiling	5	3
S-3-065	Rx Bay Ceiling	6	0
S-3-065	Rx Bay Ceiling	7	1
S-3-065	Rx Bay Ceiling	8	1
S-3-065	Rx Bay Ceiling	9	6
S-3-065	Rx Bay Ceiling	10	3
S-3-065	Rx Bay Ceiling	11	2
S-3-065	Rx Bay Ceiling	12	2
S-3-065	Rx Bay Ceiling	13	2
S-3-065	Rx Bay Ceiling	14	6

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
S-3-065	Rx Bay Ceiling	15	2
S-3-065	Rx Bay Ceiling	16	6
Vent 1	Ventalation	1	3
Vent 1	Ventalation	2	3
Vent 1	Ventalation	3	0
Vent 1	Ventalation	4	5
Vent 1	Ventalation	5	6
Vent 1	Ventalation	6	3
Vent 1	Ventalation	7	2
Vent 1	Ventalation	8	1
Vent 1	Ventalation	9	9
Vent 1	Ventalation	10	7
Vent 1	Ventalation	11	2
Vent 1	Ventalation	12	2
Vent 1	Ventalation	13	0
Vent 1	Ventalation	14	2
Vent 1	Ventalation	15	1
Vent 1	Ventalation	16	2
Vent 1	Ventalation	17	2
Vent 1	Ventalation	18	5
Vent 1	Ventalation	19	6
Vent 1	Ventalation	20	4
Vent 1	Ventalation	21	0
S-2-067	Rx Bay Upper Walls	1	3
S-2-067	Rx Bay Upper Walls	2	3
S-2-067	Rx Bay Upper Walls	3	2
S-2-067	Rx Bay Upper Walls	4	2
S-2-067	Rx Bay Upper Walls	5	2
S-2-067	Rx Bay Upper Walls	6	2
S-2-067	Rx Bay Upper Walls	7	4
S-2-067	Rx Bay Upper Walls	8	3
S-2-067	Rx Bay Upper Walls	9	4
S-2-067	Rx Bay Upper Walls	10	3
S-2-067	Rx Bay Upper Walls	11	0
S-2-067	Rx Bay Upper Walls	12	3
S-2-067	Rx Bay Upper Walls	13	1
S-2-067	Rx Bay Upper Walls	14	5
S-2-067	Rx Bay Upper Walls	15	2
S-2-066	Crane	1	2
S-2-066	Crane	2	1
S-2-066	Crane	3	4
S-2-066	Crane	4	1
S-2-066	Crane	5	1
S-2-066	Crane	6	2
S-2-066	Crane	7	0
S-2-066	Crane	8	3
S-2-066	Crane	9	2
S-2-066	Crane	10	3
S-2-066	Crane	11	3
S-2-066	Crane	12	2
S-2-066	Crane	13	0
8A under	8A Floor Under Tiles	1	3
8A under	8A Floor Under Tiles	2	2

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
8A under	8A Floor Under Tiles	3	3
8A under	8A Floor Under Tiles	4	4
8A under	8A Floor Under Tiles	5	2
B-1-017	BR03 Floor and Lower Walls	1	4
B-1-017	BR03 Floor and Lower Walls	2	3
B-1-017	BR03 Floor and Lower Walls	3	3
B-1-017	BR03 Floor and Lower Walls	4	3
B-1-017	BR03 Floor and Lower Walls	5	3
B-1-017	BR03 Floor and Lower Walls	6	2
B-1-017	BR03 Floor and Lower Walls	7	5
B-1-017	BR03 Floor and Lower Walls	8	5
B-1-017	BR03 Floor and Lower Walls	9	4
B-1-017	BR03 Floor and Lower Walls	10	6
B-1-017	BR03 Floor and Lower Walls	11	5
B-1-017	BR03 Floor and Lower Walls	12	5
B-1-017	BR03 Floor and Lower Walls	13	6
B-1-017	BR03 Floor and Lower Walls	14	5
B-1-017	BR03 Floor and Lower Walls	15	4
B-2-018	BR03 Upper Walls	1	4
B-2-018	BR03 Upper Walls	2	7
B-2-018	BR03 Upper Walls	3	6
B-2-018	BR03 Upper Walls	4	2
B-2-018	BR03 Upper Walls	5	3
B-2-018	BR03 Upper Walls	6	3
B-2-018	BR03 Upper Walls	7	4
B-2-018	BR03 Upper Walls	8	6
B-2-018	BR03 Upper Walls	9	3
B-2-018	BR03 Upper Walls	10	3
B-2-018	BR03 Upper Walls	11	3
B-2-018	BR03 Upper Walls	12	3
B-2-018	BR03 Upper Walls	13	7
B-2-018	BR03 Upper Walls	14	0
B-2-018	BR03 Upper Walls	15	5
B-3-016	BR03 Ceiling	1	8
B-3-016	BR03 Ceiling	2	5
B-3-016	BR03 Ceiling	3	3
B-3-016	BR03 Ceiling	4	5
B-3-016	BR03 Ceiling	5	4
B-3-016	BR03 Ceiling	6	5
B-3-016	BR03 Ceiling	7	5
B-3-016	BR03 Ceiling	8	5
B-3-016	BR03 Ceiling	9	3
B-3-016	BR03 Ceiling	10	9
B-3-016	BR03 Ceiling	11	6
B-3-016	BR03 Ceiling	12	5
B-3-016	BR03 Ceiling	13	5
B-3-016	BR03 Ceiling	14	4
M-1-019	Drains	1	2
M-1-019	Drains	2	7
M-1-019	Drains	3	3
M-1-019	Drains	4	3
M-1-019	Drains	5	2
M-1-019	Drains	6	2

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
M-1-019	Drains	7	2
M-1-019	Drains	8	3
M-1-019	Drains	9	6
M-1-019	Drains	10	4
M-1-019	Drains	11	6
M-1-019	Drains	12	5
M-1-019	Drains	13	3
M-1-019	Drains	14	6
M-1-019	Drains	15	4
M-1-019	Drains	16	
M-1-019	Drains	17	5
M-1-019	Drains	18	4
M-1-019	Drains	19	
M-1-019	Drains	20	9
M-1-019	Drains	21	7
M-1-019	Drains	22	4
B-1-031	Rx Bay Wall Unit 1	1	7
B-1-031	Rx Bay Wall Unit 1	2	5
B-1-031	Rx Bay Wall Unit 1	3	2
B-1-031	Rx Bay Wall Unit 1	4	0
B-1-031	Rx Bay Wall Unit 1	5	4
B-1-031	Rx Bay Wall Unit 1	6	6
B-1-031	Rx Bay Wall Unit 1	7	1
B-1-031	Rx Bay Wall Unit 1	8	6
B-1-031	Rx Bay Wall Unit 1	9	2
B-1-031	Rx Bay Wall Unit 1	10	3
B-1-031	Rx Bay Wall Unit 1	11	4
B-1-031	Rx Bay Wall Unit 1	12	5
B-1-031	Rx Bay Wall Unit 1	13	5
B-1-031	Rx Bay Wall Unit 1	14	3
B-1-031	Rx Bay Wall Unit 1	15	1
B-1-032	Rx Bay Wall Unit 2	1	0
B-1-032	Rx Bay Wall Unit 2	2	7
B-1-032	Rx Bay Wall Unit 2	3	5
B-1-032	Rx Bay Wall Unit 2	4	3
B-1-032	Rx Bay Wall Unit 2	5	5
B-1-032	Rx Bay Wall Unit 2	6	5
B-1-032	Rx Bay Wall Unit 2	7	2
B-1-032	Rx Bay Wall Unit 2	8	3
B-1-032	Rx Bay Wall Unit 2	9	4
B-1-032	Rx Bay Wall Unit 2	10	9
B-1-032	Rx Bay Wall Unit 2	11	3
B-1-032	Rx Bay Wall Unit 2	12	0
B-1-032	Rx Bay Wall Unit 2	13	4
vent 2	Ventalation 2	1	5
vent 2	Ventalation 2	2	2
vent 2	Ventalation 2	3	2
vent 2	Ventalation 2	4	2
vent 2	Ventalation 2	5	2
vent 2	Ventalation 2	6	2
vent 2	Ventalation 2	7	1
vent 2	Ventalation 2	8	5
vent 2	Ventalation 3	1	4

Survey Unit	Description	Location No.	Alpha (gross cpm)
vent 2	Ventalation 3	2	4
vent 2	Ventalation 3	3	3
vent 2	Ventalation 3	4	1
vent 2	Ventalation 3	5	6
vent 2	Ventalation 3	6	2
vent 2	Ventalation 4	1	7
vent 2	Ventalation 4	2	5
vent 2	Ventalation 4	3	8
vent 2	Ventalation 5	1	4
vent 2	Ventalation 5	2	11
vent 2	Ventalation 5	3	6
vent 2	Ventalation 5	4	8
vent 2	Ventalation 5	5	3
vent 3	Ventalation 6	1	4
vent 3	Ventalation 6	2	4
vent 3	Ventalation 6	3	5
vent 3	Ventalation 6	4	2
vent 3	Ventalation 6	5	4
vent 3	Ventalation 6	6	4
vent 3	Ventalation 6	7	2
vent 3	Ventalation 6	8	6
vent 3	Ventalation 7	1	7
vent 3	Ventalation 7	2	2
vent 3	Ventalation 7	3	1
vent 3	Ventalation 7	4	6
vent 3	Ventalation 7	5	2
vent 3	Ventalation 8	1	2
vent 3	Ventalation 8	2	3
vent 3	Ventalation 8	3	1
vent 3	Ventalation 8	4	4
vent 3	Ventalation 8	5	7
B-1-030	Rx Bay Floor 3	1	5
B-1-030	Rx Bay Floor 3	2	7
B-1-030	Rx Bay Floor 3	3	6
B-1-030	Rx Bay Floor 3	4	5
B-1-030	Rx Bay Floor 3	5	4
B-1-030	Rx Bay Floor 3	6	4
B-1-030	Rx Bay Floor 3	7	5
B-1-030	Rx Bay Floor 3	8	2
B-1-030	Rx Bay Floor 3	9	1
B-1-030	Rx Bay Floor 3	10	3
B-1-030	Rx Bay Floor 3	11	3
B-1-030	Rx Bay Floor 3	12	2
B-1-030	Rx Bay Floor 3	13	2
B-1-030	Rx Bay Floor 3	14	6
B-1-030	Rx Bay Floor 3	15	9
B-1-029	Rx Bay Floor 2	1	7
B-1-029	Rx Bay Floor 2	2	6
B-1-029	Rx Bay Floor 2	3	3
B-1-029	Rx Bay Floor 2	4	8
B-1-029	Rx Bay Floor 2	5	5
B-1-029	Rx Bay Floor 2	6	3
B-1-029	Rx Bay Floor 2	7	8

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
B-1-029	Rx Bay Floor 2	8	8
B-1-029	Rx Bay Floor 2	9	7
B-1-029	Rx Bay Floor 2	10	6
B-1-029	Rx Bay Floor 2	11	5
B-1-029	Rx Bay Floor 2	12	7
B-1-029	Rx Bay Floor 2	13	2
B-1-029	Rx Bay Floor 2	14	5
B-1-029	Rx Bay Floor 2	15	9
M-1-0121	Man Hole	1	92
M-1-0121	Man Hole	2	170
M-1-0121	Man Hole	3	7
M-1-0121	Man Hole	4	14
M-1-027	Source Storage Pit	1	2
M-1-027	Source Storage Pit	2	1
M-1-027	Source Storage Pit	3	3
M-1-027	Source Storage Pit	4	3
M-1-027	Source Storage Pit	5	1
M-1-027	Source Storage Pit	6	1
M-1-027	Source Storage Pit	7	2
M-1-027	Source Storage Pit	8	5
M-1-022	Plug Storage	1	
M-1-022	Plug Storage	2	
M-1-022	Plug Storage	3	
M-1-022	Plug Storage	4	
M-1-022	Plug Storage	5	
M-1-022	Plug Storage	6	
M-1-022	Plug Storage	7	
M-1-022	Plug Storage	8	
B-1-028	Rx Bay Floor 1	1	2
B-1-028	Rx Bay Floor 1	2	4
B-1-028	Rx Bay Floor 1	3	1
B-1-028	Rx Bay Floor 1	4	2
B-1-028	Rx Bay Floor 1	5	1
B-1-028	Rx Bay Floor 1	6	3
B-1-028	Rx Bay Floor 1	7	1
B-1-028	Rx Bay Floor 1	8	6
B-1-028	Rx Bay Floor 1	9	0
B-1-028	Rx Bay Floor 1	10	4
B-1-028	Rx Bay Floor 1	11	1
B-1-028	Rx Bay Floor 1	12	3
B-1-028	Rx Bay Floor 1	13	2
B-1-028	Rx Bay Floor 1	14	7
B-1-028	Rx Bay Floor 1	15	6
M-3-020	Driveway	1	1
M-3-020	Driveway	2	4
M-3-020	Driveway	3	3
M-3-020	Driveway	4	2
M-3-020	Driveway	5	3
M-3-020	Driveway	6	6
M-3-020	Driveway	7	0
M-3-020	Driveway	8	2
M-3-020	Driveway	9	3
M-3-020	Driveway	10	4

ENERGYSOLUTIONS

Alpha Count Rate Data
Ward Center, Cornell University

Survey Unit	Description	Location No.	Alpha (gross cpm)
M-3-020	Driveway	11	5
M-3-020	Driveway	12	4
M-3-020	Driveway	13	2
M-3-020	Driveway	14	3
B-2-072	BR07	1	14
B-2-072	BR07	2	2
B-2-072	BR07	3	5
B-2-072	BR07	4	13
B-2-072	BR07	5	4
B-2-072	BR07	6	7
B-2-072	BR07	7	6
B-2-072	BR07	8	8
B-2-072	BR07	9	7
B-2-072	BR07	10	7
B-2-072	BR07	11	8
B-2-072	BR07	12	9
B-2-072	BR07	13	8
B-2-072	BR07	14	3

Gross Alpha Summary Statistics		
Number of Data Points	1025	
Minimum	0	cpm
Maximum (Excluding Manhole)	14	cpm
Average (Excluding Manhole)	3.1	cpm
Standard Deviation (Excluding Manhole)	2.0	cpm

Detector Invformation		
Detector #	193629	
Probe #	200130	
Detector 2-pi Alpha Efficiency	60%	
Surface Efficiency	25%	
Count Time	1	minutes
Background	1	cpm
Background Time	10	minutes
Probe Size	100	cm2

Alpha Activity Information		
Maximum Alpha Activity	87	dpm/100cm2
Detector Alpha MDA	43	dpm/100cm2

APPENDIX F

GAMMA SCAN SURVEY RECORDS

ENERGYSOLUTIONS

Survey No. GS-001

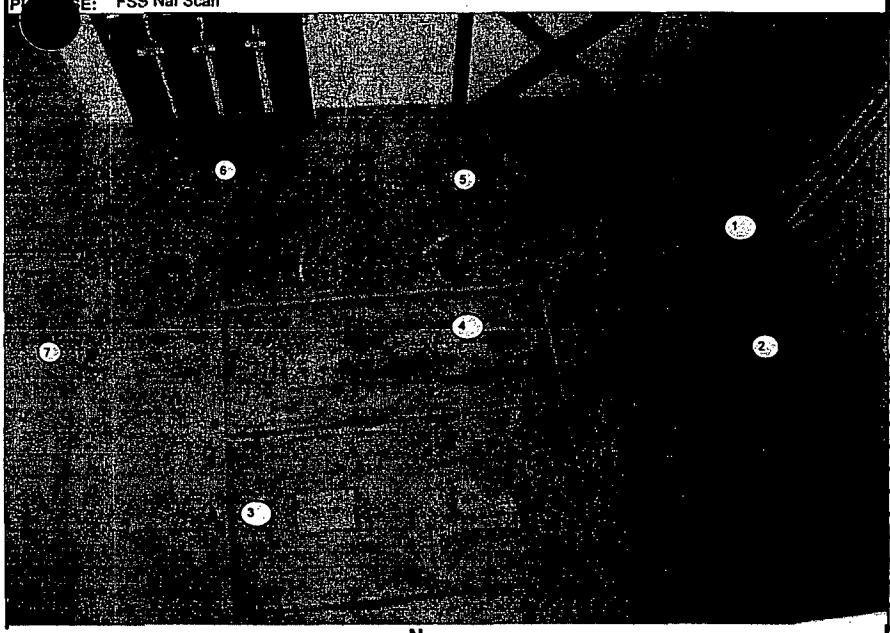
Surveyor:	John Albert (Print)	(Sign)	10/5/2006
Reviewer:	Kevin E. Taylor, CHP (Print)	(Sign)	11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 1R07 - Top of Gamma Cell (Survey Unit F-1-046)

PURPOSE: FSS NaI Scan



Location	Scans (CPM)			
1	10508			
2	14833			
3	10921			
4	10286			
5	12343			
6	12874			
7				
8				
9				
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19				
20				
21				
22				
23				
24				
25				

$$\frac{3 + 3.29\sqrt{RB\,t_s(1+t_s/t_b)}}{\epsilon_s(\epsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$Al = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

Al = action level

ENERGYSOLUTIONS

Survey No. GS-002

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

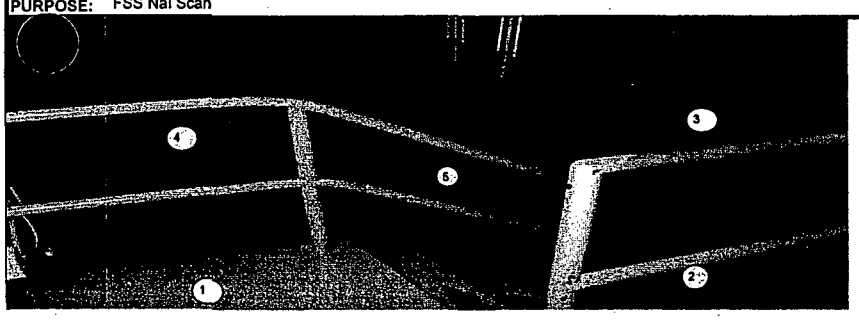
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

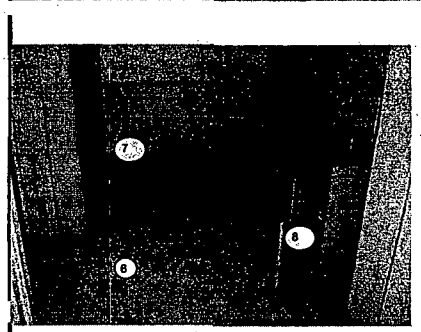
Survey Meters

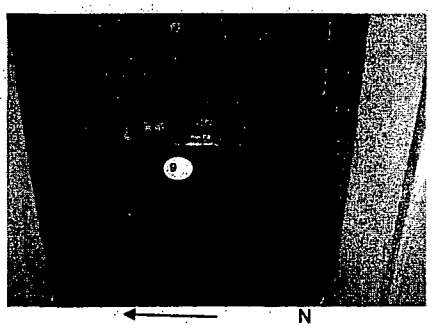
Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: BR02A-Cold Work Area / BR02B-Set-Up Room / BR02C-Gamma Cell (Survey Units B-1-007 to B-1-010)

PURPOSE: FSS NaI Scan







Location	Scans (CPM)			
1	12575			
2	11222			
3	11534			
4	11995			
5	11719			
6	12949			
7	12972			
8	13890			
9	14877			
10				
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$$MDC = \frac{3 + 3.29\sqrt{Rb\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100cm^2)}$$

$$Al = Rb + ((\text{guideline})(\text{eff.}))$$

$$dpm / 100cm^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(efficiency)}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

Al = action level

ENERGYSOLUTIONS

Survey No. GS-003

[redacted]r: John Albert (Print) _____ (Sign) 10/5/2006

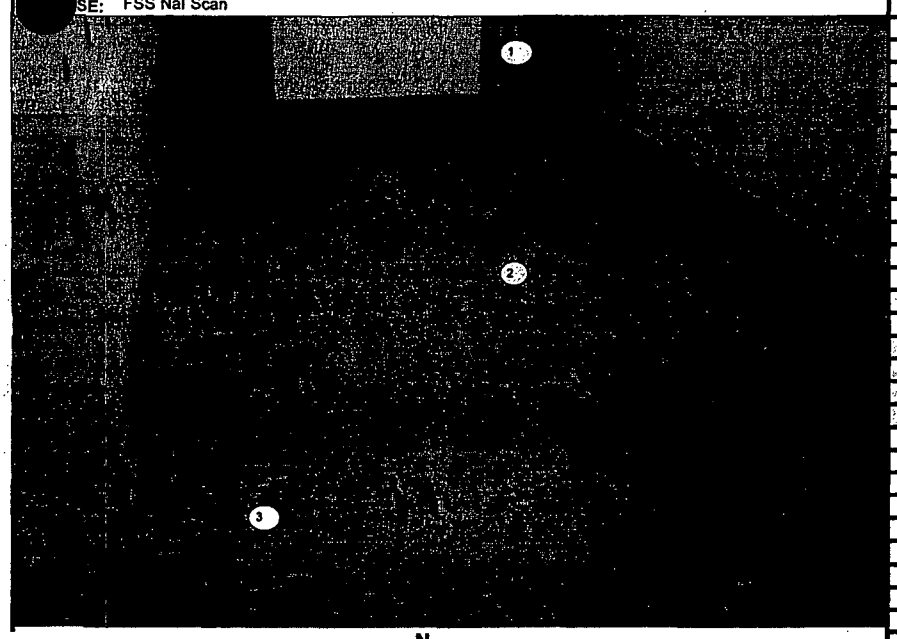
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

[redacted]TION: 2R01 - Laboratory (Survey Unit S-1-055)

[redacted]SE: FSS NaI Scan



Location	Scans (CPM)			
1	13537			
2	12165			
3	13088			
4				
5				
6				
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23				
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25				

[redacted] $$= \frac{3 + 3.29\sqrt{RB\,t_s(1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$AI = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No GS-004

[redacted]or: John Albert (Print) _____ (Sign) 10/5/2006

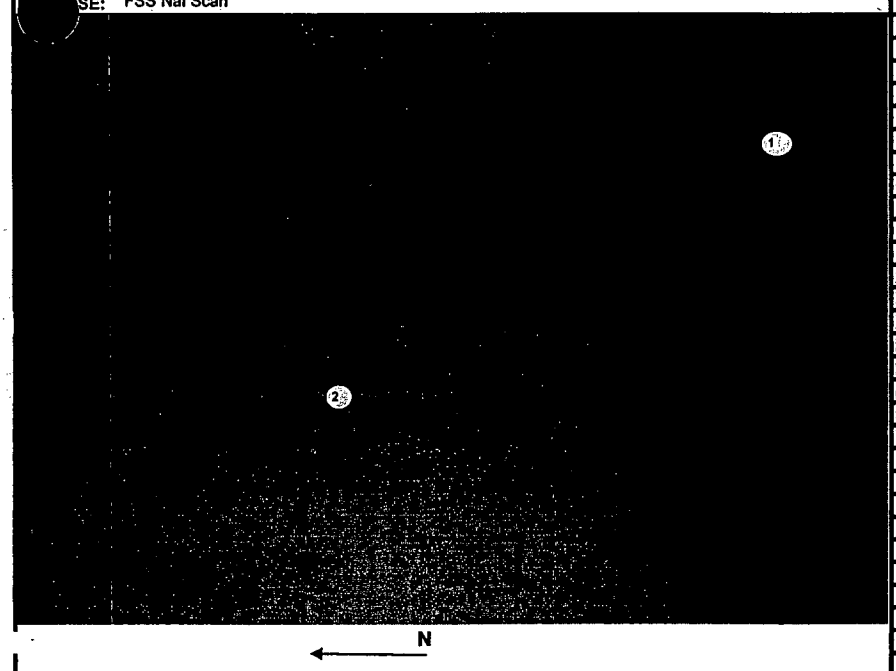
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 2R02 - Isotope Handling Room (Survey Unit S-1-056)

[redacted]SE: FSS NaI Scan



Location	Scans (CPM)			
1	14370			
2	14424			
3				
4				
5				
6				
7				
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10				
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23				
24				
25				

[redacted] $\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_a)(t_s)(\text{probe area}/100cm^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$dpm / 100cm^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(efficiency)}$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No GS-005

[redacted]or: John Albert (Print) _____ (Sign) 10/5/2006

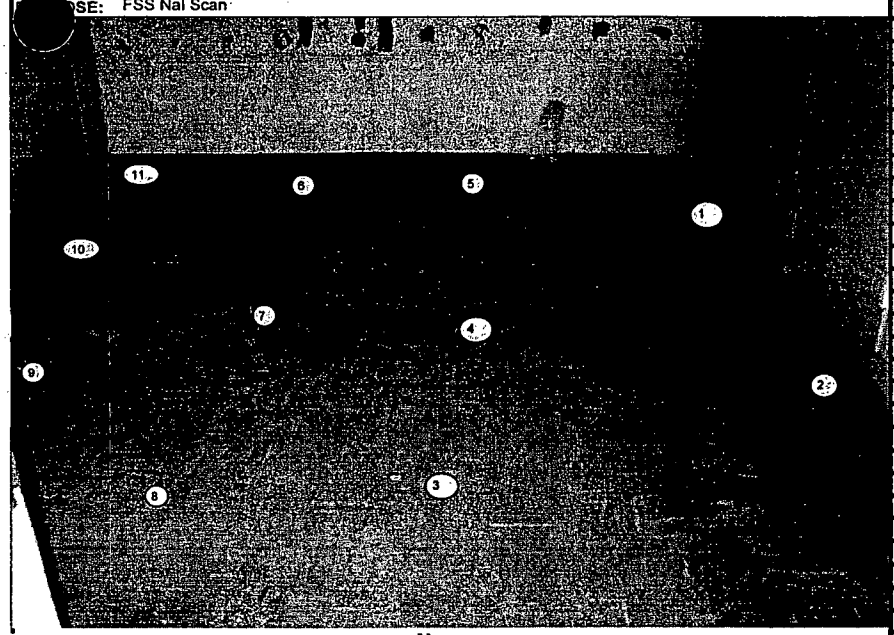
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 2R03 - Observation Room (Survey Unit S-1-058)

[redacted]SE: FSS NaI Scan



Location	Scans (CPM)			
1	7972			
2	8743			
3	12943			
4	11069			
5	11610			
6	11089			
7	12615			
8	12292			
9	11704			
10	11423			
11	10800			
12				
13				
14				
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23				
24				
25				

[redacted] = $\dfrac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100\text{cm}^2 = \dfrac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No. GS-006

S[illegible]or: John Albert (Print) _____ (Sign) 10/5/2006

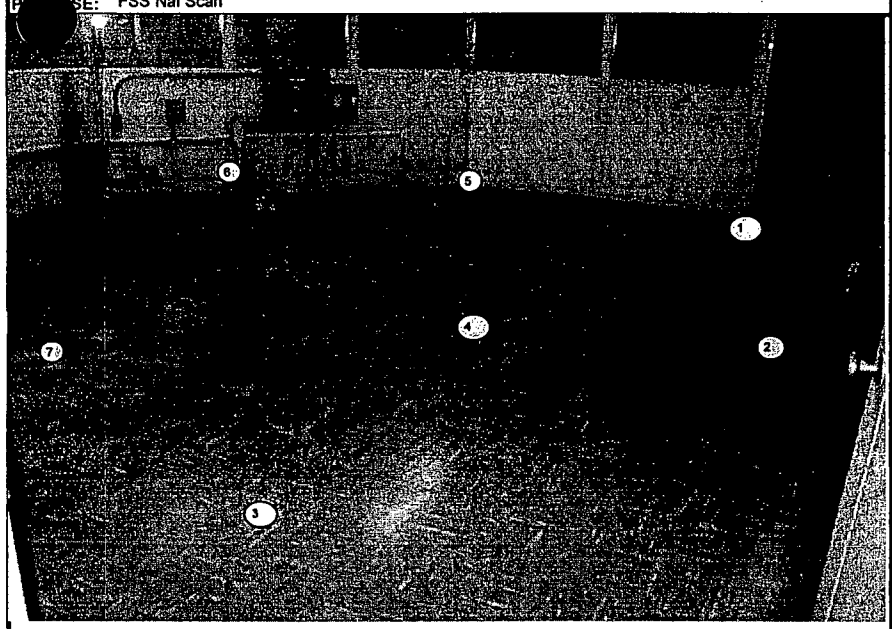
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 2R05 - TRIGA Control Room (Survey Unit S-1-061)

P[illegible]SE: FSS NaI Scan



N

Location	Scans (CPM)			
1	11667			
2	11506			
3	12761			
4	12195			
5	12595			
6	11931			
7	12201			
8				
9				
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[illegible] $\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(c_s)(t_s)(\text{probe area}/100cm^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$dpm / 100cm^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No GS-007

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

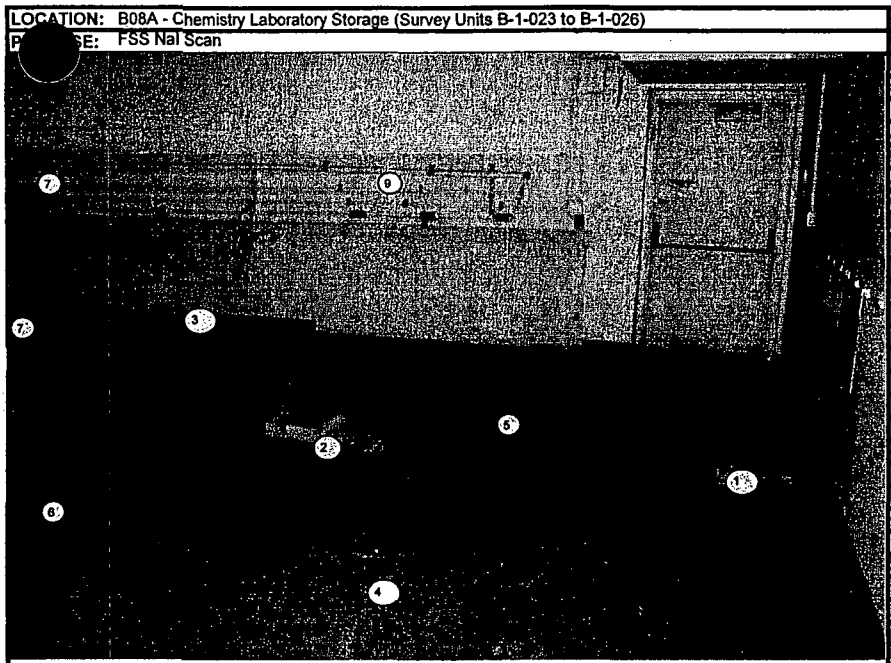
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: B08A - Chemistry Laboratory Storage (Survey Units B-1-023 to B-1-026)

P[redacted]SE: FSS NaI Scan



Location	Scans (CPM)			
1	12027			
2	12295			
3	13626			
4	11037			
5	13015			
6	12037			
7	11091			
8	11604			
9	11932			
10				
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[redacted]

$$\frac{3 + 3.29\sqrt{RB\,t_b(1+t_b/t_s)}}{\varepsilon_s(t_s)(t_b)(\text{probe area}/100\text{cm}^2)}$$

$$AI = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No GS-008

Surveyor: Johnny Albert (Print) _____ (Sign) 10/5/2006

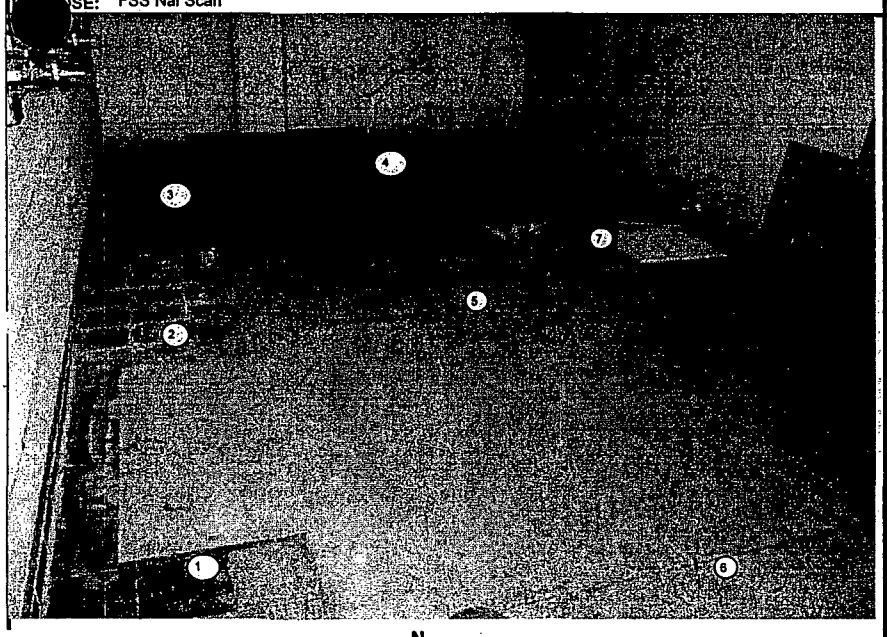
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: B08 - Chemistry Laboratory (Survey Units B-1-012 to B-1-014)

PURPOSE: FSS NaI Scan



Location	Scans (CPM)			
1	12104			
2	8684			
3	10102			
4	13613			
5	12120			
6	12553			
7	12295			
8				
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25				

$$\text{[illegible]} = \frac{3 + 3.29\sqrt{RB\,t_s(1+t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$Al = Rb + ((guideline)\,(eff.))$$

$$dpm\ /\ 100cm^2 = \frac{gross\ cpm\ -\ bkg\ cpm}{(efficiency)}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

Al = action level

ENERGYSOLUTIONS

Survey No. GS-009

Surveyor: John Albert (Print) _____ (Sign) 10/5/2006

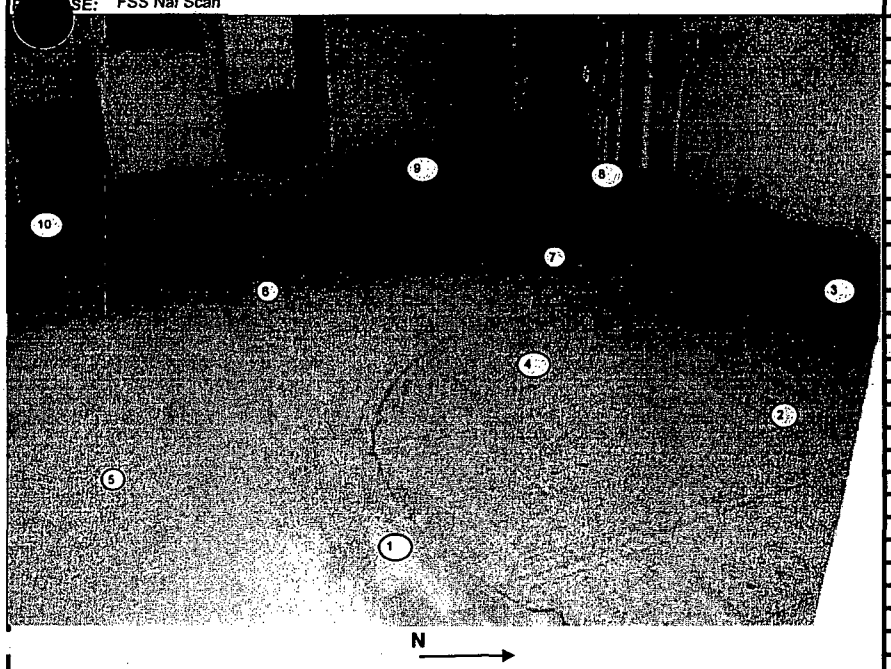
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 200 CB - Top of ZPR Room (Survey Unit S-1-063)

PURPOSE: FSS NaI Scan



Location	Scans (CPM)			
1	12598			
2	14192			
3	15162			
4	14464			
5	14814			
6	15156			
7	14318			
8	13090			
9	13874			
10	13050			
11				
12				
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20				
21				
22				
23				
24				
25				

$$= \frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$AI = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No GS-010

Surveyor: Johnny Albert (Print) _____ (Sign) 10/5/2006

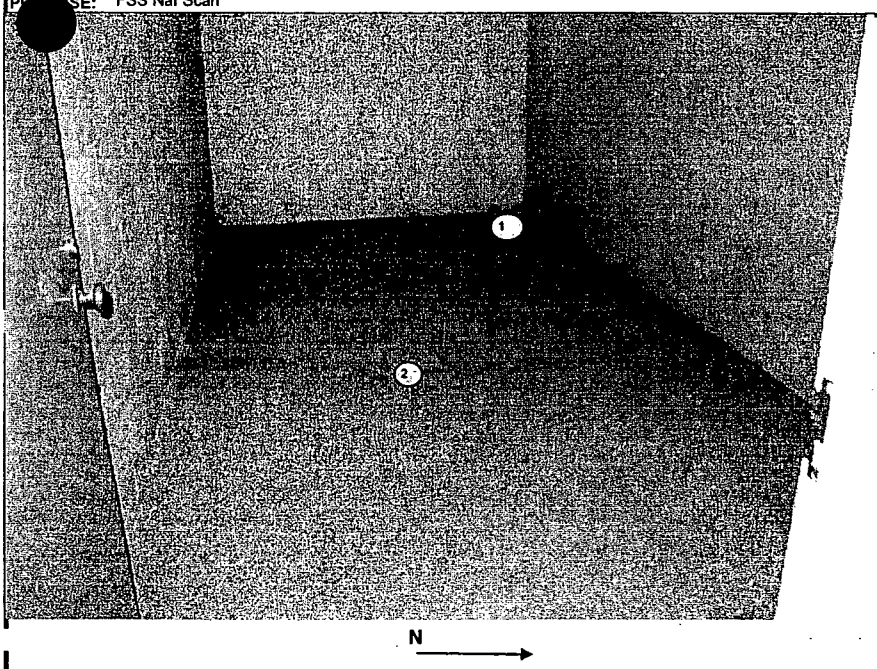
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: BR01 - Isotope and Fuel Storage (Survey Unit B-1-050)

PURPOSE: FSS NaI Scan



Location	Scans (CPM)			
1	14268			
2	13410			
3				
4				
5				
6				
7				
8				
9				
10				
11				
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13				
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23				
24				
25				

$$\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$AI = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No. GS-011

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

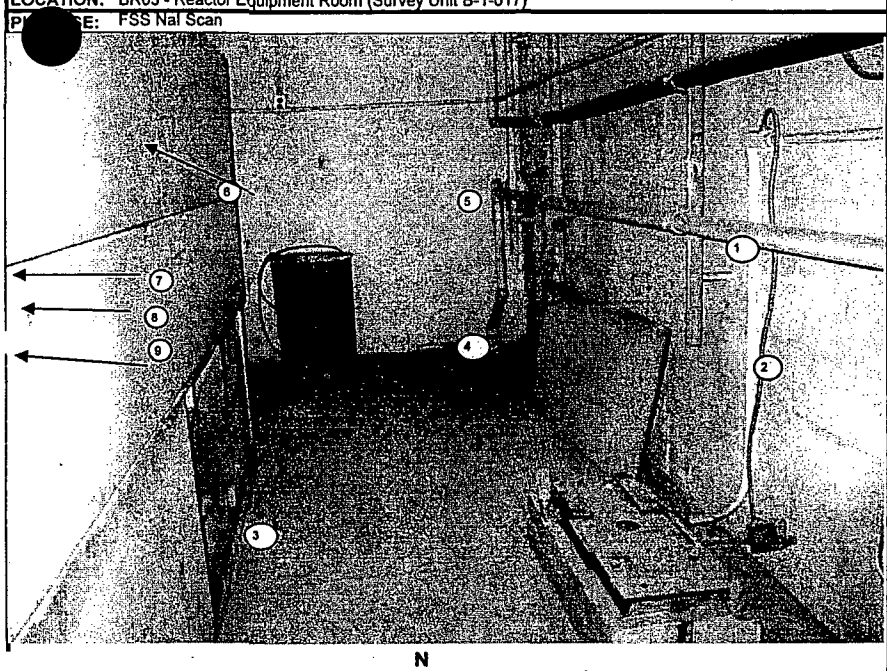
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: BR03 - Reactor Equipment Room (Survey Unit B-1-017)

P[redacted]E: FSS NaI Scan



Location	Scans (CPM)			
1	10508			
2	13302			
3	10115			
4	7115			
5	12106			
6	10178			
7	12992			
8	12644			
9	11968			
10				
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23				
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[redacted]

$$\frac{3 + 3.29\sqrt{RB\,t_s(1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$AL = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\text{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AL = action level

ENERGYSOLUTIONS

Survey No. GS-012

Surveyor: Johnny Albert (Print) _____ (Sign) 10/5/2006

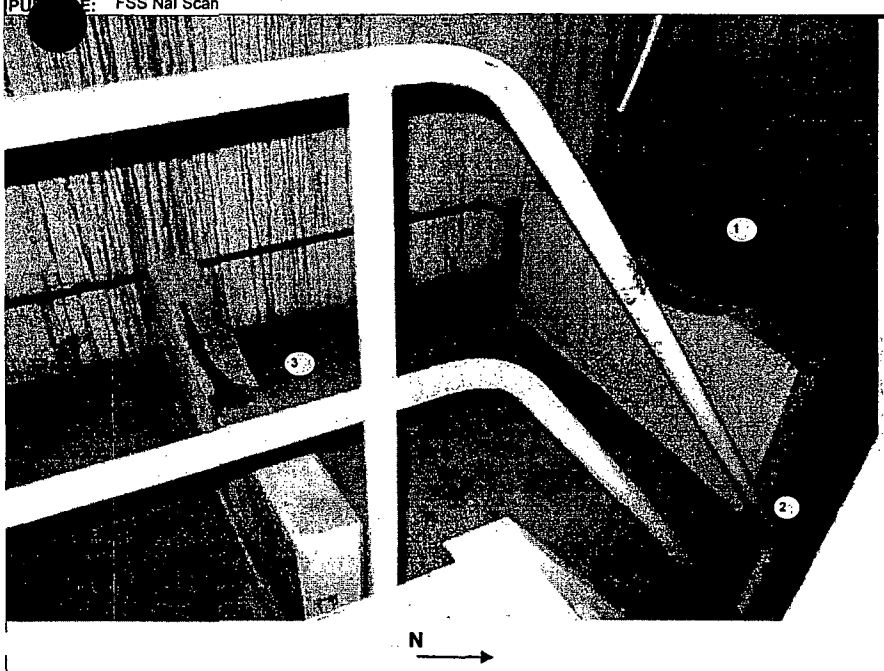
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: BR15 - Waste Storage Tank Room (Survey Unit B-1-015)

PURPOSE: FSS NaI Scan



Location	Scans (CPM)			
1	11452			
2	11578			
3	10633			
4				
5				
6				
7				
8				
9				
10				
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12				
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23				
24				
25				

$$M = \frac{3 + 3.29\sqrt{R\beta\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$Al = Rb + ((\text{guideline})(\text{eff.}))$$

$$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

Al = action level

ENERGYSOLUTIONS

Survey No GS-013

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

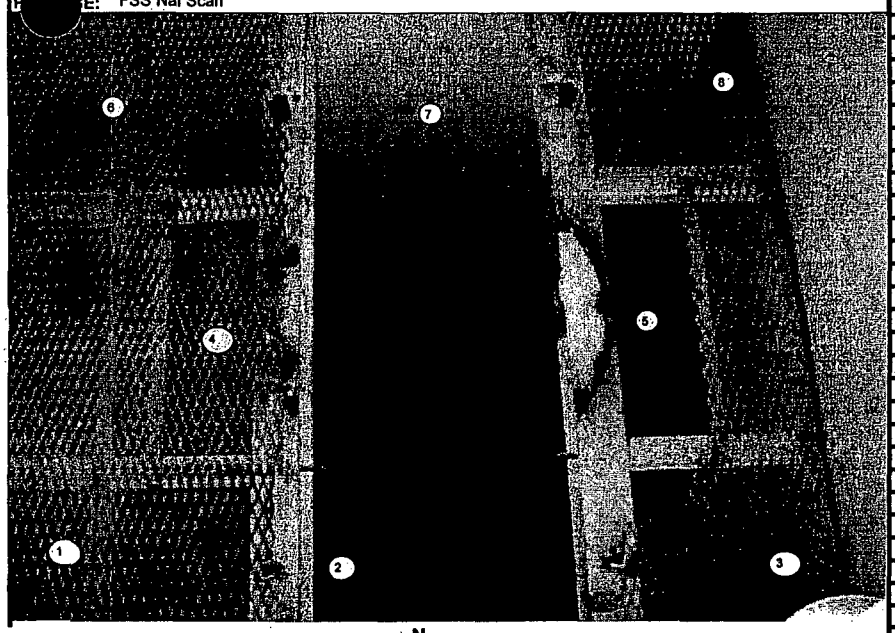
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOC[redacted]TION: 117 - ZPR Tank Room (Survey Units F-1-041 & F-1-042)

[redacted]E: FSS NaI Scan



Location	Scans (CPM)			
1	14586			
2	13268			
3	12970			
4	11992			
5	13097			
6	13520			
7	14414			
8	13798			
9				
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[redacted] $\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_b)(t_s)(\text{probe area}/100\text{cm}^2)}$

$Al = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$

where: *Rb* = *background counting rate*

Tb = background counting time

Ts = sample count time

Al = action level

ENERGYSOLUTIONS

Survey No. GS-014

Surveyor: Johnny Albert (Print) _____ (Sign) 10/5/2006

Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 111 - ZPR Laboratory (Survey Unit F-1-039)

PURPOSE: FSS NaI Scan

N

Location	Scans (CPM)			
1	11006			
2	11230			
3	11062			
4	11461			
5	11639			
6	11052			
7	10170			
8				
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$$\frac{3 + 3.29\sqrt{RB\,t_s(1+t_s/t_b)}}{t_s(\epsilon_s)(t_s)(\text{probe area}/100\text{cm}^2)}$$

$$AI = Rb + ((guideline)(eff.))$$

$$dpm\ /\ 100cm^2 = \frac{gross\ cpm\ -\ bkg\ cpm}{(efficiency)}$$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No. GS-015

S[illegible]r: Johnny Albert (Print) _____ (Sign) 10/6/2006

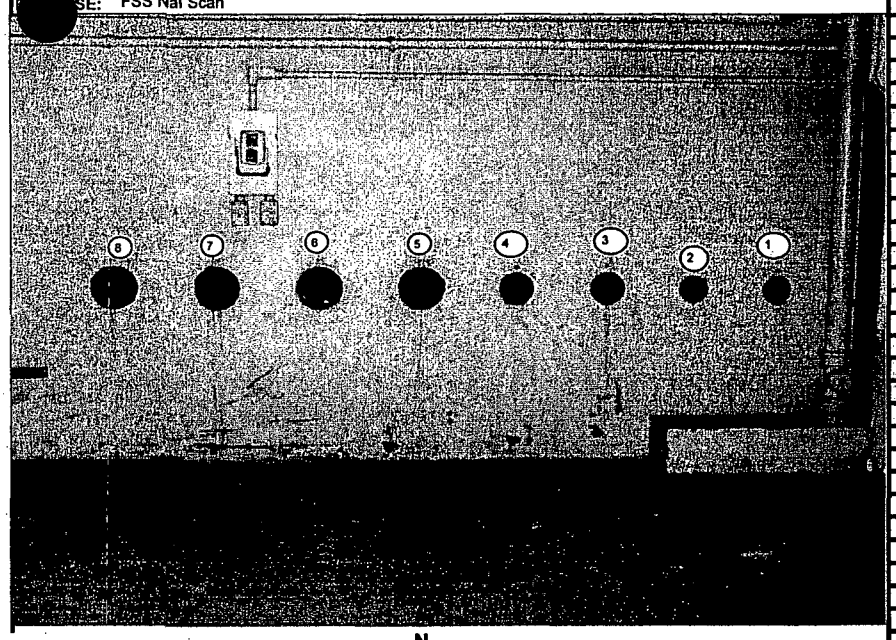
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14150	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21225	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: Plug Storage Tubes (Survey Unit M-1-022)

[illegible]SE: FSS NaI Scan



Location	Scans (CPM)			
1	8226			
2	8366			
3	7299			
4	7076			
5	8320			
6	8087			
7	8224			
8	9515			
9				
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[illegible] = $\frac{3 + 3.29\sqrt{RB_b(1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_a)(t_s)(\text{probe area}/100cm^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$dpm / 100cm^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\text{efficiency})}$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No. GS-016

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

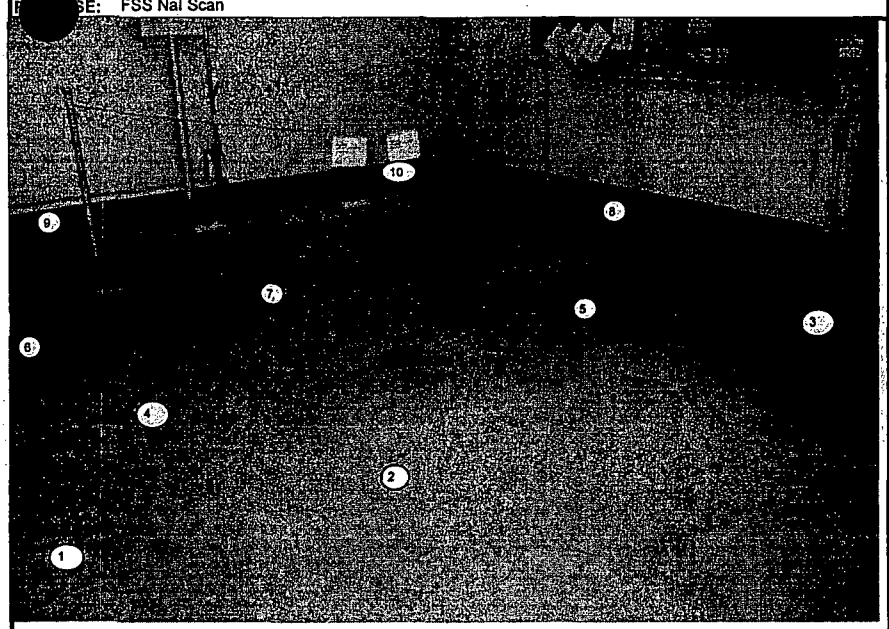
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: 113 - ZPR Control Room (Survey Unit F-1-049)

P[redacted]SE: FSS NaI Scan



N

Location	Scans (CPM)			
1	13001			
2	12907			
3	12650			
4	12450			
5	13003			
6	13567			
7	12174			
8	12721			
9	12914			
10	11992			
11				
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[redacted] = $\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(t_s)(t_b)(\text{probe area}/100\text{cm}^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100\text{cm}^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$

where: Rb = *background counting rate*

Tb = background counting time

Ts = sample count time

AI = action level

ENERGYSOLUTIONS

Survey No. GS-017

Su[redacted]: Johnny Albert (Print) _____ (Sign) 10/5/2006

Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LOCATION: BR10 - Reactor Bay Floors (Survey Units B-1-028 to B-1-030)

PU[redacted]E: FSS NaI Scan

see attached map

Location	Scans (CPM)	Location	Scans (CPM)
Floor 1		Floor 3	
1	14526	1	13953
2	9109	2	14168
3	13264	3	15865
4	12984	4	16787
5	12076	5	14813
6	14429	6	14493
7	12332	7	14392
8	13738	8	14433
9	13372	9	14266
10	13664	10	13867
11	9891	11	10635
12	13807	12	14099
13	14704	13	14771
14	12243	14	15628
15	12261	15	14508
Floor 2			
1	14801		
2	14111		
3	14400		
4	14190		
5	14301		
6	14001		
7	13865		
8	13556		
9	14429		
10	13417		
11	14025		
12	13702		
13	13902		
14	14237		
15	13725		

[redacted] $\frac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\varepsilon_s(\varepsilon_i)(t_s)(\text{probe area}/100cm^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$dpm / 100cm^2 = \frac{\text{gross cpm} - \text{bkg cpm}}{(\text{efficiency})}$

where: Rb = background counting rate

Tb = background counting time

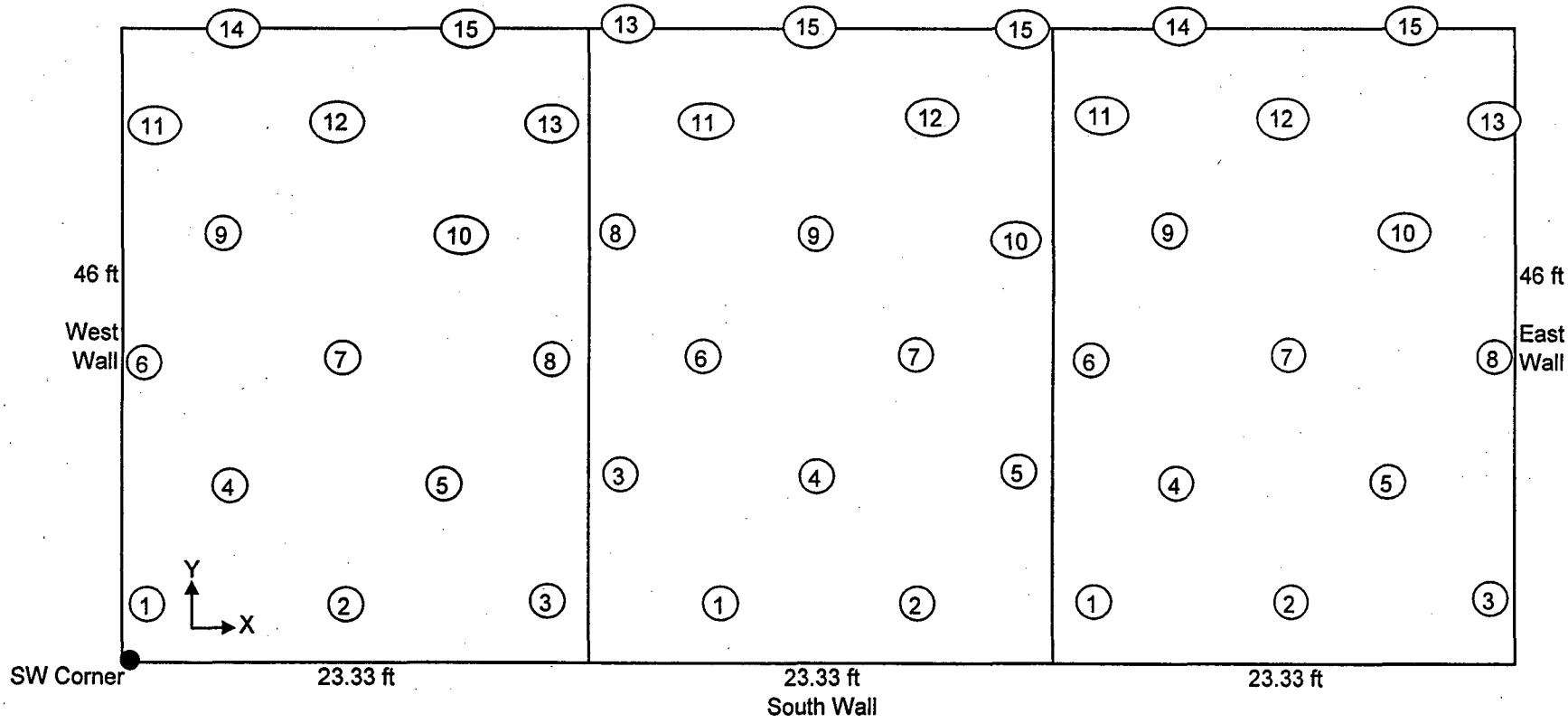
Ts = sample count time

AI = action level

Gamma Survey GS-017

Reactor Bay Floors 1, 2, and 3

L=9.5, R=8.25



ENERGYSOLUTIONS

Survey No. GS-018

S[redacted]r: Johnny Albert (Print) _____ (Sign) 10/5/2006

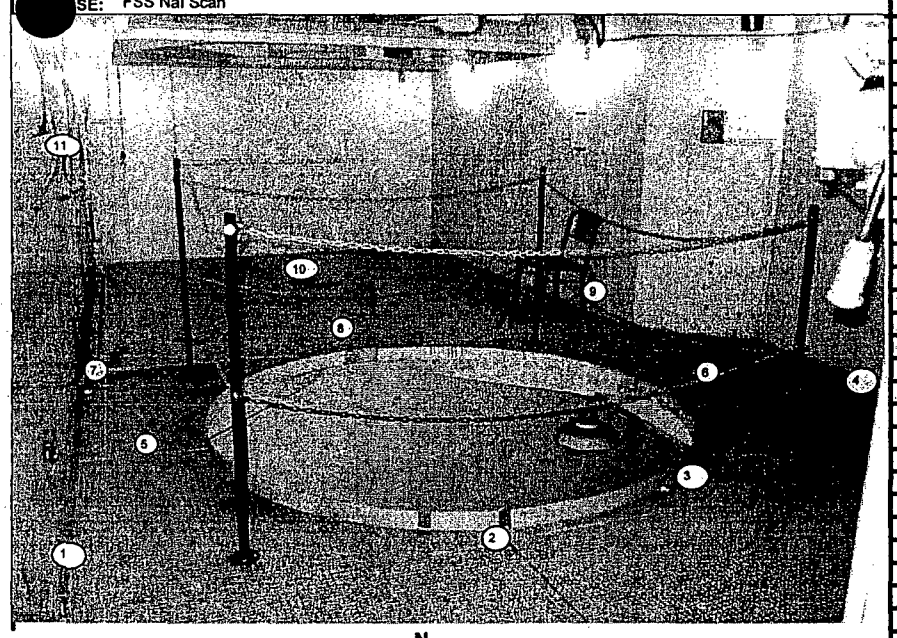
Reviewer: Kevin E. Taylor, CHP (Print) _____ (Sign) 11/20/2006 (Date)

Survey Meters

Gamma Scan		β γ Smear Results		α Smear Results		Dose Rate Results	
Meter Model #	L2221 / L44-10	Meter Model #		Meter Model #		Meter Model #	
Meter Serial #	68537/226943	Meter Serial #		Meter Serial #		Meter Serial #	
Cal Due	12/20/2006	Cal Due		Cal Due		Cal Due	
Efficiency (%)	23%	Efficiency (%)		Efficiency (%)		Efficiency (%)	
Type	gamma	Type		Type		Type	
Sample Time (min)	NA	Sample Time (min)		Sample Time (min)		Sample Time (min)	
Background Time (min)	10	Background Time (min)		Background Time (min)		Background Time (min)	
BKG (cpm)	14221.5	BKG (cpm)		BKG (cpm)		BKG (cpm)	
MDC (dpm/100cm2)	NA	MDC (dpm/100cm2)		MDC (dpm/100cm2)		MDC (dpm/100cm2)	
Guideline (dpm/100cm^2)	21332.25	Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)		Guideline (dpm/100cm^2)	
Action Level (dpm/100cm^2)	NA	Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)		Action Level (dpm/100cm^2)	

LO[redacted]TION: 117 - ZPR Upper Level (Survey Units F-1-043 & F-1-044)

[redacted]SE: FSS NaI Scan



N

Location	Scans (CPM)			
1	12129			
2	13867			
3	12159			
4	12936			
5	12362			
6	11589			
7	13849			
8	16901			
9	12933			
10	12356			
11	12426			
12				
13				
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23				
24				
25				

[redacted] $= \dfrac{3 + 3.29\sqrt{RB\, t_s (1 + t_s/t_b)}}{\epsilon_s(\epsilon_i)(t_s)(\text{probe area}/100\text{cm}^2)}$

$AI = Rb + ((\text{guideline})(\text{eff.}))$

$\text{dpm} / 100\text{cm}^2 = \dfrac{\text{gross cpm} - \text{bkg cpm}}{(\textit{efficiency})}$

where: Rb = background counting rate

Tb = background counting time

Ts = sample count time

AI = action level

APPENDIX G

ANALYTICAL REPORTS FOR SOIL SAMPLE ANALYSIS:

SAMPLES FSO-1 THROUGH FSO-13 WITHOUT SR-90

SAMPLES FSO-14 THROUGH FSO-16 WITHOUT SR-90

SAMPLES FSO-1 THROUGH FSO-16 WITH SR-90

SAMPLES FSO-1 THROUGH FSO-13 WITHOUT SR-90

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ENRG001 Energysolutions

Client SDG: 173747 GEL Work Order: 173747

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

Document Number 82A8016

ENERGYSOLUTIONS

ATTACHMENT B
ENERGYSOLUTIONS FIELD SERVICES
CHAIN OF CUSTODY RECORD
Parameters for Analysis

Energy Solutions
143 West Street
New Milford, CT 06776
860-210-3000

To: General Engineering Laboratories, LLC
P.O. Box 30712
Charleston, SC 29417
Phone: (843) 556-8171
Fax: (843) 766-1178

Attention: Cheryl Jones
Email: cj@gel.com

Sampler's Name: Chris Higgins

Project Number: 0885

Project Name: Cornell

171967 %

Sample ID No.	Date Collected	Time Collected	Gamma Spec	H3	Fe55	Ni63	C14					Comments
FSO-1	9/15/2006	12:00 PM	x	x	x	x	x					Please Send Results to:
FSO-2	9/15/2006	12:00 PM	x	x	x	x	x					Mike Taylor
FSO-3	9/15/2006	12:00 PM	x	x	x	x	x					Energy Solutions c/o Cornell University-
FSO-4	9/15/2006	12:00 PM	x	x	x	x	x					Ward Center Laboratory
FSO-5	9/15/2006	12:00 PM	x	x	x	x	x					Central Avenue
FSO-6	9/15/2006	12:00 PM	x	x	x	x	x					Ithaca, NY 14853
FSO-7	9/15/2006	12:00 PM	x	x	x	x	x					and e-mail:
FSO-8	9/15/2006	12:00 PM	x	x	x	x	x					mtaylor@energysolutions.com
FSO-9	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-10	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-11	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-12	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-13	9/15/2006	12:00 PM	x	x	x	x	x					
Pb-1	9/15/2006	12:00 PM	X		X							

Relinquished By (Signature) 9/15/2006 Date/Time

Received By (Signature) 9/18/06 845 Date/Time

SHIPPING INFORMATION: Fed Ex (Carrier) 5/15/2006 (Date Shipped)

ENERGYSOLUTIONS CONTACT: Chris Higgins 607-255-2095 (Name, Phone No.)

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

Cheryl Jones

Client:	Energy Solutions	SDG/ARCOC/Work Order:	171967
Date Received:	9/18/06	PM(A) Review (ensure non-conforming items are resolved prior to signing):	
Received By:	CD		

PM use only

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice none other describe) 25°
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?			✓	Circle Applicable: seals broken damaged container leaking container other (describe) FS0-2 - ziplock bag - 3cm x 12 open on inside
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: ⇒ Client notified via email 9/15/06 CD
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			✓	
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?				Sample ID's affected: no date + time on ziplock Bags
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	✓			
14	Air Bill ,Tracking #'s, & Additional Comments	8577 4175 6458			

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?	✓	✓		Maximum Counts Observed*: Soil 20 CPM & PBI 300 CPM
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: _____ Initials CD Date: 9/18/06

List of current GEL Certifications as of 24 October 2006

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-1
Sample ID: 171967001
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228	UI	0.00	+/-0.383	0.261	0.800	pCi/g		MJH1 09/26/06	1322	570312	1
Americium-241	U	-0.00949	+/-0.0548	0.049	0.200	pCi/g					
Antimony-124	U	-0.0428	+/-0.0884	0.0779	0.100	pCi/g					
Antimony-125	UI	0.00	+/-0.0874	0.0953	0.200	pCi/g					
Barium-133	U	0.0127	+/-0.0414	0.0364	0.100	pCi/g					
Barium-140	U	0.0908	+/-0.219	0.222	0.500	pCi/g					
Beryllium-7	UI	0.00	+/-0.672	0.311	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.589	0.283	0.500	pCi/g					
Bismuth-214		0.648	+/-0.156	0.146	0.200	pCi/g					
Cerium-139	U	0.00554	+/-0.0244	0.024	0.050	pCi/g					
Cerium-141		0.0539	+/-0.0456	0.0476	0.100	pCi/g					
Cerium-144	U	0.0787	+/-0.162	0.161	0.500	pCi/g					
Cesium-134	U	0.0064	+/-0.0464	0.0471	0.100	pCi/g					
Cesium-136	U	-0.0883	+/-0.106	0.0933	0.300	pCi/g					
Cesium-137	U	0.00901	+/-0.0381	0.0395	0.100	pCi/g					
Chromium-51	U	0.281	+/-0.319	0.297	0.600	pCi/g					
Cobalt-56	U	-0.00273	+/-0.0426	0.0423	0.100	pCi/g					
Cobalt-57	UI	0.00	+/-0.0282	0.0187	0.050	pCi/g					
Cobalt-58	U	-0.00171	+/-0.0397	0.0396	0.100	pCi/g					
Cobalt-60		0.133	+/-0.0685	0.0403	0.100	pCi/g					
Europium-152	U	-0.0113	+/-0.120	0.0902	0.200	pCi/g					
Europium-154	U	-0.0622	+/-0.179	0.139	0.500	pCi/g					
Europium-155	U	-0.02	+/-0.078	0.0777	0.500	pCi/g					
Iridium-192	U	0.0169	+/-0.0317	0.0293	0.100	pCi/g					
Iron-59	U	0.00101	+/-0.101	0.0852	0.300	pCi/g					
Lead-210		1.21	+/-0.580	0.389	4.00	pCi/g					
Lead-212		0.688	+/-0.116	0.066	0.100	pCi/g					
Lead-214		0.822	+/-0.154	0.0628	0.100	pCi/g					
Manganese-54	U	0.00569	+/-0.0394	0.040	0.100	pCi/g					
Mercury-203	UI	0.00	+/-0.0692	0.033	0.100	pCi/g					
Neodymium-147	U	0.093	+/-0.443	0.444	1000	pCi/g					
Neptunium-239	U	-0.0905	+/-0.162	0.136	2.00	pCi/g					
Niobium-94	U	0.0305	+/-0.0387	0.0373	1.00	pCi/g					
Niobium-95	UI	0.00	+/-0.047	0.0522	0.050	pCi/g					
Potassium-40		14.3	+/-1.63	0.375	1.00	pCi/g					
Promethium-144	U	0.0265	+/-0.0396	0.0369	0.080	pCi/g					
Promethium-146	U	-0.0116	+/-0.0406	0.0385	1.00	pCi/g					
Radium-228	UI	0.00	+/-0.383	0.261	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-1
Sample ID: 171967001

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0575	+/-0.287	0.272	0.800	pCi/g					
Silver-110m	U	-0.035	+/-0.0349	0.0317	0.080	pCi/g					
Sodium-22	U	-0.0221	+/-0.0639	0.0496	0.080	pCi/g					
Thallium-208		0.263	+/-0.0859	0.0389	0.080	pCi/g					
Thorium-230		0.648	+/-0.156	0.0661	1.00	pCi/g					
Thorium-234		0.721	+/-0.576	0.490	5.00	pCi/g					
Tin-113	U	0.00973	+/-0.0396	0.0404	0.100	pCi/g					
Uranium-235	U	0.0698	+/-0.169	0.171	0.500	pCi/g					
Uranium-238		0.721	+/-0.576	0.490	1.00	pCi/g					
Yttrium-88	U	-0.00887	+/-0.0459	0.0432	0.100	pCi/g					
Zinc-65	U	-0.184	+/-0.119	0.097	0.300	pCi/g					
Zirconium-95	U	0.000472	+/-0.0758	0.0763	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-2.13	+/-3.05	5.73	6.00	pCi/g		DFA1 09/22/06	0938	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.160	+/-0.421	0.752	2.00	pCi/g		AXD2 09/21/06	0236	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	1.69	+/-7.05	9.90	20.0	pCi/g		MXP1 09/23/06	1929	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.397	+/-1.06	1.84	4.00	pCi/g		MXP1 09/22/06	1954	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			68	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-1
Sample ID: 171967001

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							81		(25%-125%)	

Notes:
The Qualifiers in this report are defined as follows :

- * A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-2
Sample ID: 171967002
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.902	+/-0.217	0.180	0.800	pCi/g		MJH1 09/26/06	1407	570312	1
Americium-241	U	-0.000557	+/-0.120	0.200	0.200	pCi/g					
Antimony-124	U	0.0492	+/-0.0521	0.122	0.100	pCi/g					
Antimony-125	U	0.0315	+/-0.0691	0.130	0.200	pCi/g					
Barium-133	U	-0.0399	+/-0.0356	0.0595	0.100	pCi/g					
Barium-140	U	-0.0581	+/-0.148	0.271	0.500	pCi/g					
Beryllium-7	U	0.125	+/-0.265	0.440	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.510	0.411	0.500	pCi/g					
Bismuth-214	UI	0.00	+/-0.130	0.196	0.200	pCi/g					
Cerium-139	U	0.0141	+/-0.0264	0.0427	0.050	pCi/g					
Cerium-141	U	0.0164	+/-0.0559	0.0681	0.100	pCi/g					
Cerium-144	U	-0.0374	+/-0.143	0.251	0.500	pCi/g					
Cesium-134	U	0.0552	+/-0.0363	0.0704	0.100	pCi/g					
Cesium-136	U	0.0182	+/-0.0714	0.138	0.300	pCi/g					
Cesium-137		0.141	+/-0.0729	0.0591	0.100	pCi/g					
Chromium-51	U	-0.0788	+/-0.250	0.448	0.600	pCi/g					
Cobalt-56	U	-0.00146	+/-0.0293	0.0536	0.100	pCi/g					
Cobalt-57	U	0.00516	+/-0.0183	0.0333	0.050	pCi/g					
Cobalt-58	U	-0.00978	+/-0.0338	0.0515	0.100	pCi/g					
Cobalt-60	U	0.019	+/-0.0271	0.057	0.100	pCi/g					
Europium-152	U	-0.0675	+/-0.075	0.128	0.200	pCi/g					
Europium-154	U	-0.0327	+/-0.116	0.178	0.500	pCi/g					
Europium-155	U	0.019	+/-0.0794	0.145	0.500	pCi/g					
Iridium-192	U	0.0107	+/-0.0248	0.0467	0.100	pCi/g					
Iron-59	U	0.0118	+/-0.0678	0.130	0.300	pCi/g					
Lead-210	U	2.22	+/-3.68	5.21	4.00	pCi/g					
Lead-212		0.800	+/-0.0851	0.072	0.100	pCi/g					
Lead-214		0.576	+/-0.125	0.0998	0.100	pCi/g					
Manganese-54	U	-0.013	+/-0.0285	0.0497	0.100	pCi/g					
Mercury-203	U	-0.0128	+/-0.029	0.0519	0.100	pCi/g					
Neodymium-147	U	-0.074	+/-0.305	0.566	1000	pCi/g					
Neptunium-239	U	0.0261	+/-0.136	0.247	2.00	pCi/g					
Niobium-94	U	-0.000908	+/-0.0269	0.0495	1.00	pCi/g					
Niobium-95	U	0.0529	+/-0.0332	0.0697	0.050	pCi/g					
Potassium-40		14.0	+/-1.34	0.486	1.00	pCi/g					
Promethium-144	U	0.00963	+/-0.0272	0.0516	0.080	pCi/g					
Promethium-146	U	-0.0102	+/-0.0353	0.0617	1.00	pCi/g					
Radium-228		0.902	+/-0.217	0.180	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-2
Sample ID: 171967002

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.16	+/-0.236	0.414	0.800	pCi/g					
Silver-110m	U	0.0404	+/-0.0342	0.0616	0.080	pCi/g					
Sodium-22	U	-0.0115	+/-0.0416	0.0635	0.080	pCi/g					
Thallium-208		0.265	+/-0.0631	0.0502	0.080	pCi/g					
Thorium-230		0.441	+/-0.130	0.0966	1.00	pCi/g					
Thorium-234		1.79	+/-1.69	1.72	5.00	pCi/g					
Tin-113	U	-0.0144	+/-0.0319	0.0558	0.100	pCi/g					
Uranium-235	U	0.0805	+/-0.271	0.294	0.500	pCi/g					
Uranium-238		1.79	+/-1.69	1.72	1.00	pCi/g					
Yttrium-88	U	0.0181	+/-0.0271	0.0605	0.100	pCi/g					
Zinc-65	U	-0.11	+/-0.0764	0.122	0.300	pCi/g					
Zirconium-95	U	0.00039	+/-0.0537	0.099	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	1.70	+/-3.18	5.48	6.00	pCi/g		DFA1 09/22/06	0954	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.246	+/-0.558	0.990	2.00	pCi/g		AXD2 09/21/06	0254	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	-4.22	+/-6.25	8.87	20.0	pCi/g		MXP1 09/23/06	2103	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.796	+/-1.18	2.05	4.00	pCi/g		MXP1 09/22/06	2127	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			72	(15%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-2
Sample ID: 171967002

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							71	(25%-125%)		

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-3
Sample ID: 171967003
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.833	+/-0.199	0.171	0.800	pCi/g		MJH1 09/26/06	1408	570312	1
Americium-241	U	0.0356	+/-0.092	0.155	0.200	pCi/g					
Antimony-124	U	0.0289	+/-0.0455	0.0934	0.100	pCi/g					
Antimony-125	U	-0.018	+/-0.0603	0.110	0.200	pCi/g					
Barium-133	U	0.00443	+/-0.0343	0.0563	0.100	pCi/g					
Barium-140	U	0.107	+/-0.121	0.260	0.500	pCi/g					
Beryllium-7	U	0.220	+/-0.243	0.358	0.700	pCi/g					
Bismuth-212		0.499	+/-0.333	0.368	0.500	pCi/g					
Bismuth-214		0.459	+/-0.106	0.0888	0.200	pCi/g					
Cerium-139	U	0.00655	+/-0.020	0.0368	0.050	pCi/g					
Cerium-141	U	0.0198	+/-0.0436	0.0693	0.100	pCi/g					
Cerium-144	U	0.00174	+/-0.143	0.260	0.500	pCi/g					
Cesium-134	U	0.0149	+/-0.0372	0.0607	0.100	pCi/g					
Cesium-136	U	-0.0278	+/-0.0525	0.0944	0.300	pCi/g					
Cesium-137	U	0.0398	+/-0.0382	0.0502	0.100	pCi/g					
Chromium-51	U	-0.15	+/-0.236	0.426	0.600	pCi/g					
Cobalt-56	U	0.00628	+/-0.0278	0.0516	0.100	pCi/g					
Cobalt-57	U	-0.000972	+/-0.0171	0.0312	0.050	pCi/g					
Cobalt-58	U	0.00346	+/-0.0267	0.0434	0.100	pCi/g					
Cobalt-60	U	0.0583	+/-0.0379	0.0589	0.100	pCi/g					
Europium-152	U	-0.0101	+/-0.0698	0.113	0.200	pCi/g					
Europium-154	U	-0.0382	+/-0.0761	0.135	0.500	pCi/g					
Europium-155	U	0.0541	+/-0.0791	0.133	0.500	pCi/g					
Iridium-192	U	0.0113	+/-0.023	0.0444	0.100	pCi/g					
Iron-59	U	0.0069	+/-0.0569	0.109	0.300	pCi/g					
Lead-210	U	1.20	+/-1.70	2.97	4.00	pCi/g					
Lead-212		0.831	+/-0.0928	0.0739	0.100	pCi/g					
Lead-214		0.598	+/-0.0987	0.090	0.100	pCi/g					
Manganese-54	U	0.0238	+/-0.0302	0.0446	0.100	pCi/g					
Mercury-203	U	0.0421	+/-0.0317	0.0429	0.100	pCi/g					
Neodymium-147	U	0.0176	+/-0.289	0.538	1000	pCi/g					
Neptunium-239	U	-0.0976	+/-0.127	0.225	2.00	pCi/g					
Niobium-94	U	0.0214	+/-0.0227	0.0447	1.00	pCi/g					
Niobium-95	U	0.0231	+/-0.0314	0.0604	0.050	pCi/g					
Potassium-40		13.9	+/-1.34	0.383	1.00	pCi/g					
Promethium-144	U	0.0147	+/-0.0224	0.0434	0.080	pCi/g					
Promethium-146	U	-0.0125	+/-0.0298	0.0538	1.00	pCi/g					
Radium-228		0.833	+/-0.199	0.171	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-3
Sample ID: 171967003

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0347	+/-0.227	0.412	0.800	pCi/g					
Silver-110m	U	-0.00816	+/-0.026	0.0398	0.080	pCi/g					
Sodium-22	U	-0.0135	+/-0.0272	0.0484	0.080	pCi/g					
Thallium-208		0.262	+/-0.0456	0.0459	0.080	pCi/g					
Thorium-230		0.459	+/-0.106	0.0888	1.00	pCi/g					
Thorium-234	U	0.908	+/-0.894	1.39	5.00	pCi/g					
Tin-113	U	-0.0132	+/-0.0291	0.0527	0.100	pCi/g					
Uranium-235	U	0.091	+/-0.199	0.267	0.500	pCi/g					
Uranium-238	U	0.908	+/-0.894	1.39	1.00	pCi/g					
Yttrium-88	U	0.0143	+/-0.0211	0.0471	0.100	pCi/g					
Zinc-65	U	-0.044	+/-0.0633	0.0917	0.300	pCi/g					
Zirconium-95	U	0.0162	+/-0.0434	0.0827	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.15	+/-3.07	5.64	6.00	pCi/g		DFA1 09/22/06	1010	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.535	+/-0.643	1.09	2.00	pCi/g		AXD2 09/21/06	0311	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	-3.82	+/-6.31	8.93	20.0	pCi/g		MXP1 09/23/06	2236	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-1.02	+/-1.16	2.03	4.00	pCi/g		MXP1 09/22/06	2300	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			74	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-3
Sample ID: 171967003

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							73	(25%-125%)		

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-4
Sample ID: 171967004
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		2.43	+/-0.231	0.168	0.800	pCi/g		MJH1 09/26/06	1408	570312	1
Americium-241	U	0.0481	+/-0.179	0.314	0.200	pCi/g					
Antimony-124	U	0.0106	+/-0.0489	0.0944	0.100	pCi/g					
Antimony-125	U	0.00473	+/-0.066	0.120	0.200	pCi/g					
Barium-133	U	-0.0156	+/-0.0353	0.0554	0.100	pCi/g					
Barium-140	U	-0.0317	+/-0.149	0.263	0.500	pCi/g					
Beryllium-7	U	-0.0741	+/-0.231	0.407	0.700	pCi/g					
Bismuth-212		1.43	+/-0.347	0.397	0.500	pCi/g					
Bismuth-214		1.82	+/-0.146	0.0913	0.200	pCi/g					
Cerium-139	U	-0.00119	+/-0.0245	0.044	0.050	pCi/g					
Cerium-141	U	0.0439	+/-0.047	0.0861	0.100	pCi/g					
Cerium-144	U	0.134	+/-0.165	0.311	0.500	pCi/g					
Cesium-134	UI	0.00	+/-0.0422	0.0687	0.100	pCi/g					
Cesium-136	U	-0.0206	+/-0.0591	0.103	0.300	pCi/g					
Cesium-137		0.268	+/-0.0547	0.0512	0.100	pCi/g					
Chromium-51	U	0.0399	+/-0.255	0.474	0.600	pCi/g					
Cobalt-56	U	0.00863	+/-0.0264	0.0493	0.100	pCi/g					
Cobalt-57	U	0.0158	+/-0.0297	0.0381	0.050	pCi/g					
Cobalt-58	U	-0.0153	+/-0.0262	0.046	0.100	pCi/g					
Cobalt-60	U	0.024	+/-0.0244	0.0514	0.100	pCi/g					
Europium-152	U	-0.0153	+/-0.0754	0.137	0.200	pCi/g					
Europium-154	U	-0.00934	+/-0.0806	0.148	0.500	pCi/g					
Europium-155	U	0.098	+/-0.153	0.184	0.500	pCi/g					
Iridium-192	U	-0.000149	+/-0.0282	0.046	0.100	pCi/g					
Iron-59	U	0.040	+/-0.0431	0.102	0.300	pCi/g					
Lead-210	U	1.09	+/-6.52	9.38	4.00	pCi/g					
Lead-212		2.49	+/-0.109	0.0759	0.100	pCi/g					
Lead-214		2.06	+/-0.149	0.0947	0.100	pCi/g					
Manganese-54	U	0.0317	+/-0.0475	0.0547	0.100	pCi/g					
Mercury-203	U	0.0252	+/-0.0362	0.058	0.100	pCi/g					
Neodymium-147	U	0.0269	+/-0.310	0.557	1000	pCi/g					
Neptunium-239	U	0.191	+/-0.186	0.281	2.00	pCi/g					
Niobium-94	U	0.00556	+/-0.0255	0.0472	1.00	pCi/g					
Niobium-95	UI	0.00	+/-0.051	0.0665	0.050	pCi/g					
Potassium-40		13.9	+/-0.960	0.432	1.00	pCi/g					
Promethium-144	U	0.0418	+/-0.0319	0.0445	0.080	pCi/g					
Promethium-146	U	-0.0203	+/-0.0325	0.0566	1.00	pCi/g					
Radium-228		2.43	+/-0.231	0.168	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-4
Sample ID: 171967004
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0646	+/-0.225	0.405	0.800	pCi/g					
Silver-110m	U	-0.00379	+/-0.028	0.0423	0.080	pCi/g					
Sodium-22	U	-0.00301	+/-0.0288	0.0528	0.080	pCi/g					
Thallium-208		0.800	+/-0.0703	0.046	0.080	pCi/g					
Thorium-230		1.82	+/-0.146	0.0913	1.00	pCi/g					
Thorium-234	U	1.48	+/-1.90	2.49	5.00	pCi/g					
Tin-113	U	-0.0225	+/-0.0339	0.0596	0.100	pCi/g					
Uranium-235	U	0.215	+/-0.219	0.332	0.500	pCi/g					
Uranium-238	U	1.48	+/-1.90	2.49	1.00	pCi/g					
Yttrium-88	U	-0.00401	+/-0.0199	0.0366	0.100	pCi/g					
Zinc-65	U	-0.0366	+/-0.0654	0.0936	0.300	pCi/g					
[illegible]onium-95	U	0.0593	+/-0.0539	0.104	0.200	pCi/g					
[illegible] Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-0.819	+/-3.15	5.74	6.00	pCi/g		DFA1 09/22/06	1027	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.350	+/-0.530	0.914	2.00	pCi/g		AXD2 09/21/06	0329	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	1.21	+/-6.40	8.96	20.0	pCi/g		MXP1 09/24/06	0009	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.953	+/-1.07	1.88	4.00	pCi/g		MXP1 09/23/06	0033	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			73	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-4
Sample ID: 171967004

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							79	(25%-125%)		

Notes:
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-5
Sample ID: 171967005
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.806	+/-0.207	0.0922	0.800	pCi/g		MJH1 09/26/06	1422	570312	1
Americium-241	U	0.0651	+/-0.0922	0.0841	0.200	pCi/g					
Antimony-124	U	0.00768	+/-0.042	0.0434	0.100	pCi/g					
Antimony-125	U	0.0102	+/-0.0706	0.0631	0.200	pCi/g					
Barium-133	U	-0.0261	+/-0.0339	0.028	0.100	pCi/g					
Barium-140	U	-0.00228	+/-0.129	0.129	0.500	pCi/g					
Beryllium-7	UI	0.00	+/-0.198	0.219	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.359	0.179	0.500	pCi/g					
Bismuth-214		0.587	+/-0.097	0.0372	0.200	pCi/g					
Cerium-139	U	0.0141	+/-0.0186	0.0196	0.050	pCi/g					
Cerium-141	U	0.0126	+/-0.0392	0.0403	0.100	pCi/g					
Cerium-144	U	0.120	+/-0.145	0.137	0.500	pCi/g					
Cesium-134	UI	0.00	+/-0.0341	0.0317	0.100	pCi/g					
Cesium-136	U	-0.00332	+/-0.0574	0.0568	0.300	pCi/g					
Cesium-137		0.176	+/-0.0508	0.0255	0.100	pCi/g					
Chromium-51	U	-0.0343	+/-0.221	0.227	0.600	pCi/g					
Cobalt-56	U	-0.0112	+/-0.0263	0.0256	0.100	pCi/g					
Cobalt-57	U	0.00603	+/-0.0153	0.0161	0.050	pCi/g					
Cobalt-58	U	-0.00301	+/-0.0244	0.0245	0.100	pCi/g					
Cobalt-60	U	0.0162	+/-0.0268	0.0283	0.100	pCi/g					
Europium-152	U	-0.01	+/-0.0737	0.0613	0.200	pCi/g					
Europium-154	U	0.0734	+/-0.0967	0.0911	0.500	pCi/g					
Europium-155	U	0.0695	+/-0.0669	0.0728	0.500	pCi/g					
Iridium-192	U	-0.00381	+/-0.0214	0.022	0.100	pCi/g					
Iron-59	U	-0.00496	+/-0.0583	0.0573	0.300	pCi/g					
Lead-210		3.26	+/-1.96	1.51	4.00	pCi/g					
Lead-212		0.772	+/-0.0921	0.0368	0.100	pCi/g					
Lead-214		0.560	+/-0.102	0.046	0.100	pCi/g					
Manganese-54	U	0.000608	+/-0.0257	0.0261	0.100	pCi/g					
Mercury-203	U	0.00647	+/-0.0246	0.0261	0.100	pCi/g					
Neodymium-147	U	0.107	+/-0.273	0.282	1000	pCi/g					
Neptunium-239	U	-0.0571	+/-0.113	0.114	2.00	pCi/g					
Niobium-94	U	0.00207	+/-0.0221	0.0229	1.00	pCi/g					
Niobium-95	U	-0.00204	+/-0.0342	0.0299	0.050	pCi/g					
Potassium-40		12.4	+/-1.25	0.187	1.00	pCi/g					
Promethium-144	U	0.00148	+/-0.0236	0.0244	0.080	pCi/g					
Promethium-146	U	0.029	+/-0.0294	0.0318	1.00	pCi/g					
Radium-228		0.806	+/-0.207	0.0922	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-5
Sample ID: 171967005

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0999	+/-0.222	0.228	0.800	pCi/g					
Silver-110m	U	-0.000435	+/-0.0287	0.0244	0.080	pCi/g					
Sodium-22	U	0.026	+/-0.0345	0.0325	0.080	pCi/g					
Thallium-208		0.230	+/-0.0493	0.0235	0.080	pCi/g					
Thorium-230		0.587	+/-0.097	0.0372	1.00	pCi/g					
Thorium-234	U	0.578	+/-1.02	0.694	5.00	pCi/g					
Tin-113	UI	0.00	+/-0.133	0.0296	0.100	pCi/g					
Uranium-235	U	0.090	+/-0.142	0.147	0.500	pCi/g					
Uranium-238	U	0.578	+/-1.02	0.694	1.00	pCi/g					
Yttrium-88	U	0.0212	+/-0.0225	0.0261	0.100	pCi/g					
Zinc-65	U	-0.0103	+/-0.0649	0.0538	0.300	pCi/g					
[illegible]nium-95	U	0.015	+/-0.0439	0.0462	0.200	pCi/g					
Ra[illegible]iquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.22	+/-3.24	5.95	6.00	pCi/g		DFA1 09/22/06	1043	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.340	+/-0.439	0.747	2.00	pCi/g		AXD2 09/21/06	0346	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	-2.4	+/-6.37	8.98	20.0	pCi/g		MXP1 09/24/06	0142	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.417	+/-1.18	2.05	4.00	pCi/g		MXP1 09/23/06	0206	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			76	(15%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-5
Sample ID: 171967005

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							69	(25%-125%)		

Notes:
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< Result is less than value reported
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B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-6
Sample ID: 171967006
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.733	+/-0.213	0.143	0.800	pCi/g		MJH1 09/26/06	1513	570312	1
Americium-241	U	-0.00381	+/-0.0302	0.055	0.200	pCi/g					
Antimony-124	U	-0.0298	+/-0.0451	0.0797	0.100	pCi/g					
Antimony-125	U	0.0161	+/-0.0614	0.119	0.200	pCi/g					
Barium-133	U	0.00376	+/-0.0295	0.0479	0.100	pCi/g					
Barium-140	U	0.0345	+/-0.123	0.240	0.500	pCi/g					
Beryllium-7	U	0.0319	+/-0.192	0.369	0.700	pCi/g					
Bismuth-212	U	0.311	+/-0.383	0.350	0.500	pCi/g					
Bismuth-214		0.607	+/-0.114	0.0748	0.200	pCi/g					
Cerium-139	U	0.000906	+/-0.0154	0.0293	0.050	pCi/g					
Cerium-141	U	-0.0231	+/-0.0302	0.0555	0.100	pCi/g					
Cerium-144	U	0.0663	+/-0.104	0.206	0.500	pCi/g					
Cesium-134	U	0.0654	+/-0.0587	0.0688	0.100	pCi/g					
Cesium-136	U	0.0175	+/-0.0618	0.120	0.300	pCi/g					
Cesium-137		0.121	+/-0.0448	0.0453	0.100	pCi/g					
Chromium-51	U	0.105	+/-0.211	0.396	0.600	pCi/g					
Cobalt-56	U	0.00996	+/-0.0258	0.0492	0.100	pCi/g					
Cobalt-57	U	0.00525	+/-0.0117	0.0232	0.050	pCi/g					
Cobalt-58	U	-0.00752	+/-0.0225	0.0399	0.100	pCi/g					
Cobalt-60	U	-0.000177	+/-0.0281	0.0527	0.100	pCi/g					
Europium-152	U	-0.0185	+/-0.0584	0.103	0.200	pCi/g					
Europium-154	U	-0.0703	+/-0.0907	0.153	0.500	pCi/g					
Europium-155	U	0.0297	+/-0.049	0.098	0.500	pCi/g					
Iridium-192	U	0.00186	+/-0.0196	0.0358	0.100	pCi/g					
Iron-59	U	0.0371	+/-0.0597	0.119	0.300	pCi/g					
Lead-210		0.966	+/-0.445	0.437	4.00	pCi/g					
Lead-212		0.818	+/-0.0698	0.0557	0.100	pCi/g					
Lead-214		0.747	+/-0.102	0.0768	0.100	pCi/g					
Manganese-54	U	-0.0177	+/-0.0307	0.0442	0.100	pCi/g					
Mercury-203	UI	0.00	+/-0.0287	0.0324	0.100	pCi/g					
Neodymium-147	U	-0.0556	+/-0.290	0.536	1000	pCi/g					
Neptunium-239	U	-0.0439	+/-0.0882	0.167	2.00	pCi/g					
Niobium-94	U	0.0215	+/-0.0237	0.0469	1.00	pCi/g					
Niobium-95	U	0.00825	+/-0.032	0.0596	0.050	pCi/g					
Potassium-40		13.2	+/-1.18	0.428	1.00	pCi/g					
Promethium-144	U	-0.0182	+/-0.0241	0.041	0.080	pCi/g					
Promethium-146	U	0.0194	+/-0.0264	0.053	1.00	pCi/g					
Radium-228		0.733	+/-0.213	0.143	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-6
Sample ID: 171967006

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.141	+/-0.207	0.361	0.800	pCi/g					
Silver-110m	U	-0.00758	+/-0.025	0.039	0.080	pCi/g					
Sodium-22	U	-0.0248	+/-0.0325	0.0547	0.080	pCi/g					
Thallium-208		0.241	+/-0.0523	0.0441	0.080	pCi/g					
Thorium-230		0.607	+/-0.114	0.0748	1.00	pCi/g					
Thorium-234		0.965	+/-0.577	0.522	5.00	pCi/g					
Tin-113	U	-0.00753	+/-0.0274	0.0479	0.100	pCi/g					
Uranium-235	U	0.0582	+/-0.112	0.218	0.500	pCi/g					
Uranium-238		0.965	+/-0.577	0.522	1.00	pCi/g					
Yttrium-88	U	-0.0054	+/-0.0253	0.0485	0.100	pCi/g					
Zinc-65	U	-0.00561	+/-0.0746	0.119	0.300	pCi/g					
[illegible]nium-95	U	0.0529	+/-0.0459	0.0939	0.200	pCi/g					
R[illegible]quid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.56	+/-3.16	5.86	6.00	pCi/g		DFA1 09/22/06	1059	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.0364	+/-0.541	1.00	2.00	pCi/g		AXD2 09/21/06	0404	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	2.72	+/-6.81	9.48	20.0	pCi/g		MXP1 09/24/06	0315	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.31	+/-1.27	2.18	4.00	pCi/g		MXP1 09/23/06	0417	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			75	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-6
Sample ID: 171967006

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							61	(25%-125%)		

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B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
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This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

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Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-7
Sample ID: 171967007
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.803	+/-0.252	0.272	0.800	pCi/g		MJH1 09/26/06	1514	570312	1
Americium-241	U	0.0229	+/-0.0423	0.0841	0.200	pCi/g					
Antimony-124	U	0.0151	+/-0.0636	0.132	0.100	pCi/g					
Antimony-125	U	-0.00684	+/-0.0756	0.142	0.200	pCi/g					
Barium-133	U	-0.0227	+/-0.0374	0.0596	0.100	pCi/g					
Barium-140	U	0.0075	+/-0.171	0.324	0.500	pCi/g					
Beryllium-7	U	0.054	+/-0.236	0.456	0.700	pCi/g					
Bismuth-212		0.629	+/-0.459	0.474	0.500	pCi/g					
Bismuth-214		0.571	+/-0.120	0.113	0.200	pCi/g					
Cerium-139	U	-0.0109	+/-0.0211	0.0379	0.050	pCi/g					
Cerium-141	U	0.0139	+/-0.039	0.075	0.100	pCi/g					
Cerium-144	U	-0.0155	+/-0.135	0.252	0.500	pCi/g					
Cesium-134	U	0.0289	+/-0.0381	0.0748	0.100	pCi/g					
Cesium-136	U	0.0133	+/-0.0773	0.150	0.300	pCi/g					
Cesium-137	U	0.0616	+/-0.0464	0.064	0.100	pCi/g					
Chromium-51	U	0.142	+/-0.280	0.470	0.600	pCi/g					
Cobalt-56	U	-0.0142	+/-0.0355	0.0619	0.100	pCi/g					
Cobalt-57	U	0.0161	+/-0.017	0.0335	0.050	pCi/g					
Cobalt-58	U	-0.0155	+/-0.0327	0.0568	0.100	pCi/g					
Cobalt-60	U	0.0197	+/-0.0391	0.0778	0.100	pCi/g					
Europium-152	U	-0.00872	+/-0.0736	0.140	0.200	pCi/g					
Europium-154	U	-0.00248	+/-0.0904	0.173	0.500	pCi/g					
Europium-155	U	0.0734	+/-0.0698	0.122	0.500	pCi/g					
Iridium-192	U	-0.00457	+/-0.0268	0.0451	0.100	pCi/g					
Iron-59	U	-0.0252	+/-0.0807	0.148	0.300	pCi/g					
Lead-210		0.940	+/-0.594	0.640	4.00	pCi/g					
Lead-212		0.850	+/-0.081	0.0772	0.100	pCi/g					
Lead-214		0.605	+/-0.110	0.0936	0.100	pCi/g					
Manganese-54	U	0.0222	+/-0.0344	0.0667	0.100	pCi/g					
Mercury-203	U	0.0486	+/-0.0347	0.0517	0.100	pCi/g					
Neodymium-147	U	0.00162	+/-0.369	0.694	1000	pCi/g					
Neptunium-239	U	-0.011	+/-0.123	0.231	2.00	pCi/g					
Niobium-94	U	0.000252	+/-0.0328	0.060	1.00	pCi/g					
Niobium-95	U	0.0341	+/-0.0436	0.0774	0.050	pCi/g					
Potassium-40		14.0	+/-1.33	0.509	1.00	pCi/g					
Promethium-144	U	0.0263	+/-0.032	0.063	0.080	pCi/g					
Promethium-146	U	0.00775	+/-0.0355	0.0684	1.00	pCi/g					
Radium-228		0.803	+/-0.252	0.272	0.500	pCi/g					

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-7
Sample ID: 171967007

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.112	+/-0.292	0.524	0.800	pCi/g					
Silver-110m	U	-0.0311	+/-0.0354	0.0601	0.080	pCi/g					
Sodium-22	U	-0.000993	+/-0.0323	0.0618	0.080	pCi/g					
Thallium-208		0.349	+/-0.0652	0.0578	0.080	pCi/g					
Thorium-230		0.571	+/-0.120	0.113	1.00	pCi/g					
Thorium-234	U	0.333	+/-0.575	0.797	5.00	pCi/g					
Tin-113	U	0.00574	+/-0.0391	0.0667	0.100	pCi/g					
Uranium-235	U	0.0611	+/-0.171	0.295	0.500	pCi/g					
Uranium-238	U	0.333	+/-0.575	0.797	1.00	pCi/g					
Yttrium-88	U	-0.0176	+/-0.0188	0.0284	0.100	pCi/g					
Zinc-65	U	-0.083	+/-0.0826	0.139	0.300	pCi/g					
Zirconium-95	U	-0.00643	+/-0.0605	0.110	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.77	+/-2.87	5.37	6.00	pCi/g		DFA1 09/22/06	1115	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.681	+/-0.549	0.882	2.00	pCi/g		AXD2 09/21/06	0421	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	2.99	+/-9.68	14.3	20.0	pCi/g		MXP1 09/24/06	0448	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-1.32	+/-1.28	2.25	4.00	pCi/g		MXP1 09/23/06	0714	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			38	(15%-125%)

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Certificate of Analysis

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Address : c/o Cornell University Ward Center Lab
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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-7
Sample ID: 171967007

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							62	(25%-125%)		

Notes:
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> Result is greater than value reported
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B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

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This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

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Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-8
Sample ID: 171967008
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.06	+/-0.338	0.159	0.800	pCi/g		MJH1 09/26/06	1528	570312	1
Americium-241	U	0.0124	+/-0.0607	0.0537	0.200	pCi/g					
Antimony-124	U	-0.0179	+/-0.105	0.0998	0.100	pCi/g					
Antimony-125	U	-0.0567	+/-0.0982	0.0913	0.200	pCi/g					
Barium-133	U	-0.0204	+/-0.0546	0.044	0.100	pCi/g					
Barium-140	U	-0.0254	+/-0.220	0.210	0.500	pCi/g					
Beryllium-7	U	0.127	+/-0.355	0.357	0.700	pCi/g					
Bismuth-212	U	0.278	+/-0.379	0.401	0.500	pCi/g					
Bismuth-214		0.643	+/-0.177	0.0819	0.200	pCi/g					
Cerium-139	U	0.00698	+/-0.0286	0.0276	0.050	pCi/g					
Cerium-141	U	-0.0107	+/-0.0519	0.0498	0.100	pCi/g					
Cerium-144	U	0.0817	+/-0.198	0.173	0.500	pCi/g					
Cesium-134	UI	0.00	+/-0.0632	0.0582	0.100	pCi/g					
Cesium-136	U	-0.0222	+/-0.121	0.0978	0.300	pCi/g					
Cesium-137		0.187	+/-0.0913	0.0463	0.100	pCi/g					
Chromium-51	U	-0.18	+/-0.313	0.298	0.600	pCi/g					
Cobalt-56	U	-0.0422	+/-0.0548	0.0401	0.100	pCi/g					
Cobalt-57	U	0.0073	+/-0.0251	0.0214	0.050	pCi/g					
Cobalt-58	U	0.006	+/-0.0416	0.042	0.100	pCi/g					
Cobalt-60	U	0.0168	+/-0.0512	0.0517	0.100	pCi/g					
Europium-152	U	-0.0432	+/-0.121	0.094	0.200	pCi/g					
Europium-154	U	0.0604	+/-0.156	0.159	0.500	pCi/g					
Europium-155	U	0.0682	+/-0.0849	0.086	0.500	pCi/g					
Iridium-192	U	0.0164	+/-0.0307	0.0317	0.100	pCi/g					
Iron-59	U	-0.0481	+/-0.110	0.101	0.300	pCi/g					
Lead-210		0.703	+/-0.607	0.455	4.00	pCi/g					
Lead-212		1.02	+/-0.134	0.0514	0.100	pCi/g					
Lead-214		0.674	+/-0.154	0.0738	0.100	pCi/g					
Manganese-54	U	-0.0194	+/-0.0436	0.0409	0.100	pCi/g					
Mercury-203	U	0.030	+/-0.052	0.0368	0.100	pCi/g					
Neodymium-147	U	0.175	+/-0.454	0.435	1000	pCi/g					
Neptunium-239	U	-0.0479	+/-0.162	0.156	2.00	pCi/g					
Niobium-94	U	0.0194	+/-0.0389	0.0406	1.00	pCi/g					
Niobium-95	U	0.0251	+/-0.0558	0.0578	0.050	pCi/g					
Potassium-40		15.7	+/-1.64	0.419	1.00	pCi/g					
Promethium-144	U	-0.000739	+/-0.0389	0.0388	0.080	pCi/g					
Promethium-146	U	-0.0162	+/-0.049	0.0456	1.00	pCi/g					
Radium-228		1.06	+/-0.338	0.159	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-8
Sample ID: 171967008

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.014	+/-0.380	0.366	0.800	pCi/g					
Silver-110m	U	0.0003	+/-0.0514	0.0424	0.080	pCi/g					
Sodium-22	U	0.0214	+/-0.0558	0.0566	0.080	pCi/g					
Thallium-208		0.313	+/-0.0932	0.0388	0.080	pCi/g					
Thorium-230		0.643	+/-0.177	0.0819	1.00	pCi/g					
Thorium-234		0.925	+/-0.739	0.512	5.00	pCi/g					
Tin-113	U	0.00552	+/-0.0482	0.0479	0.100	pCi/g					
Uranium-235	U	0.0398	+/-0.186	0.183	0.500	pCi/g					
Uranium-238		0.925	+/-0.739	0.512	1.00	pCi/g					
Yttrium-88	U	0.013	+/-0.0536	0.0549	0.100	pCi/g					
Zinc-65	U	-0.0505	+/-0.121	0.0926	0.300	pCi/g					
Zirconium-95	U	0.0635	+/-0.0834	0.089	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-0.799	+/-3.07	5.60	6.00	pCi/g		DFA1 09/22/06	1132	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.518	+/-0.589	0.990	2.00	pCi/g		AXD2 09/21/06	0439	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	3.71	+/-6.80	9.45	20.0	pCi/g		MXP1 09/24/06	0851	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.484	+/-1.33	2.30	4.00	pCi/g		MXP1 09/23/06	0847	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			76	(15%-125%)

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Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-8
Sample ID: 171967008

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							65	(25%-125%)		

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
I Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-9
Sample ID: 171967009
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.07	+/-0.261	0.207	0.800	pCi/g		MJH1 09/26/06	1640	570312	1
Americium-241	U	0.192	+/-0.149	0.222	0.200	pCi/g					
Antimony-124	U	-0.0111	+/-0.0455	0.087	0.100	pCi/g					
Antimony-125	U	0.0328	+/-0.0823	0.151	0.200	pCi/g					
Barium-133	U	-0.00247	+/-0.0363	0.0575	0.100	pCi/g					
Barium-140	U	-0.0552	+/-0.184	0.335	0.500	pCi/g					
Beryllium-7	U	-0.0857	+/-0.268	0.464	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.307	0.417	0.500	pCi/g					
Bismuth-214		0.700	+/-0.127	0.0991	0.200	pCi/g					
Cerium-139	U	-0.02	+/-0.0238	0.0396	0.050	pCi/g					
Cerium-141	U	0.0178	+/-0.0462	0.083	0.100	pCi/g					
Cerium-144	U	0.0283	+/-0.162	0.289	0.500	pCi/g					
Cesium-134	U	0.0493	+/-0.0406	0.0737	0.100	pCi/g					
Cesium-136	U	-0.0985	+/-0.0809	0.134	0.300	pCi/g					
Cesium-137		0.0676	+/-0.0451	0.0592	0.100	pCi/g					
Chromium-51	U	0.0949	+/-0.282	0.523	0.600	pCi/g					
Cobalt-56	U	0.00852	+/-0.0333	0.0621	0.100	pCi/g					
Cobalt-57	U	-0.00442	+/-0.0204	0.0359	0.050	pCi/g					
Cobalt-58	U	-0.00613	+/-0.0329	0.0591	0.100	pCi/g					
Cobalt-60	U	0.0162	+/-0.0366	0.0714	0.100	pCi/g					
Europium-152	U	-0.014	+/-0.0856	0.134	0.200	pCi/g					
Europium-154	U	-0.0714	+/-0.111	0.190	0.500	pCi/g					
Europium-155	U	0.0349	+/-0.0878	0.160	0.500	pCi/g					
Iridium-192	U	0.0143	+/-0.0269	0.0505	0.100	pCi/g					
Iron-59	U	-0.00864	+/-0.0805	0.148	0.300	pCi/g					
Lead-210	U	1.66	+/-3.18	5.55	4.00	pCi/g					
Lead-212		1.05	+/-0.095	0.0811	0.100	pCi/g					
Lead-214		0.831	+/-0.128	0.0954	0.100	pCi/g					
Manganese-54	U	-0.000228	+/-0.0317	0.0576	0.100	pCi/g					
Mercury-203	U	-0.0249	+/-0.032	0.0557	0.100	pCi/g					
Neodymium-147	U	-0.183	+/-0.368	0.662	1000	pCi/g					
Neptunium-239	U	-0.0632	+/-0.152	0.265	2.00	pCi/g					
Niobium-94	U	-0.0235	+/-0.0273	0.0464	1.00	pCi/g					
Niobium-95	U	0.0527	+/-0.0559	0.0798	0.050	pCi/g					
Potassium-40		20.4	+/-1.47	0.529	1.00	pCi/g					
Promethium-144	U	0.0217	+/-0.0293	0.0569	0.080	pCi/g					
Promethium-146	U	0.0011	+/-0.0361	0.0647	1.00	pCi/g					
Radium-228		1.07	+/-0.261	0.207	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-9
Sample ID: 171967009

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.114	+/-0.263	0.504	0.800	pCi/g					
Silver-110m	U	0.0303	+/-0.0304	0.055	0.080	pCi/g					
Sodium-22	U	-0.0256	+/-0.0395	0.068	0.080	pCi/g					
Thallium-208		0.370	+/-0.0653	0.0528	0.080	pCi/g					
Thorium-230		0.700	+/-0.127	0.0991	1.00	pCi/g					
Thorium-234	UI	0.00	+/-2.10	1.81	5.00	pCi/g					
Tin-113	U	-0.0107	+/-0.0377	0.0663	0.100	pCi/g					
Uranium-235	U	0.0205	+/-0.170	0.301	0.500	pCi/g					
Uranium-238	UI	0.00	+/-2.10	1.81	1.00	pCi/g					
Yttrium-88	U	-0.00851	+/-0.0242	0.0461	0.100	pCi/g					
Zinc-65	U	0.0123	+/-0.091	0.148	0.300	pCi/g					
[illegible]nium-95	U	0.0172	+/-0.0642	0.106	0.200	pCi/g					
R[illegible]iquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.63	+/-3.04	5.66	6.00	pCi/g		DFA1 09/22/06	1148	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.519	+/-0.670	1.14	2.00	pCi/g		AXD2 09/21/06	0457	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	1.91	+/-6.16	8.62	20.0	pCi/g		MXP1 09/24/06	0637	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-1.9	+/-1.53	2.70	4.00	pCi/g		MXP1 09/23/06	1020	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			72	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-9
Sample ID: 171967009

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							54	(25%-125%)		

Notes:
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> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

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Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-10
Sample ID: 171967010
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.919	+/-0.232	0.211	0.800	pCi/g		MJH1 09/26/06	1640	570312	1
Americium-241	U	-0.116	+/-0.116	0.198	0.200	pCi/g					
Antimony-124	U	-0.0239	+/-0.0491	0.0879	0.100	pCi/g					
Antimony-125	U	0.0597	+/-0.0778	0.148	0.200	pCi/g					
Barium-133	U	0.0162	+/-0.0397	0.0653	0.100	pCi/g					
Barium-140	U	-0.057	+/-0.189	0.331	0.500	pCi/g					
Beryllium-7	U	-0.0781	+/-0.239	0.425	0.700	pCi/g					
Bismuth-212		1.06	+/-0.407	0.387	0.500	pCi/g					
Bismuth-214		0.665	+/-0.133	0.106	0.200	pCi/g					
Cerium-139	U	0.00955	+/-0.0244	0.0434	0.050	pCi/g					
Cerium-141	U	0.0161	+/-0.0501	0.0888	0.100	pCi/g					
Cerium-144	U	-0.0481	+/-0.193	0.290	0.500	pCi/g					
Cesium-134	U	0.0544	+/-0.0577	0.076	0.100	pCi/g					
Cesium-136	U	0.0186	+/-0.0741	0.142	0.300	pCi/g					
Cesium-137		0.0967	+/-0.0862	0.0558	0.100	pCi/g					
Chromium-51	U	-0.193	+/-0.300	0.525	0.600	pCi/g					
Cobalt-56	U	-0.0028	+/-0.0337	0.0599	0.100	pCi/g					
Cobalt-57	U	-0.00797	+/-0.0215	0.0372	0.050	pCi/g					
Cobalt-58	U	-0.00958	+/-0.0368	0.0549	0.100	pCi/g					
Cobalt-60	U	-0.0115	+/-0.0344	0.0617	0.100	pCi/g					
Europium-152	U	0.0121	+/-0.0846	0.155	0.200	pCi/g					
Europium-154	U	0.0331	+/-0.0976	0.189	0.500	pCi/g					
Europium-155	U	0.0648	+/-0.0886	0.161	0.500	pCi/g					
Iridium-192	U	0.0203	+/-0.0281	0.0533	0.100	pCi/g					
Iron-59	U	-0.108	+/-0.0912	0.120	0.300	pCi/g					
Lead-210	U	0.727	+/-2.83	3.75	4.00	pCi/g					
Lead-212		1.15	+/-0.125	0.0821	0.100	pCi/g					
Lead-214		0.865	+/-0.154	0.107	0.100	pCi/g					
Manganese-54	UI	0.00	+/-0.0811	0.0553	0.100	pCi/g					
Mercury-203	U	0.0344	+/-0.0317	0.0609	0.100	pCi/g					
Neodymium-147	U	0.0508	+/-0.343	0.632	1000	pCi/g					
Neptunium-239	U	0.0573	+/-0.159	0.284	2.00	pCi/g					
Niobium-94	U	0.00186	+/-0.0291	0.0524	1.00	pCi/g					
Niobium-95	U	0.0328	+/-0.0409	0.0696	0.050	pCi/g					
Potassium-40		20.1	+/-1.80	0.428	1.00	pCi/g					
Promethium-144	U	-0.00899	+/-0.0323	0.0564	0.080	pCi/g					
Promethium-146		0.0837	+/-0.0623	0.0714	1.00	pCi/g					
Radium-228		0.919	+/-0.232	0.211	0.500	pCi/g					

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-10 Project: ENRG00105
Sample ID: 171967010 Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.156	+/-0.266	0.503	0.800	pCi/g					
Silver-110m	U	0.0147	+/-0.0355	0.0577	0.080	pCi/g					
Sodium-22	U	0.0121	+/-0.0349	0.0676	0.080	pCi/g					
Thallium-208		0.342	+/-0.0669	0.0555	0.080	pCi/g					
Thorium-230		0.665	+/-0.133	0.106	1.00	pCi/g					
Thorium-234	U	0.762	+/-1.16	1.66	5.00	pCi/g					
Tin-113	U	0.0285	+/-0.0228	0.0711	0.100	pCi/g					
Uranium-235	U	0.209	+/-0.185	0.334	0.500	pCi/g					
Uranium-238	U	0.762	+/-1.16	1.66	1.00	pCi/g					
Yttrium-88	U	-0.00177	+/-0.0294	0.0563	0.100	pCi/g					
Zinc-65	U	-0.00607	+/-0.0838	0.133	0.300	pCi/g					
[illegible]nium-95	U	0.00804	+/-0.0592	0.108	0.200	pCi/g					
R[illegible]quid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-1.52	+/-3.07	5.69	6.00	pCi/g		DFA1	09/22/06	1204	570255 2
Liquid Scint C14, Solid											
Carbon-14	U	0.615	+/-0.623	1.03	2.00	pCi/g		AXD2	09/21/06	0515	570260 3
Liquid Scint Fe55, Solid											
Iron-55	U	2.17	+/-6.81	9.52	20.0	pCi/g		MXP1	09/24/06	1101	570230 4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.921	+/-1.26	2.19	4.00	pCi/g		MXP1	09/23/06	1153	570253 5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			73	(15%-125%)

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-10
Sample ID: 171967010

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							64	(25%-125%)		

Notes:
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< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-11
Sample ID: 171967011
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.08	+/-0.236	0.246	0.800	pCi/g		MJH1 09/26/06	1640	570312	1
Americium-241	U	0.000823	+/-0.0473	0.0853	0.200	pCi/g					
Antimony-124	U	-0.0265	+/-0.0697	0.129	0.100	pCi/g					
Antimony-125	U	0.0705	+/-0.0847	0.167	0.200	pCi/g					
Barium-133	U	-0.0243	+/-0.0414	0.0614	0.100	pCi/g					
Barium-140	U	-0.165	+/-0.191	0.330	0.500	pCi/g					
Beryllium-7	U	0.248	+/-0.303	0.592	0.700	pCi/g					
Bismuth-212		0.711	+/-0.525	0.522	0.500	pCi/g					
Bismuth-214		0.626	+/-0.151	0.122	0.200	pCi/g					
Cerium-139	U	0.000227	+/-0.0219	0.0408	0.050	pCi/g					
Cerium-141	U	-0.0077	+/-0.0423	0.079	0.100	pCi/g					
Cerium-144	U	0.0414	+/-0.148	0.284	0.500	pCi/g					
Cesium-134	U	0.0507	+/-0.0538	0.091	0.100	pCi/g					
Cesium-136	U	0.0291	+/-0.0808	0.156	0.300	pCi/g					
Cesium-137		0.144	+/-0.0731	0.068	0.100	pCi/g					
Chromium-51	U	-0.14	+/-0.292	0.504	0.600	pCi/g					
Cobalt-56	U	-0.00109	+/-0.0365	0.0653	0.100	pCi/g					
Cobalt-57	U	-0.0067	+/-0.0182	0.034	0.050	pCi/g					
Cobalt-58	U	0.0217	+/-0.0309	0.0698	0.100	pCi/g					
Cobalt-60	U	-0.00886	+/-0.0398	0.0712	0.100	pCi/g					
Europium-152	U	-0.081	+/-0.0857	0.142	0.200	pCi/g					
Europium-154	U	-0.023	+/-0.126	0.225	0.500	pCi/g					
Europium-155	UI	0.00	+/-0.136	0.128	0.500	pCi/g					
Iridium-192	U	-0.00152	+/-0.0304	0.054	0.100	pCi/g					
Iron-59	U	0.0111	+/-0.0818	0.154	0.300	pCi/g					
Lead-210		1.34	+/-0.780	0.782	4.00	pCi/g					
Lead-212		0.841	+/-0.125	0.109	0.100	pCi/g					
Lead-214		0.676	+/-0.123	0.102	0.100	pCi/g					
Manganese-54	U	0.033	+/-0.0392	0.0746	0.100	pCi/g					
Mercury-203	U	-0.00366	+/-0.0334	0.0597	0.100	pCi/g					
Neodymium-147	U	-0.359	+/-0.426	0.739	1000	pCi/g					
Neptunium-239	U	-0.0821	+/-0.135	0.251	2.00	pCi/g					
Niobium-94	U	0.0342	+/-0.0417	0.069	1.00	pCi/g					
Niobium-95	U	-0.0191	+/-0.0489	0.0845	0.050	pCi/g					
Potassium-40		15.8	+/-1.31	0.573	1.00	pCi/g					
Promethium-144	U	-0.0111	+/-0.0345	0.0607	0.080	pCi/g					
Promethium-146	U	-0.00813	+/-0.0431	0.0794	1.00	pCi/g					
Radium-228		1.08	+/-0.236	0.246	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-11
Sample ID: 171967011

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.172	+/-0.314	0.549	0.800	pCi/g					
Silver-110m	U	0.0265	+/-0.0369	0.0639	0.080	pCi/g					
Sodium-22	U	-0.00823	+/-0.045	0.0805	0.080	pCi/g					
Thallium-208		0.281	+/-0.0684	0.0724	0.080	pCi/g					
Thorium-230		0.626	+/-0.151	0.122	1.00	pCi/g					
Thorium-234	U	0.653	+/-0.907	0.829	5.00	pCi/g					
Tin-113	U	-0.0125	+/-0.0414	0.0711	0.100	pCi/g					
Uranium-235	U	0.175	+/-0.156	0.308	0.500	pCi/g					
Uranium-238	U	0.653	+/-0.907	0.829	1.00	pCi/g					
Yttrium-88	U	0.0284	+/-0.0381	0.0811	0.100	pCi/g					
Zinc-65	U	-0.0766	+/-0.0903	0.153	0.300	pCi/g					
Zirconium-95	U	0.0195	+/-0.065	0.121	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-2.96	+/-3.26	6.23	6.00	pCi/g		DFA1 09/22/06	1221	570255	2
Liquid Scint C14, Solid											
Carbon-14	U	0.143	+/-0.450	0.810	2.00	pCi/g		AXD2 09/21/06	0532	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	-3.03	+/-6.31	8.99	20.0	pCi/g		MXP1 09/24/06	1234	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	0.431	+/-1.11	1.89	4.00	pCi/g		MXP1 09/23/06	1326	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			68	(15%-125%)

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-11
Sample ID: 171967011

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							71	(25%-125%)		

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B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
H Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-12
Sample ID: 171967012
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.725	+/-0.187	0.154	0.800	pCi/g		MJH1 09/26/06	1641	570312	1
Americium-241	U	0.0756	+/-0.0691	0.133	0.200	pCi/g					
Antimony-124	U	0.0254	+/-0.0458	0.0998	0.100	pCi/g					
Antimony-125	U	-0.031	+/-0.0557	0.0951	0.200	pCi/g					
Barium-133	U	-0.00461	+/-0.025	0.040	0.100	pCi/g					
Barium-140	U	0.0206	+/-0.117	0.227	0.500	pCi/g					
Beryllium-7	U	-0.0333	+/-0.174	0.307	0.700	pCi/g					
Bismuth-212		0.359	+/-0.288	0.307	0.500	pCi/g					
Bismuth-214		0.504	+/-0.119	0.0712	0.200	pCi/g					
Cerium-139	U	0.00215	+/-0.0168	0.029	0.050	pCi/g					
Cerium-141	U	0.00831	+/-0.0214	0.0611	0.100	pCi/g					
Cerium-144	U	0.0609	+/-0.104	0.206	0.500	pCi/g					
Cesium-134	UI	0.00	+/-0.040	0.0511	0.100	pCi/g					
Cesium-136	U	-0.0174	+/-0.0536	0.0944	0.300	pCi/g					
Cesium-137		0.101	+/-0.0351	0.0448	0.100	pCi/g					
Chromium-51	U	-0.00637	+/-0.180	0.331	0.600	pCi/g					
Cobalt-56	U	-0.0199	+/-0.0237	0.0397	0.100	pCi/g					
Cobalt-57	U	-0.000376	+/-0.0126	0.0244	0.050	pCi/g					
Cobalt-58	U	-0.0011	+/-0.022	0.041	0.100	pCi/g					
Cobalt-60	U	0.0152	+/-0.0242	0.0502	0.100	pCi/g					
Europium-152	U	-0.0423	+/-0.0547	0.0935	0.200	pCi/g					
Europium-154	U	-0.0445	+/-0.0692	0.122	0.500	pCi/g					
Europium-155	U	0.0476	+/-0.0632	0.116	0.500	pCi/g					
Iridium-192	U	-0.0119	+/-0.0181	0.0314	0.100	pCi/g					
Iron-59	U	-0.0282	+/-0.0511	0.0866	0.300	pCi/g					
Lead-210	U	0.900	+/-2.16	2.20	4.00	pCi/g					
Lead-212		0.820	+/-0.0953	0.0591	0.100	pCi/g					
Lead-214		0.518	+/-0.106	0.0689	0.100	pCi/g					
Manganese-54	U	-0.00176	+/-0.0246	0.045	0.100	pCi/g					
Mercury-203	U	0.018	+/-0.0275	0.038	0.100	pCi/g					
Neodymium-147	U	-0.0413	+/-0.250	0.474	1000	pCi/g					
Neptunium-239	U	-0.0067	+/-0.0988	0.191	2.00	pCi/g					
Niobium-94	U	0.0113	+/-0.0201	0.0395	1.00	pCi/g					
Niobium-95	U	-0.014	+/-0.0322	0.0493	0.050	pCi/g					
Potassium-40		14.7	+/-1.47	0.420	1.00	pCi/g					
Promethium-144	U	0.027	+/-0.0314	0.0465	0.080	pCi/g					
Promethium-146	U	0.0016	+/-0.0266	0.0481	1.00	pCi/g					
Radium-228		0.725	+/-0.187	0.154	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-12
Sample ID: 171967012

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.116	+/-0.170	0.301	0.800	pCi/g					
Silver-110m	U	-0.0636	+/-0.0268	0.0388	0.080	pCi/g					
Sodium-22	U	-0.0158	+/-0.0247	0.0437	0.080	pCi/g					
Thallium-208		0.226	+/-0.0503	0.038	0.080	pCi/g					
Thorium-230		0.504	+/-0.119	0.0712	1.00	pCi/g					
Thorium-234	U	0.921	+/-0.962	1.09	5.00	pCi/g					
Tin-113	U	-0.0139	+/-0.0272	0.047	0.100	pCi/g					
Uranium-235	U	0.0484	+/-0.119	0.215	0.500	pCi/g					
Uranium-238	U	0.921	+/-0.962	1.09	1.00	pCi/g					
Yttrium-88	U	0.00168	+/-0.0188	0.0389	0.100	pCi/g					
Zinc-65	U	0.0238	+/-0.0674	0.0879	0.300	pCi/g					
Zirconium-95	U	0.00187	+/-0.0408	0.0769	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	-2.15	+/-3.08	5.79	6.00	pCi/g		DFA1 09/22/06	1237	570255	2
Liquid Scint C14, Solid											
Carbon-14		1.55	+/-0.717	1.03	2.00	pCi/g		AXD2 09/21/06	0550	570260	3
Liquid Scint Fe55, Solid											
Iron-55	U	0.142	+/-6.04	8.48	20.0	pCi/g		MXP1 09/24/06	1407	570230	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.229	+/-1.00	1.73	4.00	pCi/g		MXP1 09/27/06	0208	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			73	(15%-125%)

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Certificate of Analysis

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-12
Sample ID: 171967012

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							78	(25%-125%)		

Notes:
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C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-13
Sample ID: 171967013
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.802	+/-0.152	0.121	0.800	pCi/g		MJH1 09/26/06	1641	570312	1
Americium-241	U	0.0748	+/-0.134	0.226	0.200	pCi/g					
Antimony-124	U	0.0404	+/-0.0405	0.0746	0.100	pCi/g					
Antimony-125	U	-0.0135	+/-0.0495	0.0897	0.200	pCi/g					
Barium-133	U	0.00139	+/-0.0268	0.0443	0.100	pCi/g					
Barium-140	U	-0.0695	+/-0.112	0.194	0.500	pCi/g					
Beryllium-7	U	0.0863	+/-0.173	0.327	0.700	pCi/g					
Bismuth-212		0.610	+/-0.312	0.274	0.500	pCi/g					
Bismuth-214		0.510	+/-0.108	0.0754	0.200	pCi/g					
Cerium-139	U	0.00524	+/-0.0176	0.0326	0.050	pCi/g					
Cerium-141	U	0.0291	+/-0.0529	0.0593	0.100	pCi/g					
Cerium-144	U	-0.0461	+/-0.119	0.216	0.500	pCi/g					
Cesium-134	U	0.0447	+/-0.0374	0.0496	0.100	pCi/g					
Cesium-136	U	0.0455	+/-0.0484	0.0959	0.300	pCi/g					
Cesium-137		0.0714	+/-0.0277	0.0404	0.100	pCi/g					
Chromium-51	U	-0.217	+/-0.189	0.332	0.600	pCi/g					
Cobalt-56	U	0.0291	+/-0.036	0.0424	0.100	pCi/g					
Cobalt-57	U	0.0163	+/-0.0152	0.0299	0.050	pCi/g					
Cobalt-58	U	0.0329	+/-0.0279	0.0401	0.100	pCi/g					
Cobalt-60	U	-0.016	+/-0.0216	0.0375	0.100	pCi/g					
Europium-152	U	0.0147	+/-0.0534	0.102	0.200	pCi/g					
Europium-154	U	0.0318	+/-0.0666	0.130	0.500	pCi/g					
Europium-155	U	0.0172	+/-0.0719	0.124	0.500	pCi/g					
Iridium-192	U	0.0257	+/-0.0179	0.0364	0.100	pCi/g					
Iron-59	U	0.00553	+/-0.0477	0.0873	0.300	pCi/g					
Lead-210	U	5.53	+/-3.89	7.07	4.00	pCi/g					
Lead-212		0.813	+/-0.0684	0.0604	0.100	pCi/g					
Lead-214		0.692	+/-0.0898	0.0689	0.100	pCi/g					
Manganese-54	U	-0.00793	+/-0.0212	0.0379	0.100	pCi/g					
Mercury-203	U	0.0257	+/-0.0399	0.0418	0.100	pCi/g					
Neodymium-147	U	0.115	+/-0.230	0.437	1000	pCi/g					
Neptunium-239	U	0.0297	+/-0.112	0.213	2.00	pCi/g					
Niobium-94	U	-0.00788	+/-0.0196	0.0355	1.00	pCi/g					
Niobium-95	U	-0.00396	+/-0.0249	0.0456	0.050	pCi/g					
Potassium-40		15.5	+/-1.06	0.357	1.00	pCi/g					
Promethium-144	U	0.00568	+/-0.0198	0.0377	0.080	pCi/g					
Promethium-146	U	0.00361	+/-0.0242	0.0449	1.00	pCi/g					
Radium-228		0.802	+/-0.152	0.121	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-13
Sample ID: 171967013

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Ruthenium-106	U	0.0799	+/-0.189	0.348	0.800	pCi/g						
Silver-110m	U	-0.0183	+/-0.0226	0.0316	0.080	pCi/g						
Sodium-22	U	0.0111	+/-0.0238	0.0464	0.080	pCi/g						
Thallium-208		0.235	+/-0.0499	0.0381	0.080	pCi/g						
Thorium-230		0.510	+/-0.108	0.0754	1.00	pCi/g						
Thorium-234	U	1.62	+/-1.45	1.71	5.00	pCi/g						
Tin-113	U	-0.00397	+/-0.0253	0.0463	0.100	pCi/g						
Uranium-235	U	0.129	+/-0.232	0.250	0.500	pCi/g						
Uranium-238	U	1.62	+/-1.45	1.71	1.00	pCi/g						
Yttrium-88	U	-0.0178	+/-0.0187	0.0293	0.100	pCi/g						
Zinc-65	U	0.0415	+/-0.0491	0.0801	0.300	pCi/g						
Zirconium-95	U	0.0133	+/-0.0346	0.067	0.200	pCi/g						
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid												
Tritium	U	-1.37	+/-2.35	4.21	6.00	pCi/g		DFA1	09/23/06	1902	570255	2
Liquid Scint C14, Solid												
Carbon-14	U	0.387	+/-0.578	0.996	2.00	pCi/g		AXD2	09/21/06	1020	570260	3
Liquid Scint Fe55, Solid												
Iron-55	U	0.319	+/-6.76	9.52	20.0	pCi/g		MXP1	09/24/06	1540	570230	4
Liquid Scint Ni63, Solid												
Nickel-63	U	-0.81	+/-1.85	3.27	4.00	pCi/g		MXP1	09/28/06	0614	570253	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	MXP2	09/19/06	0739	569937
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	569936

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			70	(15%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 3, 2006

Client Sample ID: FSO-13
Sample ID: 171967013

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							76	(25%-125%)		

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria
< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
BD Results are either below the MDC or tracer recovery is low
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Analytical holding time was exceeded
J Value is estimated
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
UI Gamma Spectroscopy--Uncertain identification
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: October 3, 2006

Energy Solutions
c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York

Contact: Mr. Mike Taylor

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 570312										
QC1201187391 171967001 DUP										
Actinium-228	UI	0.00 +/-0.383		0.664 +/-0.230	pCi/g	15		(0%-20%)	MJH1	09/26/06 16:56
Americium-241	U	-0.00949 +/-0.0548	U	0.029 +/-0.0971	pCi/g	395*		(0%-20%)		
Antimony-124	U	-0.0428 +/-0.0884	U	-0.0254 +/-0.0438	pCi/g	51*		(0%-20%)		
Antimony-125	UI	0.00 +/-0.0874	U	-0.0274 +/-0.0681	pCi/g	335*		(0%-20%)		
Barium-133	U	0.0127 +/-0.0414	U	-0.00741 +/-0.0405	pCi/g	756*		(0%-20%)		
Barium-140	U	0.0908 +/-0.219	U	-0.0143 +/-0.149	pCi/g	275*		(0%-20%)		
Beryllium-7	UI	0.00 +/-0.672	U	-0.0458 +/-0.222	pCi/g	228*		(0%-20%)		
[illegible]uth-212	UI	0.00 +/-0.589		0.512 +/-0.323	pCi/g	15		(0%-20%)		
Bismuth-214		0.648 +/-0.156		0.691 +/-0.120	pCi/g	6		(0%-20%)		
Cerium-139	U	0.00554 +/-0.0244	U	-0.00395 +/-0.0225	pCi/g	1190*		(0%-20%)		
Cerium-141		0.0539 +/-0.0456	U	0.0412 +/-0.0447	pCi/g	27*		(0%-20%)		
Cerium-144	U	0.0787 +/-0.162	U	-0.00324 +/-0.162	pCi/g	217*		(0%-20%)		
Cesium-134	U	0.0064 +/-0.0464	UI	0.00 +/-0.0316	pCi/g	148*		(0%-20%)		
Cesium-136	U	-0.0883 +/-0.106	U	0.0336 +/-0.0686	pCi/g	446*		(0%-20%)		
Cesium-137	U	0.00901 +/-0.0381	UI	0.00 +/-0.029	pCi/g	109*		(0%-20%)		
Chromium-51	U	0.281 +/-0.319	U	0.229 +/-0.257	pCi/g	20		(0%-20%)		
Cobalt-56	U	-0.00273 +/-0.0426	U	-0.0203 +/-0.0305	pCi/g	153*		(0%-20%)		
Cobalt-57	UI	0.00 +/-0.0282	U	0.0101 +/-0.019	pCi/g	100*		(0%-20%)		
Cobalt-58	U	-0.00171 +/-0.0397	U	0.0035 +/-0.0288	pCi/g	581*		(0%-20%)		
Cobalt-60		0.133 +/-0.0685	UI	0.00 +/-0.0566	pCi/g	98*		(0%-20%)		
Europium-152	U	-0.0113 +/-0.120	U	-0.0218 +/-0.0884	pCi/g	64*		(0%-20%)		

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QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 570312										
Europium-154	U	-0.0622 +/-0.179	U	0.0321 +/-0.0932	pCi/g	627*		(0%-20%)		
Europium-155	U	-0.02 +/-0.078	U	0.0215 +/-0.0767	pCi/g	5350*		(0%-20%)	MJH1	09/26/06 16:56
Iridium-192	U	0.0169 +/-0.0317	U	0.0016 +/-0.0254	pCi/g	166*		(0%-20%)		
Iron-59	U	0.00101 +/-0.101	U	-0.029 +/-0.0653	pCi/g	214*		(0%-20%)		
Lead-210		1.21 +/-0.580	U	0.758 +/-2.21	pCi/g	46*		(0%-20%)		
Lead-212		0.688 +/-0.116		0.728 +/-0.0942	pCi/g	6		(0%-20%)		
Lead-214		0.822 +/-0.154		0.672 +/-0.130	pCi/g	20		(0%-20%)		
Manganese-54	U	0.00569 +/-0.0394	U	0.0167 +/-0.028	pCi/g	98*		(0%-20%)		
Mercury-203	UI	0.00 +/-0.0692	U	-0.00696 +/-0.0286	pCi/g	259*		(0%-20%)		
Neodymium-147	U	0.093 +/-0.443	U	0.144 +/-0.313	pCi/g	43*		(0%-20%)		
[illegible]unium-239	U	-0.0905 +/-0.162	U	-0.0362 +/-0.140	pCi/g	86*		(0%-20%)		
Niobium-94	U	0.0305 +/-0.0387	U	0.0135 +/-0.0267	pCi/g	78*		(0%-20%)		
Niobium-95	UI	0.00 +/-0.047	U	0.0324 +/-0.0373	pCi/g	55*		(0%-20%)		
Potassium-40		14.3 +/-1.63		14.7 +/-1.46	pCi/g	3		(0%-20%)		
Promethium-144	U	0.0265 +/-0.0396	U	0.00652 +/-0.0242	pCi/g	121*		(0%-20%)		
Promethium-146	U	-0.0116 +/-0.0406	U	0.00138 +/-0.0314	pCi/g	254*		(0%-20%)		
Radium-228	UI	0.00 +/-0.383		0.664 +/-0.230	pCi/g	15		(0%-20%)		
Ruthenium-106	U	-0.0575 +/-0.287	U	-0.191 +/-0.244	pCi/g	107*		(0%-20%)		
Silver-110m	U	-0.035 +/-0.0349	U	-0.0479 +/-0.0292	pCi/g	31*		(0%-20%)		
Sodium-22	U	-0.0221 +/-0.0639	U	0.0116 +/-0.0333	pCi/g	639*		(0%-20%)		
Thallium-208		0.263 +/-0.0859		0.230 +/-0.0607	pCi/g	13		(0%-20%)		
Thorium-230		0.648 +/-0.156		0.691 +/-0.120	pCi/g	6		(0%-20%)		
Thorium-234		0.721 +/-0.576		1.30 +/-1.02	pCi/g	57*		(0%-20%)		
Tin-113	U	0.00973 +/-0.0396	U	-0.00629 +/-0.0332	pCi/g	931*		(0%-20%)		

QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 570312										
Uranium-235	U	0.0698 +/-0.169	U	0.116 +/-0.160	pCi/g	50*		(0%-20%)		
Uranium-238		0.721 +/-0.576		1.30 +/-1.02	pCi/g	57*		(0%-20%)	MJH1	09/26/06 16:56
Yttrium-88	U	-0.00887 +/-0.0459	U	0.00911 +/-0.0242	pCi/g	15200*		(0%-20%)		
Zinc-65	U	-0.184 +/-0.119	U	-0.101 +/-0.0782	pCi/g	58*		(0%-20%)		
Zirconium-95	U	0.000472 +/-0.0758	U	0.0178 +/-0.048	pCi/g	190*		(0%-20%)		
QC1201187392 LCS										
Actinium-228			U	-0.198 +/-0.581	pCi/g					09/26/06 16:57
Americium-241	23.4			24.1 +/-2.52	pCi/g		103	(75%-125%)		
Antimony-124			U	-0.219 +/-0.244	pCi/g					
Antimony-125			U	-0.144 +/-0.303	pCi/g					
[illegible]m-133			U	-0.000866 +/-0.134	pCi/g					
Barium-140			U	-0.366 +/-0.619	pCi/g					
Beryllium-7			U	0.397 +/-1.07	pCi/g					
Bismuth-212				1.10 +/-1.07	pCi/g					
Bismuth-214			U	-0.273 +/-0.247	pCi/g					
Cerium-139				3.14 +/-0.293	pCi/g					
Cerium-141			U	0.0394 +/-0.159	pCi/g					
Cerium-144				0.966 +/-0.654	pCi/g					
Cesium-134			U	-0.0267 +/-0.147	pCi/g					
Cesium-136			U	0.0342 +/-0.298	pCi/g					
Cesium-137	9.56			9.88 +/-0.792	pCi/g		103	(75%-125%)		
Chromium-51			U	0.547 +/-0.942	pCi/g					
Cobalt-56			U	-0.00881 +/-0.142	pCi/g					
Cobalt-57				4.29 +/-0.344	pCi/g					
Cobalt-58			U	-0.0429	pCi/g					

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QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 570312											
				+/-0.142							
Cobalt-60	14.4			15.3 +/-1.06	pCi/g		107	(75%-125%)	MJH1	09/26/06	16:57
Europium-152			U	-0.46 +/-0.310	pCi/g						
Europium-154			U	0.0312 +/-0.304	pCi/g						
Europium-155			U	-0.16 +/-0.329	pCi/g						
Iridium-192			U	-0.0375 +/-0.0997	pCi/g						
Iron-59			U	0.191 +/-0.335	pCi/g						
Lead-210			U	-31.3 +/-14.1	pCi/g						
Lead-212			U	-0.152 +/-0.172	pCi/g						
Lead-214			U	0.00204 +/-0.228	pCi/g						
[illegible]nese-54				0.155 +/-0.133	pCi/g						
Mercury-203				0.650 +/-0.170	pCi/g						
Neodymium-147			U	-0.812 +/-1.22	pCi/g						
Neptunium-239			U	0.353 +/-0.733	pCi/g						
Niobium-94			U	0.0389 +/-0.123	pCi/g						
Niobium-95			U	0.0367 +/-0.148	pCi/g						
Potassium-40			U	-0.0789 +/-0.997	pCi/g						
Promethium-144			U	0.0381 +/-0.126	pCi/g						
Promethium-146			U	-0.133 +/-0.171	pCi/g						
Radium-228			U	-0.198 +/-0.581	pCi/g						
Ruthenium-106			U	-0.347 +/-1.15	pCi/g						
Silver-110m			U	0.00264 +/-0.171	pCi/g						
Sodium-22			U	0.0109 +/-0.109	pCi/g						
Thallium-208			U	0.0241 +/-0.129	pCi/g						

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QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 570312										
Thorium-230			U	-0.273 +/-0.247	pCi/g					
Thorium-234			U	-10.9 +/-4.80	pCi/g				MJH1	09/26/06 16:57
Tin-113				4.64 +/-0.425	pCi/g					
Uranium-235			U	-0.438 +/-0.582	pCi/g					
Uranium-238			U	-10.9 +/-4.80	pCi/g					
Yttrium-88				5.79 +/-0.572	pCi/g					
Zinc-65			U	0.215 +/-0.340	pCi/g					
Zirconium-95			U	-0.0581 +/-0.243	pCi/g					
QC1201187390 MB										
Actinium-228			U	0.0113 +/-0.0446	pCi/g					09/26/06 16:42
Americium-241			U	0.0255 +/-0.0422	pCi/g					
Antimony-124			U	-0.0207 +/-0.030	pCi/g					
Antimony-125			U	-0.0333 +/-0.0306	pCi/g					
Barium-133			U	-0.00525 +/-0.0151	pCi/g					
Barium-140			U	0.037 +/-0.0576	pCi/g					
Beryllium-7			U	0.0116 +/-0.174	pCi/g					
Bismuth-212			U	-0.0365 +/-0.0878	pCi/g					
Bismuth-214			U	0.0549 +/-0.0514	pCi/g					
Cerium-139			U	-0.00385 +/-0.0105	pCi/g					
Cerium-141			U	0.0199 +/-0.0229	pCi/g					
Cerium-144			U	-0.0096 +/-0.0741	pCi/g					
Cesium-134			U	-0.0018 +/-0.0115	pCi/g					
Cesium-136			U	0.00886 +/-0.0235	pCi/g					
Cesium-137			U	-0.00311 +/-0.013	pCi/g					
Chromium-51			U	0.0376	pCi/g					

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QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 570312										
				+/-0.107						
Cobalt-56			U	-0.00466 +/-0.0127	pCi/g				MJH1	09/26/06 16:42
Cobalt-57			U	0.00158 +/-0.009	pCi/g					
Cobalt-58			U	0.00169 +/-0.011	pCi/g					
Cobalt-60			U	0.0161 +/-0.0133	pCi/g					
Europium-152			U	0.00323 +/-0.0364	pCi/g					
Europium-154			U	0.0439 +/-0.0557	pCi/g					
Europium-155			U	0.00258 +/-0.0373	pCi/g					
Iridium-192			U	0.00509 +/-0.0115	pCi/g					
Iron-59			U	0.00893 +/-0.0266	pCi/g					
[illegible]210			U	1.38 +/-0.934	pCi/g					
Lead-212			U	0.0166 +/-0.0327	pCi/g					
Lead-214			U	0.0231 +/-0.0255	pCi/g					
Manganese-54			U	0.00749 +/-0.0121	pCi/g					
Mercury-203			U	-0.00302 +/-0.0109	pCi/g					
Neodymium-147			U	0.182 +/-0.136	pCi/g					
Neptunium-239			U	0.0562 +/-0.0708	pCi/g					
Niobium-94			U	0.0034 +/-0.0112	pCi/g					
Niobium-95			U	5.670E-05 +/-0.011	pCi/g					
Potassium-40			U	0.283 +/-0.142	pCi/g					
Promethium-144			U	-0.000367 +/-0.0127	pCi/g					
Promethium-146			U	0.00809 +/-0.0152	pCi/g					
Radium-228			U	0.0113 +/-0.0446	pCi/g					
Ruthenium-106			U	-0.0509 +/-0.108	pCi/g					

QC Summary

Workorder: 171967

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec											
Batch 570312											
Silver-110m				U	0.00189 +/-0.011	pCi/g					
Sodium-22				U	0.0157 +/-0.0199	pCi/g				MJH1	09/26/06 16:42
Thallium-208				U	0.0157 +/-0.0136	pCi/g					
Thorium-230				U	0.0549 +/-0.0514	pCi/g					
Thorium-234				UI	0.00 +/-0.425	pCi/g					
Tin-113				U	0.00174 +/-0.0153	pCi/g					
Uranium-235				U	0.0117 +/-0.0848	pCi/g					
Uranium-238				UI	0.00 +/-0.425	pCi/g					
Yttrium-88				U	-0.00745 +/-0.00966	pCi/g					
Zinc-65				U	0.00139 +/-0.0291	pCi/g					
[illegible]nium-95				U	-0.00212 +/-0.0202	pCi/g					
Rad Liquid Scintillation											
Batch 570230											
QC1201187270 171967010 DUP											
Iron-55		U	2.17 +/-6.81	U	5.51 +/-7.59	pCi/g	0		(0%-30%)	MXP1	09/24/06 18:46
QC1201187272 LCS											
Iron-55	305				294 +/-8.69	pCi/g		96	(75%-125%)		09/24/06 21:52
QC1201187269 MB											
Iron-55				U	2.03 +/-5.95	pCi/g					09/24/06 17:13
QC1201187271 171967010 MS											
Iron-55	323	U	2.17 +/-6.81		292 +/-10.3	pCi/g		91	(75%-125%)		09/24/06 20:19
Batch 570253											
QC1201187279 171967010 DUP											
Nickel-63		U	-0.921 +/-1.26	U	0.916 +/-1.14	pCi/g	0		(0%-20%)	MXP1	09/27/06 07:09
QC1201187281 LCS											
Nickel-63	132				128 +/-6.30	pCi/g		97	(75%-125%)		09/27/06 08:57
QC1201187278 MB											
Nickel-63				U	-0.862 +/-0.940	pCi/g					09/27/06 05:37
QC1201187280 171967010 MS											
Nickel-63	133	U	-0.921		142	pCi/g		107	(75%-125%)		09/27/06 08:41

QC Summary

Workorder: 171967

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Liquid Scintillation											
Batch 570253											
			+/-1.26		+/-7.20						
Batch 570255											
QC1201187283 171967001 DUP											
Tritium		U	-2.13	U	-0.884	pCi/g	0		(0%-20%)	DFA1	09/22/06 13:26
			+/-3.05		+/-2.94						
QC1201187285 LCS											
Tritium	24.4				26.5	pCi/g		109	(75%-125%)		09/22/06 13:59
					+/-4.42						
QC1201187282 MB											
Tritium				U	-0.888	pCi/g					09/22/06 13:10
					+/-2.95						
QC1201187284 171967001 MS											
Tritium	25.3	U	-2.13		20.1	pCi/g		79	(75%-125%)		09/23/06 19:48
			+/-3.05		+/-3.76						
Batch 570260											
QC1201187291 171967005 DUP											
Carbon-14		U	0.340	U	0.326	pCi/g	4		(0%-20%)	AXD2	09/21/06 06:26
			+/-0.439		+/-0.590						
QC1201187293 LCS											
Carbon-14	22.1				22.8	pCi/g		103	(75%-125%)		09/21/06 07:01
					+/-1.55						
QC1201187290 MB											
Carbon-14				U	0.537	pCi/g					09/21/06 06:09
					+/-0.452						
QC1201187292 171967005 MS											
Carbon-14	28.8	U	0.340		30.6	pCi/g		106	(75%-125%)		09/21/06 06:44
			+/-0.439		+/-1.99						

Notes:
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

QC Summary

Workorder: 171967

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

SAMPLES FSO-14 THROUGH FSO-16 WITHOUT SR-90

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ENRG001 Energysolutions

Client SDG: 172277 GEL Work Order: 172277

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

ENERGYSOLUTIONS

172277

ATTACHMENT B
ENERGY*SOLUTIONS* FIELD SERVICES
CHAIN OF CUSTODY RECORD
Parameters for Analysis

Energy Solutions
143 West Street
New Milford, CT 06776
860-210-3000

To: General Engineering Laboratories, LLC
P.O. Box 30712
Charleston, SC 29417
Phone: (843) 556-8171
Fax: (843) 766-1178

Attention: Cheryl Jones
Email: cj@gel.com

Sampler's Name: Chris Higgins

Project Number: 0885

Project Name: Cornell

Sample ID No.	Date Collected	Time Collected	Gamma Spec	H3	Fe55	Ni63	C14					Comments
FSO-14	9/20/2006	12:00 PM	x	x	x	x	x					Please Send Results to:
FSO-15	9/20/2006	12:00 PM	x	x	x	x	x					Chris Higgins
FSO-16	9/20/2006	12:00 PM	x	x	x	x	x					Energy Solutions c/o Cornell University-
												Ward Center Laboratory
												Central Avenue
												Ithaca, NY 14853
												and e-mail:
												chiggins@energysolution.com

Relinquished By (Signature) — Date/Time: 9/20/2006

Received By (Signature) — Date/Time: 9-21-06 0900

SHIPPING INFORMATION: Fed Ex (Carrier) — 5/15/2006 (Date Shipped)

ENERGYSOLUTIONS CONTACT: Chris Higgins 607-255-2095 (Name — Phone No.)

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

PM use only

Client: ENERGY SOL	SDG/ARCOC/Work Order: 172277
Date Received: 7-21-06	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: MK	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice none other describe) 21C
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: SOILS
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			✓	
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?			✓	Sample ID's and containers affected: BAGS OF SOILS ARE LABELED #1, #2, #3
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: NO DATE OR TIME ON BAGS
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected: 1 PER ID
12	COC form is properly signed in relinquished/received sections?	✓			
14	Air Bill ,Tracking #'s, & Additional Comments	FED EX # 8577 4175 6480			

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?	✓			Maximum Counts Observed*: cpm 30
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: _____ Initials AD Date: 9/20/06

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-14
Sample ID: 172277001
Matrix: Soil
Collect Date: 20-SEP-06 12:00
Receive Date: 21-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.19	+/-0.315	0.296	0.800	pCi/g		MJH1 10/04/06	1044	574347	1
Americium-241	U	-0.0535	+/-0.165	0.261	0.200	pCi/g					
Antimony-124	U	-0.027	+/-0.0881	0.136	0.100	pCi/g					
Antimony-125	U	0.0313	+/-0.0946	0.171	0.200	pCi/g					
Barium-133	U	-0.00321	+/-0.0477	0.0749	0.100	pCi/g					
Barium-140	U	-0.145	+/-0.234	0.416	0.500	pCi/g					
Beryllium-7	U	0.220	+/-0.322	0.630	0.700	pCi/g					
Bismuth-212		0.881	+/-0.700	0.546	0.500	pCi/g					
Bismuth-214		0.718	+/-0.142	0.149	0.200	pCi/g					
Cerium-139	U	0.00672	+/-0.0281	0.0521	0.050	pCi/g					
Cerium-141	U	-0.0318	+/-0.0559	0.101	0.100	pCi/g					
Cerium-144	U	0.045	+/-0.177	0.332	0.500	pCi/g					
Cesium-134	U	0.0395	+/-0.0559	0.0966	0.100	pCi/g					
Cesium-136	U	0.0044	+/-0.137	0.242	0.300	pCi/g					
Cesium-137	U	0.000454	+/-0.0417	0.0764	0.100	pCi/g					
Chromium-51	U	-0.0271	+/-0.385	0.681	0.600	pCi/g					
Cobalt-56	U	-0.0115	+/-0.0444	0.0784	0.100	pCi/g					
Cobalt-57	U	0.0365	+/-0.0376	0.0381	0.050	pCi/g					
Cobalt-58	U	-0.0436	+/-0.0436	0.0719	0.100	pCi/g					
Cobalt-60		1.77	+/-0.153	0.0802	0.100	pCi/g					
Europium-152	U	-0.0293	+/-0.102	0.177	0.200	pCi/g					
Europium-154	U	-0.00953	+/-0.120	0.224	0.500	pCi/g					
Europium-155	U	0.0849	+/-0.0936	0.183	0.500	pCi/g					
Iridium-192	U	0.00448	+/-0.0367	0.0657	0.100	pCi/g					
Iron-59	U	0.0748	+/-0.116	0.216	0.300	pCi/g					
Lead-210	U	-1.7	+/-4.54	7.26	4.00	pCi/g					
Lead-212		1.10	+/-0.112	0.103	0.100	pCi/g					
Lead-214		0.899	+/-0.176	0.125	0.100	pCi/g					
Manganese-54	U	0.018	+/-0.0455	0.0843	0.100	pCi/g					
Mercury-203	U	0.0122	+/-0.0407	0.074	0.100	pCi/g					
Neodymium-147	U	0.169	+/-0.530	1.01	1000	pCi/g					
Neptunium-239	U	0.0565	+/-0.171	0.325	2.00	pCi/g					
Niobium-94	U	0.00292	+/-0.0357	0.0656	1.00	pCi/g					
Niobium-95	U	0.0063	+/-0.0594	0.0956	0.050	pCi/g					
Potassium-40		17.5	+/-1.57	0.601	1.00	pCi/g					
Promethium-144	U	0.018	+/-0.0372	0.0705	0.080	pCi/g					
Promethium-146	U	-0.00793	+/-0.0501	0.0862	1.00	pCi/g					
Radium-228		1.19	+/-0.315	0.296	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-14
Sample ID: 172277001

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.100	+/-0.304	0.580	0.800	pCi/g					
Silver-110m	U	-0.000782	+/-0.0373	0.0685	0.080	pCi/g					
Sodium-22	U	-0.00363	+/-0.0428	0.0801	0.080	pCi/g					
Thallium-208		0.380	+/-0.105	0.0678	0.080	pCi/g					
Thorium-230		0.718	+/-0.142	0.149	1.00	pCi/g					
Thorium-234	U	0.0829	+/-1.56	2.21	5.00	pCi/g					
Tin-113	U	0.00312	+/-0.0479	0.0847	0.100	pCi/g					
Uranium-235	U	-0.0128	+/-0.189	0.349	0.500	pCi/g					
Uranium-238	U	0.0829	+/-1.56	2.21	1.00	pCi/g					
Yttrium-88	U	-0.0043	+/-0.0337	0.0646	0.100	pCi/g					
Zinc-65	U	-0.0716	+/-0.139	0.198	0.300	pCi/g					
Zirconium-95	U	-0.0597	+/-0.0884	0.152	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	1.32	+/-3.52	6.17	6.00	pCi/g		DFA1 09/24/06	2336	571362	2
Liquid Scint C14, Solid											
Carbon-14	U	-0.0664	+/-0.892	1.57	2.00	pCi/g		AXD2 09/23/06	0516	571365	3
Liquid Scint Fe55, Solid											
Iron-55	U	2.94	+/-7.61	10.8	20.0	pCi/g		MXP1 09/30/06	0251	571387	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.718	+/-1.39	2.43	4.00	pCi/g		MXP1 09/29/06	0859	571401	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			71	(15%-125%)

GENERAL ENGINEERING LABORATORIES, LLC

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO–14
Sample ID: 172277001
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel–63	Liquid Scint Ni63, Solid							74	(25%–125%)		

GENERAL ENGINEERING LABORATORIES, LLC

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Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15
Sample ID: 172277002
Matrix: Soil
Collect Date: 20-SEP-06 12:00
Receive Date: 21-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.909	+/-0.283	0.125	0.800	pCi/g		MJH1 10/02/06	0234	574347	1
Americium-241	U	-0.0542	+/-0.127	0.124	0.200	pCi/g					
Antimony-124	U	-0.052	+/-0.0629	0.0458	0.100	pCi/g					
Antimony-125	U	0.0495	+/-0.0817	0.0843	0.200	pCi/g					
Barium-133	U	0.0162	+/-0.0478	0.0425	0.100	pCi/g					
Barium-140	U	-0.216	+/-0.233	0.185	0.500	pCi/g					
Beryllium-7	U	-0.114	+/-0.306	0.290	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.450	0.310	0.500	pCi/g					
Bismuth-214		0.600	+/-0.132	0.0731	0.200	pCi/g					
Cerium-139	U	0.0134	+/-0.0264	0.0262	0.050	pCi/g					
Cerium-141	U	0.0408	+/-0.0542	0.0541	0.100	pCi/g					
Cerium-144	U	-0.0364	+/-0.212	0.178	0.500	pCi/g					
Cesium-134	U	0.0253	+/-0.0476	0.0474	0.100	pCi/g					
Cesium-136	U	0.012	+/-0.110	0.0946	0.300	pCi/g					
Cesium-137	U	-0.0382	+/-0.0472	0.035	0.100	pCi/g					
Chromium-51	U	-0.334	+/-0.442	0.304	0.600	pCi/g					
Cobalt-56	U	-0.0125	+/-0.0471	0.0389	0.100	pCi/g					
Cobalt-57	UI	0.00	+/-0.039	0.0228	0.050	pCi/g					
Cobalt-58	U	-0.0204	+/-0.0393	0.0353	0.100	pCi/g					
Cobalt-60		1.03	+/-0.129	0.0337	0.100	pCi/g					
Europium-152	UI	0.00	+/-0.156	0.0923	0.200	pCi/g					
Europium-154	U	-0.0062	+/-0.112	0.108	0.500	pCi/g					
Europium-155	UI	0.00	+/-0.129	0.089	0.500	pCi/g					
Iridium-192	U	0.0293	+/-0.0395	0.0301	0.100	pCi/g					
Iron-59	U	0.0486	+/-0.0892	0.0921	0.300	pCi/g					
Lead-210	U	0.508	+/-2.74	2.72	4.00	pCi/g					
Lead-212		0.802	+/-0.120	0.0511	0.100	pCi/g					
Lead-214		0.568	+/-0.136	0.0712	0.100	pCi/g					
Manganese-54	UI	0.00	+/-0.0444	0.00	0.100	pCi/g					
Mercury-203	U	0.0252	+/-0.0366	0.038	0.100	pCi/g					
Neodymium-147	U	-0.242	+/-0.435	0.401	1000	pCi/g					
Neptunium-239	U	-0.0092	+/-0.210	0.179	2.00	pCi/g					
Niobium-94	U	0.0197	+/-0.0338	0.0341	1.00	pCi/g					
Niobium-95	U	-0.0295	+/-0.0469	0.0421	0.050	pCi/g					
Potassium-40		12.9	+/-1.56	0.329	1.00	pCi/g					
Promethium-144	U	-0.0305	+/-0.0349	0.0306	0.080	pCi/g					
Promethium-146	U	0.0025	+/-0.0422	0.0416	1.00	pCi/g					
Radium-228		0.909	+/-0.283	0.125	0.500	pCi/g					

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Certificate of Analysis

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15
Sample ID: 172277002
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Ruthenium-106	U	0.290	+/-0.335	0.346	0.800	pCi/g						
Silver-110m	U	0.00287	+/-0.0366	0.0349	0.080	pCi/g						
Sodium-22	U	-0.00243	+/-0.040	0.0385	0.080	pCi/g						
Thallium-208		0.272	+/-0.0843	0.036	0.080	pCi/g						
Thorium-230		0.600	+/-0.132	0.0731	1.00	pCi/g						
Thorium-234	U	-0.486	+/-1.10	1.07	5.00	pCi/g						
Tin-113	U	-0.0275	+/-0.043	0.0395	0.100	pCi/g						
Uranium-235	U	-0.106	+/-0.200	0.187	0.500	pCi/g						
Uranium-238	U	-0.486	+/-1.10	1.07	1.00	pCi/g						
Yttrium-88	U	-0.000887	+/-0.031	0.0303	0.100	pCi/g						
Zinc-65	U	0.011	+/-0.101	0.0867	0.300	pCi/g						
Zirconium-95	U	-0.0673	+/-0.0828	0.072	0.200	pCi/g						
Rad Liquid Scintillation Analysis												
LSC, Tritium Dist, Solid												
Tritium	U	4.43	+/-3.67	6.01	6.00	pCi/g		DFA1	09/24/06	2352	571362	2
Liquid Scint C14, Solid												
Carbon-14	U	-0.0215	+/-0.829	1.45	2.00	pCi/g		AXD2	09/23/06	0532	571365	3
Liquid Scint Fe55, Solid												
Iron-55	U	7.06	+/-7.44	10.4	20.0	pCi/g		MXP1	09/30/06	0454	571387	4
Liquid Scint Ni63, Solid												
Nickel-63	U	-0.341	+/-1.17	2.03	4.00	pCi/g		MXP1	09/29/06	1001	571401	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Fe-55	Liquid Scint Fe55, Solid			77	(15%-125%)

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15
Sample ID: 172277002
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							82			(25%-125%)

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-16
Sample ID: 172277003
Matrix: Soil
Collect Date: 20-SEP-06 12:00
Receive Date: 21-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.997	+/-0.237	0.191	0.800	pCi/g		MJH1 10/02/06	0432	574347	1
Americium-241	U	-0.0253	+/-0.0869	0.150	0.200	pCi/g					
Antimony-124	U	0.0316	+/-0.0579	0.124	0.100	pCi/g					
Antimony-125	U	0.0174	+/-0.069	0.124	0.200	pCi/g					
Barium-133	U	-0.0734	+/-0.0388	0.0576	0.100	pCi/g					
Barium-140	U	0.0169	+/-0.153	0.289	0.500	pCi/g					
Beryllium-7	U	0.229	+/-0.227	0.435	0.700	pCi/g					
Bismuth-212		0.625	+/-0.427	0.398	0.500	pCi/g					
Bismuth-214		0.718	+/-0.133	0.0914	0.200	pCi/g					
Cerium-139	U	0.00831	+/-0.0194	0.0366	0.050	pCi/g					
Cerium-141	U	0.00454	+/-0.0364	0.068	0.100	pCi/g					
Cerium-144	U	-0.00919	+/-0.134	0.225	0.500	pCi/g					
Cesium-134	U	0.0596	+/-0.0472	0.0752	0.100	pCi/g					
Cesium-136	U	-0.057	+/-0.0766	0.125	0.300	pCi/g					
Cesium-137	U	-0.0372	+/-0.031	0.0508	0.100	pCi/g					
Chromium-51	U	-0.132	+/-0.250	0.430	0.600	pCi/g					
Cobalt-56	U	-0.0192	+/-0.030	0.051	0.100	pCi/g					
Cobalt-57	U	0.00201	+/-0.0466	0.0304	0.050	pCi/g					
Cobalt-58	U	-0.016	+/-0.0294	0.0507	0.100	pCi/g					
Cobalt-60		0.773	+/-0.106	0.0525	0.100	pCi/g					
Europium-152		0.202	+/-0.105	0.138	0.200	pCi/g					
Europium-154	U	0.0652	+/-0.0953	0.191	0.500	pCi/g					
Europium-155	U	0.0768	+/-0.0735	0.133	0.500	pCi/g					
Iridium-192	U	-0.00934	+/-0.0247	0.0429	0.100	pCi/g					
Iron-59	U	0.0498	+/-0.0724	0.139	0.300	pCi/g					
Lead-210	U	0.877	+/-2.27	2.57	4.00	pCi/g					
Lead-212		1.02	+/-0.119	0.0711	0.100	pCi/g					
Lead-214		0.821	+/-0.124	0.0876	0.100	pCi/g					
Manganese-54	U	0.0331	+/-0.0307	0.0607	0.100	pCi/g					
Mercury-203	U	0.0366	+/-0.0504	0.0449	0.100	pCi/g					
Neodymium-147	U	-0.0096	+/-0.317	0.596	1000	pCi/g					
Neptunium-239	U	-0.0382	+/-0.120	0.221	2.00	pCi/g					
Niobium-94	U	-0.00786	+/-0.027	0.0481	1.00	pCi/g					
Niobium-95	U	0.000885	+/-0.0396	0.0636	0.050	pCi/g					
Potassium-40		16.3	+/-1.63	0.521	1.00	pCi/g					
Promethium-144	U	-0.00846	+/-0.0274	0.0489	0.080	pCi/g					
Promethium-146	U	0.00231	+/-0.0336	0.0593	1.00	pCi/g					
Radium-228		0.997	+/-0.237	0.191	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-16
Sample ID: 172277003

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.143	+/-0.236	0.459	0.800	pCi/g					
Silver-110m	U	0.0282	+/-0.026	0.0522	0.080	pCi/g					
Sodium-22	U	0.0233	+/-0.034	0.0684	0.080	pCi/g					
Thallium-208		0.281	+/-0.0692	0.0499	0.080	pCi/g					
Thorium-230		0.718	+/-0.133	0.0913	1.00	pCi/g					
Thorium-234	U	1.02	+/-1.30	1.28	5.00	pCi/g					
Tin-113	U	0.00316	+/-0.0343	0.0608	0.100	pCi/g					
Uranium-235	U	0.0653	+/-0.130	0.246	0.500	pCi/g					
Uranium-238	U	1.02	+/-1.30	1.28	1.00	pCi/g					
Yttrium-88	U	-0.00551	+/-0.024	0.0454	0.100	pCi/g					
Zinc-65	U	0.0035	+/-0.0717	0.129	0.300	pCi/g					
Zirconium-95	U	-0.00529	+/-0.0668	0.106	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	2.35	+/-3.22	5.49	6.00	pCi/g		DFA1 09/25/06	0008	571362	2
Liquid Scint C14, Solid											
Carbon-14	U	-0.318	+/-0.841	1.50	2.00	pCi/g		AXD2 09/23/06	0548	571365	3
Liquid Scint Fe55, Solid											
Iron-55	U	-0.661	+/-6.52	9.25	20.0	pCi/g		MXP1 09/30/06	0752	571387	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.405	+/-1.14	1.99	4.00	pCi/g		MXP1 09/29/06	1102	571401	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Fe-55	Liquid Scint Fe55, Solid			75	(15%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO–16
Sample ID: 172277003

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel–63	Liquid Scint Ni63, Solid							86		(25%–125%)	

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QC Summary

Report Date: October 5, 2006

Energy Solutions
c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York

Contact: Mr. Mike Taylor

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
QC1201196577 172277001 DUP										
Actinium-228		1.19 +/-0.315		1.16 +/-0.315	pCi/g	3		(0%-20%)	MJH1	10/04/06 10:43
Americium-241	U	-0.0535 +/-0.165	U	0.00452 +/-0.0561	pCi/g	237*		(0%-20%)		
Antimony-124	U	-0.027 +/-0.0881	U	-0.0114 +/-0.0815	pCi/g	81*		(0%-20%)		
Antimony-125	U	0.0313 +/-0.0946	U	0.104 +/-0.0941	pCi/g	107*		(0%-20%)		
Barium-133	U	-0.00321 +/-0.0477	U	0.0342 +/-0.0429	pCi/g	241*		(0%-20%)		
Barium-140	U	-0.145 +/-0.234	U	-0.256 +/-0.264	pCi/g	56*		(0%-20%)		
Beryllium-7	U	0.220 +/-0.322	U	0.0532 +/-0.343	pCi/g	122*		(0%-20%)		
[illegible]th-212		0.881 +/-0.700	U	0.451 +/-0.390	pCi/g	65*		(0%-20%)		
Bismuth-214		0.718 +/-0.142		0.737 +/-0.184	pCi/g	3		(0%-20%)		
Cerium-139	U	0.00672 +/-0.0281	U	-0.0119 +/-0.0269	pCi/g	717*		(0%-20%)		
Cerium-141	U	-0.0318 +/-0.0559	UI	0.00 +/-0.0816	pCi/g	350*		(0%-20%)		
Cerium-144	U	0.045 +/-0.177	U	0.212 +/-0.175	pCi/g	130*		(0%-20%)		
Cesium-134	U	0.0395 +/-0.0559	U	0.0616 +/-0.0537	pCi/g	44*		(0%-20%)		
Cesium-136	U	0.0044 +/-0.137	U	0.00601 +/-0.119	pCi/g	31*		(0%-20%)		
Cesium-137	U	0.000454 +/-0.0417	U	-0.0414 +/-0.0431	pCi/g	204*		(0%-20%)		
Chromium-51	U	-0.0271 +/-0.385	U	0.0358 +/-0.317	pCi/g	1460*		(0%-20%)		
Cobalt-56	U	-0.0115 +/-0.0444	U	0.0159 +/-0.0504	pCi/g	1250*		(0%-20%)		
Cobalt-57	U	0.0365 +/-0.0376	U	0.0109 +/-0.0219	pCi/g	108*		(0%-20%)		
Cobalt-58	U	-0.0436 +/-0.0436	U	0.0352 +/-0.0474	pCi/g	1860*		(0%-20%)		
Cobalt-60		1.77 +/-0.153		0.356 +/-0.0895	pCi/g	133*		(0%-20%)		
Europium-152	U	-0.0293 +/-0.102	U	0.062 +/-0.102	pCi/g	559*		(0%-20%)		

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Europium-154	U	-0.00953 +/-0.120	U	0.00494 +/-0.147	pCi/g	631*		(0%-20%)		
Europium-155	U	0.0849 +/-0.0936	U	0.115 +/-0.112	pCi/g	30*		(0%-20%)	MJH1	10/04/06 10:43
Iridium-192	U	0.00448 +/-0.0367	U	-0.0364 +/-0.030	pCi/g	256*		(0%-20%)		
Iron-59	U	0.0748 +/-0.116	U	0.0716 +/-0.112	pCi/g	4		(0%-20%)		
Lead-210	U	-1.7 +/-4.54	UI	0.00 +/-0.793	pCi/g	605*		(0%-20%)		
Lead-212		1.10 +/-0.112		1.25 +/-0.105	pCi/g	13		(0%-20%)		
Lead-214		0.899 +/-0.176		0.883 +/-0.144	pCi/g	2		(0%-20%)		
Manganese-54	U	0.018 +/-0.0455	U	0.0336 +/-0.0603	pCi/g	61*		(0%-20%)		
Mercury-203	U	0.0122 +/-0.0407	U	0.0447 +/-0.0673	pCi/g	114*		(0%-20%)		
Neodymium-147	U	0.169 +/-0.530	U	0.111 +/-0.579	pCi/g	41*		(0%-20%)		
[illegible]nium-239	U	0.0565 +/-0.171	U	-0.0677 +/-0.165	pCi/g	2220*		(0%-20%)		
Niobium-94	U	0.00292 +/-0.0357	U	-0.00162 +/-0.0374	pCi/g	697*		(0%-20%)		
Niobium-95	U	0.0063 +/-0.0594	U	-0.0591 +/-0.0585	pCi/g	248*		(0%-20%)		
Potassium-40		17.5 +/-1.57		20.5 +/-1.88	pCi/g	16		(0%-20%)		
Promethium-144	U	0.018 +/-0.0372	U	-0.0225 +/-0.0383	pCi/g	1780*		(0%-20%)		
Promethium-146	U	-0.00793 +/-0.0501	U	0.029 +/-0.0471	pCi/g	350*		(0%-20%)		
Radium-228		1.19 +/-0.315		1.16 +/-0.315	pCi/g	3		(0%-20%)		
Ruthenium-106	U	0.100 +/-0.304	U	-0.0616 +/-0.374	pCi/g	837*		(0%-20%)		
Silver-110m	U	-0.000782 +/-0.0373	U	0.0186 +/-0.0406	pCi/g	218*		(0%-20%)		
Sodium-22	U	-0.00363 +/-0.0428	U	0.0015 +/-0.0524	pCi/g	481*		(0%-20%)		
Thallium-208		0.380 +/-0.105		0.443 +/-0.0979	pCi/g	15		(0%-20%)		
Thorium-230		0.718 +/-0.142		0.737 +/-0.184	pCi/g	3		(0%-20%)		
Thorium-234	U	0.0829 +/-1.56	U	0.556 +/-0.937	pCi/g	148*		(0%-20%)		
Tin-113	U	0.00312 +/-0.0479	U	-0.0308 +/-0.041	pCi/g	245*		(0%-20%)		

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QC Summary

Workorder: 172277

Parnname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Uranium-235	U	-0.0128 +/-0.189	UI	0.00 +/-0.299	pCi/g	211*		(0%-20%)		
Uranium-238	U	0.0829 +/-1.56	U	0.556 +/-0.937	pCi/g	148*		(0%-20%)	MJH1	10/04/06 10:43
Yttrium-88	U	-0.0043 +/-0.0337	U	0.0198 +/-0.0298	pCi/g	311*		(0%-20%)		
Zinc-65	U	-0.0716 +/-0.139	U	-0.025 +/-0.118	pCi/g	96*		(0%-20%)		
Zirconium-95	U	-0.0597 +/-0.0884	U	-0.00773 +/-0.0802	pCi/g	154*		(0%-20%)		
QC1201196578 LCS										
Actinium-228			U	0.0517 +/-0.472	pCi/g					10/02/06 03:25
Americium-241	23.4			25.4 +/-2.22	pCi/g		109	(75%-125%)		
Antimony-124			U	-0.0678 +/-0.210	pCi/g					
Antimony-125			U	-0.0327 +/-0.270	pCi/g					
Barium-133			U	-0.0794 +/-0.113	pCi/g					
[illegible]m-140			U	-0.248 +/-0.481	pCi/g					
Beryllium-7			U	-0.678 +/-0.916	pCi/g					
Bismuth-212			U	-0.0677 +/-0.868	pCi/g					
Bismuth-214			U	0.194 +/-0.189	pCi/g					
Cerium-139				3.16 +/-0.257	pCi/g					
Cerium-141			U	-0.00665 +/-0.105	pCi/g					
Cerium-144			U	0.166 +/-0.436	pCi/g					
Cesium-134			U	0.0436 +/-0.117	pCi/g					
Cesium-136			U	0.0205 +/-0.251	pCi/g					
Cesium-137	9.56			10.4 +/-0.989	pCi/g		108	(75%-125%)		
Chromium-51			U	-0.183 +/-0.748	pCi/g					
Cobalt-56			U	-0.00132 +/-0.126	pCi/g					
Cobalt-57				4.30 +/-0.346	pCi/g					
Cobalt-58			U	0.0797	pCi/g					

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
				+/-0.121						
Cobalt-60	14.4			15.5 +/-1.09	pCi/g		108	(75%-125%)	MJH1	10/02/06 03:25
Europium-152			U	0.253 +/-0.236	pCi/g					
Europium-154			U	0.0522 +/-0.229	pCi/g					
Europium-155			U	-0.164 +/-0.263	pCi/g					
Iridium-192			U	0.014 +/-0.078	pCi/g					
Iron-59			U	0.191 +/-0.306	pCi/g					
Lead-210			U	3.78 +/-7.73	pCi/g					
Lead-212			U	0.113 +/-0.136	pCi/g					
Lead-214			U	-0.0151 +/-0.182	pCi/g					
[illegible]anese-54			U	0.0127 +/-0.113	pCi/g					
Mercury-203				0.777 +/-0.140	pCi/g					
Neodymium-147			U	1.28 +/-1.02	pCi/g					
Neptunium-239			U	0.105 +/-0.467	pCi/g					
Niobium-94			U	0.0154 +/-0.0967	pCi/g					
Niobium-95			U	0.104 +/-0.125	pCi/g					
Potassium-40			U	0.392 +/-0.950	pCi/g					
Promethium-144			U	-0.048 +/-0.0976	pCi/g					
Promethium-146			U	0.0087 +/-0.136	pCi/g					
Radium-228			U	0.0517 +/-0.472	pCi/g					
Ruthenium-106			U	0.302 +/-0.948	pCi/g					
Silver-110m			U	0.0915 +/-0.125	pCi/g					
Sodium-22			U	0.0197 +/-0.0816	pCi/g					
Thallium-208			U	0.0436 +/-0.129	pCi/g					

QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Thorium-230			U	0.194 +/-0.189	pCi/g					
Thorium-234			U	-0.406 +/-2.65	pCi/g				MJH1	10/02/06 03:25
Tin-113				4.74 +/-0.410	pCi/g					
Uranium-235			U	0.349 +/-0.412	pCi/g					
Uranium-238			U	-0.406 +/-2.65	pCi/g					
Yttrium-88				6.23 +/-0.552	pCi/g					
Zinc-65			U	-0.264 +/-0.331	pCi/g					
Zirconium-95			U	0.274 +/-0.202	pCi/g					
QC1201196576 MB										
Actinium-228			U	0.0126 +/-0.0745	pCi/g					10/02/06 04:46
Americium-241			U	-0.0179 +/-0.0585	pCi/g					
Antimony-124			U	-0.0108 +/-0.042	pCi/g					
Antimony-125			U	0.022 +/-0.0485	pCi/g					
Barium-133			U	-0.00562 +/-0.0277	pCi/g					
Barium-140			U	-0.0328 +/-0.0859	pCi/g					
Beryllium-7			U	0.00614 +/-0.167	pCi/g					
Bismuth-212			U	0.0989 +/-0.147	pCi/g					
Bismuth-214			U	-0.012 +/-0.0521	pCi/g					
Cerium-139			U	-0.00584 +/-0.0153	pCi/g					
Cerium-141			U	-0.00591 +/-0.0306	pCi/g					
Cerium-144			U	0.0935 +/-0.108	pCi/g					
Cesium-134			U	-0.00226 +/-0.0227	pCi/g					
Cesium-136			U	-0.0194 +/-0.0422	pCi/g					
Cesium-137			U	0.00611 +/-0.020	pCi/g					
Chromium-51			U	0.00869	pCi/g					

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
				+/-0.170						
Cobalt-56			U	0.0104 +/-0.0223	pCi/g				MJH1	10/02/06 04:46
Cobalt-57			U	-0.00439 +/-0.0137	pCi/g					
Cobalt-58			U	-0.00477 +/-0.016	pCi/g					
Cobalt-60			U	-0.0107 +/-0.017	pCi/g					
Europium-152			U	-0.0189 +/-0.0551	pCi/g					
Europium-154			U	0.0198 +/-0.051	pCi/g					
Europium-155			U	0.0186 +/-0.0457	pCi/g					
Iridium-192			U	0.00554 +/-0.0175	pCi/g					
Iron-59			U	0.0229 +/-0.0401	pCi/g					
[illegible]10			U	0.0763 +/-1.22	pCi/g					
Lead-212			U1	0.00 +/-0.0588	pCi/g					
Lead-214			U	0.027 +/-0.0463	pCi/g					
Manganese-54			U	-0.00865 +/-0.0176	pCi/g					
Mercury-203			U	0.00501 +/-0.0207	pCi/g					
Neodymium-147			U	-0.0271 +/-0.181	pCi/g					
Neptunium-239			U	0.0492 +/-0.0952	pCi/g					
Niobium-94			U	0.00103 +/-0.0201	pCi/g					
Niobium-95			U	0.00459 +/-0.0204	pCi/g					
Potassium-40			U	0.0901 +/-0.244	pCi/g					
Promethium-144			U	0.00631 +/-0.0209	pCi/g					
Promethium-146			U	0.00465 +/-0.0235	pCi/g					
Radium-228			U	0.0126 +/-0.0745	pCi/g					
Ruthenium-106			U	0.142 +/-0.183	pCi/g					

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QC Summary

Workorder: 172277

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec											
Batch 574347											
Silver-110m				U	-0.0136 +/-0.0183	pCi/g					
Sodium-22				U	0.00697 +/-0.0181	pCi/g				MJH1	10/02/06 04:46
Thallium-208				U	-0.0156 +/-0.0235	pCi/g					
Thorium-230				U	-0.012 +/-0.0521	pCi/g					
Thorium-234				U	-0.365 +/-0.512	pCi/g					
Tin-113				U	-0.0106 +/-0.0235	pCi/g					
Uranium-235				UI	0.00 +/-0.152	pCi/g					
Uranium-238				U	-0.365 +/-0.512	pCi/g					
Yttrium-88				U	0.00247 +/-0.0263	pCi/g					
Zinc-65				U	-0.0414 +/-0.0435	pCi/g					
[illegible]nium-95				U	-0.0233 +/-0.034	pCi/g					
Rad Liquid Scintillation											
Batch 571362											
QC1201189751 172277002 DUP											
Tritium		U	4.43 +/-3.67	U	3.98 +/-2.79	pCi/g	0		(0%-20%)	DFA1	09/29/06 17:01
QC1201189753 LCS											
Tritium	24.0				23.9 +/-3.05	pCi/g		100	(75%-125%)		09/29/06 17:48
QC1201189750 MB											
Tritium				U	1.36 +/-2.12	pCi/g					09/29/06 16:14
QC1201189752 172277002 MS											
Tritium	26.4	U	4.43 +/-3.67		27.0 +/-5.13	pCi/g		102	(75%-125%)		09/25/06 00:57
Batch 571365											
QC1201189755 172277003 DUP											
Carbon-14		U	-0.318 +/-0.841	U	-0.428 +/-0.889	pCi/g	0		(0%-20%)	AXD2	09/23/06 07:03
QC1201189757 LCS											
Carbon-14	32.7				36.1 +/-2.02	pCi/g		110	(75%-125%)		09/23/06 08:12
QC1201189754 MB											
Carbon-14				U	0.0937 +/-0.940	pCi/g					09/23/06 06:47
QC1201189756 172277003 MS											
Carbon-14	27.3	U	-0.318		26.9	pCi/g		99	(75%-125%)		09/23/06 07:55

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QC Summary

Workorder: 172277

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Liquid Scintillation												
Batch 571365												
			+/-0.841		+/-1.61							
Batch 571387												
QC1201189798 172277003 DUP												
Iron-55		U	-0.661 +/-6.52	U	7.71 +/-7.40	pCi/g	0		(0%-30%)	MXP1	09/30/06	11:59
QC1201189800 LCS												
Iron-55	308				302 +/-9.04	pCi/g		98	(75%-125%)		09/30/06	16:06
QC1201189797 MB												
Iron-55				U	3.87 +/-5.96	pCi/g					09/30/06	09:56
QC1201189799 172277003 MS												
Iron-55	345	U	-0.661 +/-6.52		318 +/-10.4	pCi/g		92	(75%-125%)		09/30/06	14:03
Batch 571401												
QC1201189836 172277001 DUP												
Nickel-63		U	-0.718 +/-1.39	U	-0.681 +/-1.23	pCi/g	0		(0%-20%)	MXP1	09/29/06	13:05
QC1201189838 LCS												
Nickel-63	136				108 +/-3.16	pCi/g		80	(75%-125%)		09/29/06	15:09
QC1201189835 MB												
Nickel-63				U	-0.658 +/-1.17	pCi/g					09/29/06	12:04
QC1201189837 172277001 MS												
Nickel-63	137	U	-0.718 +/-1.39		116 +/-3.13	pCi/g		85	(75%-125%)		09/29/06	14:07

Notes:
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

SAMPLES FSO-1 THROUGH FSO-16 WITH SR-90

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Certificate of Analysis Report
for

ENRG001 Energysolutions

Client SDG: 173747 GEL Work Order: 173747

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

Document Number 82A8016

ENERGYSOLUTIONS

ATTACHMENT B
ENERGY*SOLUTIONS* FIELD SERVICES
CHAIN OF CUSTODY RECORD
Parameters for Analysis

Energy Solutions
143 West Street
New Milford, CT 06776
860-210-3000

To: General Engineering Laboratories, LLC
P.O. Box 30712
Charleston, SC 29417
Phone: (843) 556-8171
Fax: (843) 766-1178

Attention: Cheryl Jones
Email: cj@gel.com

Sampler's Name: Chris Higgins

Project Number: 0885

Project Name: Cornell

171967 %

Sample ID No.	Date Collected	Time Collected	Gamma Spec	H3	Fe55	Ni63	C14					Comments
FSO-1	9/15/2006	12:00 PM	x	x	x	x	x					Please Send Results to:
FSO-2	9/15/2006	12:00 PM	x	x	x	x	x					Mike Taylor
FSO-3	9/15/2006	12:00 PM	x	x	x	x	x					Energy Solutions c/o Cornell University-
FSO-4	9/15/2006	12:00 PM	x	x	x	x	x					Ward Center Laboratory
FSO-5	9/15/2006	12:00 PM	x	x	x	x	x					Central Avenue
FSO-6	9/15/2006	12:00 PM	x	x	x	x	x					Ithaca, NY 14853
FSO-7	9/15/2006	12:00 PM	x	x	x	x	x					and e-mail:
FSO-8	9/15/2006	12:00 PM	x	x	x	x	x					mtaylor@energysolutions.com
FSO-9	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-10	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-11	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-12	9/15/2006	12:00 PM	x	x	x	x	x					
FSO-13	9/15/2006	12:00 PM	x	x	x	x	x					
Pb-1	9/15/2006	12:00 PM	X		X							

Relinquished By (Signature) 9/15/2006 Date/Time

Received By (Signature) 9/18/06 845 Date/Time

SHIPPING INFORMATION: Fed Ex (Carrier) 5/15/2006 (Date Shipped)

ENERGYSOLUTIONS CONTACT: Chris Higgins 607-255-2095 (Name, Phone No.)

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

Cheryl Jones PM use only

Client: Energy Solutions	SDG/ARCOC/Work Order: 171967
Date Received: 9/18/06	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: CD	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice none other describe) 25°
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?			✓	Circle Applicable: seals broken damaged container leaking container other (describe) FS0-2 – ziplock bag – 3cm 1/2 open on inside
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: ⇒ Client notified via email 9/18/06 CD
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			✓	
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?				Sample ID's affected: no date + time on ziplock Bags
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	✓			
14	Air Bill ,Tracking #'s, & Additional Comments	8577 4175 6458 Lead Pb			

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?	✓	✓		Maximum Counts Observed*: Soil 20 CPM & PBI 300 CPM
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: _____ Initials CD Date: 9/18/06

List of current GEL Certifications as of 24 October 2006

State	Certification
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas	TX213-2006A
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-1	Project:	ENRG00105
Sample ID:	173747001	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier.	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.111	+/-0.389	0.724	2.00	pCi/g		TC1	10/15/06	1027	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	62	
Strontium Carrier	GFPC, Sr90, solid		8.78	62	
Strontium-90	GFPC, Sr90, solid			62	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID: FSO-2
Sample ID: 173747002
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.416	+/-0.320	0.500	2.00	pCi/g		TC1	10/23/06	1438	578507	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	
2	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	65	
Strontium Carrier	GFPC, Sr90, solid		8.78	65	
Strontium-90	GFPC, Sr90, solid			65	(25%-125%)

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Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-3	Project:	ENRG00105
Sample ID:	173747003	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	-0.264	+/-0.261	0.647	2.00	pCi/g		TC1	10/15/06	1021	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	60	
Strontium Carrier	GFPC, Sr90, solid		8.78	60	
Strontium-90	GFPC, Sr90, solid			60	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO–4	Project:	ENRG00105
Sample ID:	173747004	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15–SEP–06 12:00		
Receive Date:	18–SEP–06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium–90	U	0.0171	+/–0.266	0.528	2.00	pCi/g		TC1	10/15/06	1021	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL–RAD–A–021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	69	
Strontium Carrier	GFPC, Sr90, solid		8.78	69	
Strontium–90	GFPC, Sr90, solid			69	(25%–125%)

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Certificate of Analysis

Company : Energy Solutions
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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-5	Project:	ENRG00105
Sample ID:	173747005	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.547	+/-0.639	1.08	2.00	pCi/g		TC1	10/15/06	1021	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium-90	GFPC, Sr90, solid			59	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-6	Project:	ENRG00105
Sample ID:	173747006	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.167	+/-0.308	0.554	2.00	pCi/g		TC1	10/15/06	1118	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium-90	GFPC, Sr90, solid			59	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-7	Project:	ENRG00105
Sample ID:	173747007	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.0287	+/-0.228	0.441	2.00	pCi/g		TC1	10/23/06	1438	578507	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	
2	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	65	
Strontium Carrier	GFPC, Sr90, solid		8.78	65	
Strontium-90	GFPC, Sr90, solid			65	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID: FSO-8
Sample ID: 173747008
Matrix: Soil
Collect Date: 15-SEP-06 12:00
Receive Date: 18-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.661	+/-0.463	0.703	2.00	pCi/g		TC1	10/15/06	1118	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	56	
Strontium Carrier	GFPC, Sr90, solid		8.78	56	
Strontium-90	GFPC, Sr90, solid			56	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-9	Project:	ENRG00105
Sample ID:	173747009	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	-0.0091	+/-0.332	0.665	2.00	pCi/g		TC1	10/15/06	1118	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium-90	GFPC, Sr90, solid			59	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-10	Project:	ENRG00105
Sample ID:	173747010	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	-0.0619	+/-0.276	0.586	2.00	pCi/g		TC1	10/15/06	1117	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	63	
Strontium Carrier	GFPC, Sr90, solid		8.78	63	
Strontium-90	GFPC, Sr90, solid			63	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-11	Project:	ENRG00105
Sample ID:	173747011	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	-0.162	+/-0.208	0.474	2.00	pCi/g		TC1	10/23/06	1439	578507	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	
2	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	62	
Strontium Carrier	GFPC, Sr90, solid		8.78	62	
Strontium-90	GFPC, Sr90, solid			62	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO–12	Project:	ENRG00105
Sample ID:	173747012	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15–SEP–06 12:00		
Receive Date:	18–SEP–06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium–90	U	0.455	+/–0.369	0.575	2.00	pCi/g		TC1	10/15/06	1123	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL–RAD–A–021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL–RAD–A–021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	64	
Strontium Carrier	GFPC, Sr90, solid		8.78	64	
Strontium–90	GFPC, Sr90, solid			64	(25%–125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-13	Project:	ENRG00105
Sample ID:	173747013	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	15-SEP-06 12:00		
Receive Date:	18-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.245	+/-0.309	0.526	2.00	pCi/g		TC1	10/23/06	1439	578507	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXP2	09/18/06	1848	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	
2	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	58	
Strontium Carrier	GFPC, Sr90, solid		8.78	58	
Strontium-90	GFPC, Sr90, solid			58	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-14	Project:	ENRG00105
Sample ID:	173747014	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	20-SEP-06 12:00		
Receive Date:	21-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	-0.123	+/-0.282	0.620	2.00	pCi/g		TC1	10/15/06	1123	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	57	
Strontium Carrier	GFPC, Sr90, solid		8.78	57	
Strontium-90	GFPC, Sr90, solid			57	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-15	Project:	ENRG00105
Sample ID:	173747015	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	20-SEP-06 12:00		
Receive Date:	21-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.298	+/-0.366	0.619	2.00	pCi/g		TC1	10/15/06	1123	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	64	
Strontium Carrier	GFPC, Sr90, solid		8.78	64	
Strontium-90	GFPC, Sr90, solid			64	(25%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 24, 2006

Client Sample ID:	FSO-16	Project:	ENRG00105
Sample ID:	173747016	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	20-SEP-06 12:00		
Receive Date:	21-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Sr90, solid												
Strontium-90	U	0.565	+/-0.407	0.616	2.00	pCi/g		TC1	10/15/06	1123	578507	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	AXP2	10/12/06	1338	577853
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	577850

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 905.0 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium Carrier	GFPC, Sr90, solid		8.78	59	
Strontium-90	GFPC, Sr90, solid			59	(25%-125%)

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: October 24, 2006

Energy Solutions
c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York

Contact: **Mr. Mike Taylor**

Workorder: **173747**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch 578507											
QC1201205531 173747001 DUP											
Strontium-90		U	0.111 +/-0.389	U	0.00646 +/-0.222	pCi/g	0		(0%-20%)	TC1	10/23/06 14:39
**Strontium Carrier	8.78		5.40		5.40	mg		62			
QC1201205533 LCS											
Strontium-90	132				149 +/-6.27	pCi/g		113	(75%-125%)		10/15/06 11:26
**Strontium Carrier	8.78				4.80	mg		55			
QC1201205530 MB											
Strontium-90				U	0.328 +/-0.343	pCi/g					10/15/06 11:24
**Strontium Carrier	8.78				5.50	mg		63			
QC1201205532 173747001 MS											
Strontium-90	151	U	0.111 +/-0.389		167 +/-6.90	pCi/g		111	(75%-125%)		10/15/06 11:26
**[illegible]tium Carrier	8.78		5.40		5.10	mg		58			

Notes:
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- h Preparation or preservation holding time was exceeded

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QC Summary

Workorder: 173747

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

APPENDIX H

ANALYTICAL REPORTS FOR CONCRETE SAMPLE ANALYSIS

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

ENRG001 Energysolutions

Client SDG: 172277 GEL Work Order: 172277

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

ND The analyte concentration is not detected above the detection limit.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Cheryl Duffy.

Reviewed by

Document Number 82A8016

ENERGYSOLUTIONS

172277

ATTACHMENT B
ENERGY*SOLUTIONS* FIELD SERVICES
CHAIN OF CUSTODY RECORD
Parameters for Analysis

Energy Solutions
143 West Street
New Milford, CT 06776
860-210-3000

To: General Engineering Laboratories, LLC
P.O. Box 30712
Charleston, SC 29417
Phone: (843) 556-8171
Fax: (843) 766-1178

Attention: Cheryl Jones
Email: cj@gel.com

Sampler's Name: Chris Higgins

Project Number: 0885

Project Name: Cornell

Sample ID No.	Date Collected	Time Collected	Gamma Spec	H3	Fe55	Ni63	C14					Comments
FSO-14	9/20/2006	12:00 PM	x	x	x	x	x					Please Send Results to:
FSO-15	9/20/2006	12:00 PM	x	x	x	x	x					Chris Higgins
FSO-16	9/20/2006	12:00 PM	x	x	x	x	x					Energy Solutions c/o Cornell University-
												Ward Center Laboratory
												Central Avenue
												Ithaca, NY 14853
												and e-mail:
												chiggins@energysolution.com

Relinquished By (Signature) — Date/Time: 9/20/2006

Received By (Signature) — Date/Time: 9-21-06 0900

SHIPPING INFORMATION: Carrier: Fed Ex — Date Shipped: 5/15/2006

ENERGYSOLUTIONS CONTACT: Name: Chris Higgins — Phone No.: 607-255-2095

SAMPLE RECEIPT & REVIEW FORM

GENERAL ENGINEERING LABORATORIES, LLC

PM use only

Client: Energy Sol	SDG/ARCOC/Work Order: 172217
Date Received: 7-21-06	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: mk	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.		✓		Circle Coolant # ice bags blue ice dry ice none other describe) 21C
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: SOILS
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present? (If yes, immediately deliver to VOA laboratory)			✓	
8	Samples received within holding time?	✓			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?			✓	Sample ID's and containers affected: BAGS OF SOILS ARE LABELED #1, #2, #3
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: NO DATE OR TIME ON BAGS
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected: 1 PER ID
12	COC form is properly signed in relinquished/received sections?	✓			
14	Air Bill ,Tracking #'s, & Additional Comments	FED EX # 8577 4175 6480			

	Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A	Radiological Classification?	✓			Maximum Counts Observed*: cpm 30
B	PCB Regulated?	✓			Comments:
C	Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	✓			Hazard Class Shipped: UN#:

PM (or PMA) review of Hazard classification: _____ Initials AD Date: 9/20/06

GENERAL ENGINEERING LABORATORIES, LLC

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID:	FSO-14	Project:	ENRG00105
Sample ID:	172277001	Client ID:	ENRG001
Matrix:	Soil		
Collect Date:	20-SEP-06 12:00		
Receive Date:	21-SEP-06		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.19	+/-0.315	0.296	0.800	pCi/g		MJH1 10/04/06	1044	574347	1
Americium-241	U	-0.0535	+/-0.165	0.261	0.200	pCi/g					
Antimony-124	U	-0.027	+/-0.0881	0.136	0.100	pCi/g					
Antimony-125	U	0.0313	+/-0.0946	0.171	0.200	pCi/g					
Barium-133	U	-0.00321	+/-0.0477	0.0749	0.100	pCi/g					
Barium-140	U	-0.145	+/-0.234	0.416	0.500	pCi/g					
Beryllium-7	U	0.220	+/-0.322	0.630	0.700	pCi/g					
Bismuth-212		0.881	+/-0.700	0.546	0.500	pCi/g					
Bismuth-214		0.718	+/-0.142	0.149	0.200	pCi/g					
Cerium-139	U	0.00672	+/-0.0281	0.0521	0.050	pCi/g					
Cerium-141	U	-0.0318	+/-0.0559	0.101	0.100	pCi/g					
Cerium-144	U	0.045	+/-0.177	0.332	0.500	pCi/g					
Cesium-134	U	0.0395	+/-0.0559	0.0966	0.100	pCi/g					
Cesium-136	U	0.0044	+/-0.137	0.242	0.300	pCi/g					
Cesium-137	U	0.000454	+/-0.0417	0.0764	0.100	pCi/g					
Chromium-51	U	-0.0271	+/-0.385	0.681	0.600	pCi/g					
Cobalt-56	U	-0.0115	+/-0.0444	0.0784	0.100	pCi/g					
Cobalt-57	U	0.0365	+/-0.0376	0.0381	0.050	pCi/g					
Cobalt-58	U	-0.0436	+/-0.0436	0.0719	0.100	pCi/g					
Cobalt-60		1.77	+/-0.153	0.0802	0.100	pCi/g					
Europium-152	U	-0.0293	+/-0.102	0.177	0.200	pCi/g					
Europium-154	U	-0.00953	+/-0.120	0.224	0.500	pCi/g					
Europium-155	U	0.0849	+/-0.0936	0.183	0.500	pCi/g					
Iridium-192	U	0.00448	+/-0.0367	0.0657	0.100	pCi/g					
Iron-59	U	0.0748	+/-0.116	0.216	0.300	pCi/g					
Lead-210	U	-1.7	+/-4.54	7.26	4.00	pCi/g					
Lead-212		1.10	+/-0.112	0.103	0.100	pCi/g					
Lead-214		0.899	+/-0.176	0.125	0.100	pCi/g					
Manganese-54	U	0.018	+/-0.0455	0.0843	0.100	pCi/g					
Mercury-203	U	0.0122	+/-0.0407	0.074	0.100	pCi/g					
Neodymium-147	U	0.169	+/-0.530	1.01	1000	pCi/g					
Neptunium-239	U	0.0565	+/-0.171	0.325	2.00	pCi/g					
Niobium-94	U	0.00292	+/-0.0357	0.0656	1.00	pCi/g					
Niobium-95	U	0.0063	+/-0.0594	0.0956	0.050	pCi/g					
Potassium-40		17.5	+/-1.57	0.601	1.00	pCi/g					
Promethium-144	U	0.018	+/-0.0372	0.0705	0.080	pCi/g					
Promethium-146	U	-0.00793	+/-0.0501	0.0862	1.00	pCi/g					
Radium-228		1.19	+/-0.315	0.296	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-14
Sample ID: 172277001

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.100	+/-0.304	0.580	0.800	pCi/g					
Silver-110m	U	-0.000782	+/-0.0373	0.0685	0.080	pCi/g					
Sodium-22	U	-0.00363	+/-0.0428	0.0801	0.080	pCi/g					
Thallium-208		0.380	+/-0.105	0.0678	0.080	pCi/g					
Thorium-230		0.718	+/-0.142	0.149	1.00	pCi/g					
Thorium-234	U	0.0829	+/-1.56	2.21	5.00	pCi/g					
Tin-113	U	0.00312	+/-0.0479	0.0847	0.100	pCi/g					
Uranium-235	U	-0.0128	+/-0.189	0.349	0.500	pCi/g					
Uranium-238	U	0.0829	+/-1.56	2.21	1.00	pCi/g					
Yttrium-88	U	-0.0043	+/-0.0337	0.0646	0.100	pCi/g					
Zinc-65	U	-0.0716	+/-0.139	0.198	0.300	pCi/g					
Zirconium-95	U	-0.0597	+/-0.0884	0.152	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	1.32	+/-3.52	6.17	6.00	pCi/g		DFA1 09/24/06	2336	571362	2
Liquid Scint C14, Solid											
Carbon-14	U	-0.0664	+/-0.892	1.57	2.00	pCi/g		AXD2 09/23/06	0516	571365	3
Liquid Scint Fe55, Solid											
Iron-55	U	2.94	+/-7.61	10.8	20.0	pCi/g		MXP1 09/30/06	0251	571387	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.718	+/-1.39	2.43	4.00	pCi/g		MXP1 09/29/06	0859	571401	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			71	(15%-125%)

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-14
Sample ID: 172277001
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							74	(25%-125%)		

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15
Sample ID: 172277002
Matrix: Soil
Collect Date: 20-SEP-06 12:00
Receive Date: 21-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.909	+/-0.283	0.125	0.800	pCi/g		MJH1 10/02/06	0234	574347	1
Americium-241	U	-0.0542	+/-0.127	0.124	0.200	pCi/g					
Antimony-124	U	-0.052	+/-0.0629	0.0458	0.100	pCi/g					
Antimony-125	U	0.0495	+/-0.0817	0.0843	0.200	pCi/g					
Barium-133	U	0.0162	+/-0.0478	0.0425	0.100	pCi/g					
Barium-140	U	-0.216	+/-0.233	0.185	0.500	pCi/g					
Beryllium-7	U	-0.114	+/-0.306	0.290	0.700	pCi/g					
Bismuth-212	UI	0.00	+/-0.450	0.310	0.500	pCi/g					
Bismuth-214		0.600	+/-0.132	0.0731	0.200	pCi/g					
Cerium-139	U	0.0134	+/-0.0264	0.0262	0.050	pCi/g					
Cerium-141	U	0.0408	+/-0.0542	0.0541	0.100	pCi/g					
Cerium-144	U	-0.0364	+/-0.212	0.178	0.500	pCi/g					
Cesium-134	U	0.0253	+/-0.0476	0.0474	0.100	pCi/g					
Cesium-136	U	0.012	+/-0.110	0.0946	0.300	pCi/g					
Cesium-137	U	-0.0382	+/-0.0472	0.035	0.100	pCi/g					
Chromium-51	U	-0.334	+/-0.442	0.304	0.600	pCi/g					
Cobalt-56	U	-0.0125	+/-0.0471	0.0389	0.100	pCi/g					
Cobalt-57	UI	0.00	+/-0.039	0.0228	0.050	pCi/g					
Cobalt-58	U	-0.0204	+/-0.0393	0.0353	0.100	pCi/g					
Cobalt-60		1.03	+/-0.129	0.0337	0.100	pCi/g					
Europium-152	UI	0.00	+/-0.156	0.0923	0.200	pCi/g					
Europium-154	U	-0.0062	+/-0.112	0.108	0.500	pCi/g					
Europium-155	UI	0.00	+/-0.129	0.089	0.500	pCi/g					
Iridium-192	U	0.0293	+/-0.0395	0.0301	0.100	pCi/g					
Iron-59	U	0.0486	+/-0.0892	0.0921	0.300	pCi/g					
Lead-210	U	0.508	+/-2.74	2.72	4.00	pCi/g					
Lead-212		0.802	+/-0.120	0.0511	0.100	pCi/g					
Lead-214		0.568	+/-0.136	0.0712	0.100	pCi/g					
Manganese-54	UI	0.00	+/-0.0444	0.00	0.100	pCi/g					
Mercury-203	U	0.0252	+/-0.0366	0.038	0.100	pCi/g					
Neodymium-147	U	-0.242	+/-0.435	0.401	1000	pCi/g					
Neptunium-239	U	-0.0092	+/-0.210	0.179	2.00	pCi/g					
Niobium-94	U	0.0197	+/-0.0338	0.0341	1.00	pCi/g					
Niobium-95	U	-0.0295	+/-0.0469	0.0421	0.050	pCi/g					
Potassium-40		12.9	+/-1.56	0.329	1.00	pCi/g					
Promethium-144	U	-0.0305	+/-0.0349	0.0306	0.080	pCi/g					
Promethium-146	U	0.0025	+/-0.0422	0.0416	1.00	pCi/g					
Radium-228		0.909	+/-0.283	0.125	0.500	pCi/g					

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Certificate of Analysis

Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15 Project: ENRG00105
Sample ID: 172277002 Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.290	+/-0.335	0.346	0.800	pCi/g					
Silver-110m	U	0.00287	+/-0.0366	0.0349	0.080	pCi/g					
Sodium-22	U	-0.00243	+/-0.040	0.0385	0.080	pCi/g					
Thallium-208		0.272	+/-0.0843	0.036	0.080	pCi/g					
Thorium-230		0.600	+/-0.132	0.0731	1.00	pCi/g					
Thorium-234	U	-0.486	+/-1.10	1.07	5.00	pCi/g					
Tin-113	U	-0.0275	+/-0.043	0.0395	0.100	pCi/g					
Uranium-235	U	-0.106	+/-0.200	0.187	0.500	pCi/g					
Uranium-238	U	-0.486	+/-1.10	1.07	1.00	pCi/g					
Yttrium-88	U	-0.000887	+/-0.031	0.0303	0.100	pCi/g					
Zinc-65	U	0.011	+/-0.101	0.0867	0.300	pCi/g					
Zirconium-95	U	-0.0673	+/-0.0828	0.072	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	4.43	+/-3.67	6.01	6.00	pCi/g		DFA1 09/24/06	2352	571362	2
Liquid Scint C14, Solid											
Carbon-14	U	-0.0215	+/-0.829	1.45	2.00	pCi/g		AXD2 09/23/06	0532	571365	3
Liquid Scint Fe55, Solid											
Iron-55	U	7.06	+/-7.44	10.4	20.0	pCi/g		MXP1 09/30/06	0454	571387	4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.341	+/-1.17	2.03	4.00	pCi/g		MXP1 09/29/06	1001	571401	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			77	(15%-125%)

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-15
Sample ID: 172277002

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel-63	Liquid Scint Ni63, Solid							82		(25%-125%)	

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Company : Energy Solutions
Address : c/o Cornell University Ward Center Lab
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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-16
Sample ID: 172277003
Matrix: Soil
Collect Date: 20-SEP-06 12:00
Receive Date: 21-SEP-06
Collector: Client

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.997	+/-0.237	0.191	0.800	pCi/g		MJH1 10/02/06	0432	574347	1
Americium-241	U	-0.0253	+/-0.0869	0.150	0.200	pCi/g					
Antimony-124	U	0.0316	+/-0.0579	0.124	0.100	pCi/g					
Antimony-125	U	0.0174	+/-0.069	0.124	0.200	pCi/g					
Barium-133	U	-0.0734	+/-0.0388	0.0576	0.100	pCi/g					
Barium-140	U	0.0169	+/-0.153	0.289	0.500	pCi/g					
Beryllium-7	U	0.229	+/-0.227	0.435	0.700	pCi/g					
Bismuth-212		0.625	+/-0.427	0.398	0.500	pCi/g					
Bismuth-214		0.718	+/-0.133	0.0914	0.200	pCi/g					
Cerium-139	U	0.00831	+/-0.0194	0.0366	0.050	pCi/g					
Cerium-141	U	0.00454	+/-0.0364	0.068	0.100	pCi/g					
Cerium-144	U	-0.00919	+/-0.134	0.225	0.500	pCi/g					
Cesium-134	U	0.0596	+/-0.0472	0.0752	0.100	pCi/g					
Cesium-136	U	-0.057	+/-0.0766	0.125	0.300	pCi/g					
Cesium-137	U	-0.0372	+/-0.031	0.0508	0.100	pCi/g					
Chromium-51	U	-0.132	+/-0.250	0.430	0.600	pCi/g					
Cobalt-56	U	-0.0192	+/-0.030	0.051	0.100	pCi/g					
Cobalt-57	U	0.00201	+/-0.0466	0.0304	0.050	pCi/g					
Cobalt-58	U	-0.016	+/-0.0294	0.0507	0.100	pCi/g					
Cobalt-60		0.773	+/-0.106	0.0525	0.100	pCi/g					
Europium-152		0.202	+/-0.105	0.138	0.200	pCi/g					
Europium-154	U	0.0652	+/-0.0953	0.191	0.500	pCi/g					
Europium-155	U	0.0768	+/-0.0735	0.133	0.500	pCi/g					
Iridium-192	U	-0.00934	+/-0.0247	0.0429	0.100	pCi/g					
Iron-59	U	0.0498	+/-0.0724	0.139	0.300	pCi/g					
Lead-210	U	0.877	+/-2.27	2.57	4.00	pCi/g					
Lead-212		1.02	+/-0.119	0.0711	0.100	pCi/g					
Lead-214		0.821	+/-0.124	0.0876	0.100	pCi/g					
Manganese-54	U	0.0331	+/-0.0307	0.0607	0.100	pCi/g					
Mercury-203	U	0.0366	+/-0.0504	0.0449	0.100	pCi/g					
Neodymium-147	U	-0.0096	+/-0.317	0.596	1000	pCi/g					
Neptunium-239	U	-0.0382	+/-0.120	0.221	2.00	pCi/g					
Niobium-94	U	-0.00786	+/-0.027	0.0481	1.00	pCi/g					
Niobium-95	U	0.000885	+/-0.0396	0.0636	0.050	pCi/g					
Potassium-40		16.3	+/-1.63	0.521	1.00	pCi/g					
Promethium-144	U	-0.00846	+/-0.0274	0.0489	0.080	pCi/g					
Promethium-146	U	0.00231	+/-0.0336	0.0593	1.00	pCi/g					
Radium-228		0.997	+/-0.237	0.191	0.500	pCi/g					

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Ithaca, New York 14853
Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO-16
Sample ID: 172277003
Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.143	+/-0.236	0.459	0.800	pCi/g					
Silver-110m	U	0.0282	+/-0.026	0.0522	0.080	pCi/g					
Sodium-22	U	0.0233	+/-0.034	0.0684	0.080	pCi/g					
Thallium-208		0.281	+/-0.0692	0.0499	0.080	pCi/g					
Thorium-230		0.718	+/-0.133	0.0913	1.00	pCi/g					
Thorium-234	U	1.02	+/-1.30	1.28	5.00	pCi/g					
Tin-113	U	0.00316	+/-0.0343	0.0608	0.100	pCi/g					
Uranium-235	U	0.0653	+/-0.130	0.246	0.500	pCi/g					
Uranium-238	U	1.02	+/-1.30	1.28	1.00	pCi/g					
Yttrium-88	U	-0.00551	+/-0.024	0.0454	0.100	pCi/g					
Zinc-65	U	0.0035	+/-0.0717	0.129	0.300	pCi/g					
Zirconium-95	U	-0.00529	+/-0.0668	0.106	0.200	pCi/g					
Rad Liquid Scintillation Analysis											
LSC, Tritium Dist, Solid											
Tritium	U	2.35	+/-3.22	5.49	6.00	pCi/g		DFA1	09/25/06	0008	571362 2
Liquid Scint C14, Solid											
Carbon-14	U	-0.318	+/-0.841	1.50	2.00	pCi/g		AXD2	09/23/06	0548	571365 3
Liquid Scint Fe55, Solid											
Iron-55	U	-0.661	+/-6.52	9.25	20.0	pCi/g		MXP1	09/30/06	0752	571387 4
Liquid Scint Ni63, Solid											
Nickel-63	U	-0.405	+/-1.14	1.99	4.00	pCi/g		MXP1	09/29/06	1102	571401 5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Ash Soil Prep	Ash Soil Prep, GL-RAD-A-021B	TMB1	09/25/06	1037	571363
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LXM2	09/24/06	1234	571357

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	
2	EPA 906.0 Modified	
3	EPA EERF C-01 Modified	
4	DOE RESL Fe-1, Modified	
5	DOE RESL Ni-1, Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Iron-55	Liquid Scint Fe55, Solid			75	(15%-125%)

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Contact: Mr. Mike Taylor
Project: **Ward Center Laboratory/Energy Solutions**

Report Date: October 5, 2006

Client Sample ID: FSO–16
Sample ID: 172277003

Project: ENRG00105
Client ID: ENRG001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Nickel–63	Liquid Scint Ni63, Solid							86			(25%–125%)

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QC Summary

Report Date: October 5, 2006

Energy Solutions
c/o Cornell University Ward Center Lab
Central Avenue
Ithaca, New York

Contact: Mr. Mike Taylor

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
QC1201196577 172277001 DUP										
Actinium-228		1.19 +/-0.315		1.16 +/-0.315	pCi/g	3		(0%-20%)	MJH1	10/04/06 10:43
Americium-241	U	-0.0535 +/-0.165	U	0.00452 +/-0.0561	pCi/g	237*		(0%-20%)		
Antimony-124	U	-0.027 +/-0.0881	U	-0.0114 +/-0.0815	pCi/g	81*		(0%-20%)		
Antimony-125	U	0.0313 +/-0.0946	U	0.104 +/-0.0941	pCi/g	107*		(0%-20%)		
Barium-133	U	-0.00321 +/-0.0477	U	0.0342 +/-0.0429	pCi/g	241*		(0%-20%)		
Barium-140	U	-0.145 +/-0.234	U	-0.256 +/-0.264	pCi/g	56*		(0%-20%)		
Beryllium-7	U	0.220 +/-0.322	U	0.0532 +/-0.343	pCi/g	122*		(0%-20%)		
muth-212		0.881 +/-0.700	U	0.451 +/-0.390	pCi/g	65*		(0%-20%)		
Bismuth-214		0.718 +/-0.142		0.737 +/-0.184	pCi/g	3		(0%-20%)		
Cerium-139	U	0.00672 +/-0.0281	U	-0.0119 +/-0.0269	pCi/g	717*		(0%-20%)		
Cerium-141	U	-0.0318 +/-0.0559	UI	0.00 +/-0.0816	pCi/g	350*		(0%-20%)		
Cerium-144	U	0.045 +/-0.177	U	0.212 +/-0.175	pCi/g	130*		(0%-20%)		
Cesium-134	U	0.0395 +/-0.0559	U	0.0616 +/-0.0537	pCi/g	44*		(0%-20%)		
Cesium-136	U	0.0044 +/-0.137	U	0.00601 +/-0.119	pCi/g	31*		(0%-20%)		
Cesium-137	U	0.000454 +/-0.0417	U	-0.0414 +/-0.0431	pCi/g	204*		(0%-20%)		
Chromium-51	U	-0.0271 +/-0.385	U	0.0358 +/-0.317	pCi/g	1460*		(0%-20%)		
Cobalt-56	U	-0.0115 +/-0.0444	U	0.0159 +/-0.0504	pCi/g	1250*		(0%-20%)		
Cobalt-57	U	0.0365 +/-0.0376	U	0.0109 +/-0.0219	pCi/g	108*		(0%-20%)		
Cobalt-58	U	-0.0436 +/-0.0436	U	0.0352 +/-0.0474	pCi/g	1860*		(0%-20%)		
obalt-60		1.77 +/-0.153		0.356 +/-0.0895	pCi/g	133*		(0%-20%)		
ropium-152	U	-0.0293 +/-0.102	U	0.062 +/-0.102	pCi/g	559*		(0%-20%)		

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Europium-154	U	-0.00953 +/-0.120	U	0.00494 +/-0.147	pCi/g	631*		(0%-20%)		
Europium-155	U	0.0849 +/-0.0936	U	0.115 +/-0.112	pCi/g	30*		(0%-20%)	MJH1	10/04/06 10:43
Iridium-192	U	0.00448 +/-0.0367	U	-0.0364 +/-0.030	pCi/g	256*		(0%-20%)		
Iron-59	U	0.0748 +/-0.116	U	0.0716 +/-0.112	pCi/g	4		(0%-20%)		
Lead-210	U	-1.7 +/-4.54	UI	0.00 +/-0.793	pCi/g	605*		(0%-20%)		
Lead-212		1.10 +/-0.112		1.25 +/-0.105	pCi/g	13		(0%-20%)		
Lead-214		0.899 +/-0.176		0.883 +/-0.144	pCi/g	2		(0%-20%)		
Manganese-54	U	0.018 +/-0.0455	U	0.0336 +/-0.0603	pCi/g	61*		(0%-20%)		
Mercury-203	U	0.0122 +/-0.0407	U	0.0447 +/-0.0673	pCi/g	114*		(0%-20%)		
Neodymium-147	U	0.169 +/-0.530	U	0.111 +/-0.579	pCi/g	41*		(0%-20%)		
[illegible]nium-239	U	0.0565 +/-0.171	U	-0.0677 +/-0.165	pCi/g	2220*		(0%-20%)		
Niobium-94	U	0.00292 +/-0.0357	U	-0.00162 +/-0.0374	pCi/g	697*		(0%-20%)		
Niobium-95	U	0.0063 +/-0.0594	U	-0.0591 +/-0.0585	pCi/g	248*		(0%-20%)		
Potassium-40		17.5 +/-1.57		20.5 +/-1.88	pCi/g	16		(0%-20%)		
Promethium-144	U	0.018 +/-0.0372	U	-0.0225 +/-0.0383	pCi/g	1780*		(0%-20%)		
Promethium-146	U	-0.00793 +/-0.0501	U	0.029 +/-0.0471	pCi/g	350*		(0%-20%)		
Radium-228		1.19 +/-0.315		1.16 +/-0.315	pCi/g	3		(0%-20%)		
Ruthenium-106	U	0.100 +/-0.304	U	-0.0616 +/-0.374	pCi/g	837*		(0%-20%)		
Silver-110m	U	-0.000782 +/-0.0373	U	0.0186 +/-0.0406	pCi/g	218*		(0%-20%)		
Sodium-22	U	-0.00363 +/-0.0428	U	0.0015 +/-0.0524	pCi/g	481*		(0%-20%)		
Thallium-208		0.380 +/-0.105		0.443 +/-0.0979	pCi/g	15		(0%-20%)		
Thorium-230		0.718 +/-0.142		0.737 +/-0.184	pCi/g	3		(0%-20%)		
Thorium-234	U	0.0829 +/-1.56	U	0.556 +/-0.937	pCi/g	148*		(0%-20%)		
Tin-113	U	0.00312 +/-0.0479	U	-0.0308 +/-0.041	pCi/g	245*		(0%-20%)		

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Uranium-235	U	-0.0128 +/-0.189	UI	0.00 +/-0.299	pCi/g	211*		(0%-20%)		
Uranium-238	U	0.0829 +/-1.56	U	0.556 +/-0.937	pCi/g	148*		(0%-20%)	MJH1	10/04/06 10:43
Yttrium-88	U	-0.0043 +/-0.0337	U	0.0198 +/-0.0298	pCi/g	311*		(0%-20%)		
Zinc-65	U	-0.0716 +/-0.139	U	-0.025 +/-0.118	pCi/g	96*		(0%-20%)		
Zirconium-95	U	-0.0597 +/-0.0884	U	-0.00773 +/-0.0802	pCi/g	154*		(0%-20%)		
QC1201196578 LCS										
Actinium-228			U	0.0517 +/-0.472	pCi/g					10/02/06 03:25
Americium-241	23.4			25.4 +/-2.22	pCi/g		109	(75%-125%)		
Antimony-124			U	-0.0678 +/-0.210	pCi/g					
Antimony-125			U	-0.0327 +/-0.270	pCi/g					
Barium-133			U	-0.0794 +/-0.113	pCi/g					
[illegible]m-140			U	-0.248 +/-0.481	pCi/g					
Beryllium-7			U	-0.678 +/-0.916	pCi/g					
Bismuth-212			U	-0.0677 +/-0.868	pCi/g					
Bismuth-214			U	0.194 +/-0.189	pCi/g					
Cerium-139				3.16 +/-0.257	pCi/g					
Cerium-141			U	-0.00665 +/-0.105	pCi/g					
Cerium-144			U	0.166 +/-0.436	pCi/g					
Cesium-134			U	0.0436 +/-0.117	pCi/g					
Cesium-136			U	0.0205 +/-0.251	pCi/g					
Cesium-137	9.56			10.4 +/-0.989	pCi/g		108	(75%-125%)		
Chromium-51			U	-0.183 +/-0.748	pCi/g					
Cobalt-56			U	-0.00132 +/-0.126	pCi/g					
Cobalt-57				4.30 +/-0.346	pCi/g					
Cobalt-58			U	0.0797	pCi/g					

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QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
				+/-0.121						
Cobalt-60	14.4			15.5 +/-1.09	pCi/g		108	(75%-125%)	MJH1	10/02/06 03:25
Europium-152			U	0.253 +/-0.236	pCi/g					
Europium-154			U	0.0522 +/-0.229	pCi/g					
Europium-155			U	-0.164 +/-0.263	pCi/g					
Iridium-192			U	0.014 +/-0.078	pCi/g					
Iron-59			U	0.191 +/-0.306	pCi/g					
Lead-210			U	3.78 +/-7.73	pCi/g					
Lead-212			U	0.113 +/-0.136	pCi/g					
Lead-214			U	-0.0151 +/-0.182	pCi/g					
[illegible]ganese-54			U	0.0127 +/-0.113	pCi/g					
Mercury-203				0.777 +/-0.140	pCi/g					
Neodymium-147			U	1.28 +/-1.02	pCi/g					
Neptunium-239			U	0.105 +/-0.467	pCi/g					
Niobium-94			U	0.0154 +/-0.0967	pCi/g					
Niobium-95			U	0.104 +/-0.125	pCi/g					
Potassium-40			U	0.392 +/-0.950	pCi/g					
Promethium-144			U	-0.048 +/-0.0976	pCi/g					
Promethium-146			U	0.0087 +/-0.136	pCi/g					
Radium-228			U	0.0517 +/-0.472	pCi/g					
Ruthenium-106			U	0.302 +/-0.948	pCi/g					
Silver-110m			U	0.0915 +/-0.125	pCi/g					
Sodium-22			U	0.0197 +/-0.0816	pCi/g					
Thallium-208			U	0.0436 +/-0.129	pCi/g					

QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Thorium-230			U	0.194 +/-0.189	pCi/g					
Thorium-234			U	-0.406 +/-2.65	pCi/g				MJH1	10/02/06 03:25
Tin-113				4.74 +/-0.410	pCi/g					
Uranium-235			U	0.349 +/-0.412	pCi/g					
Uranium-238			U	-0.406 +/-2.65	pCi/g					
Yttrium-88				6.23 +/-0.552	pCi/g					
Zinc-65			U	-0.264 +/-0.331	pCi/g					
Zirconium-95			U	0.274 +/-0.202	pCi/g					
QC1201196576 MB										
Actinium-228			U	0.0126 +/-0.0745	pCi/g					10/02/06 04:46
Americium-241			U	-0.0179 +/-0.0585	pCi/g					
Antimony-124			U	-0.0108 +/-0.042	pCi/g					
Antimony-125			U	0.022 +/-0.0485	pCi/g					
Barium-133			U	-0.00562 +/-0.0277	pCi/g					
Barium-140			U	-0.0328 +/-0.0859	pCi/g					
Beryllium-7			U	0.00614 +/-0.167	pCi/g					
Bismuth-212			U	0.0989 +/-0.147	pCi/g					
Bismuth-214			U	-0.012 +/-0.0521	pCi/g					
Cerium-139			U	-0.00584 +/-0.0153	pCi/g					
Cerium-141			U	-0.00591 +/-0.0306	pCi/g					
Cerium-144			U	0.0935 +/-0.108	pCi/g					
Cesium-134			U	-0.00226 +/-0.0227	pCi/g					
Cesium-136			U	-0.0194 +/-0.0422	pCi/g					
Cesium-137			U	0.00611 +/-0.020	pCi/g					
Chromium-51			U	0.00869	pCi/g					

QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
				+/-0.170						
Cobalt-56			U	0.0104 +/-0.0223	pCi/g				MJH1	10/02/06 04:46
Cobalt-57			U	-0.00439 +/-0.0137	pCi/g					
Cobalt-58			U	-0.00477 +/-0.016	pCi/g					
Cobalt-60			U	-0.0107 +/-0.017	pCi/g					
Europium-152			U	-0.0189 +/-0.0551	pCi/g					
Europium-154			U	0.0198 +/-0.051	pCi/g					
Europium-155			U	0.0186 +/-0.0457	pCi/g					
Iridium-192			U	0.00554 +/-0.0175	pCi/g					
Iron-59			U	0.0229 +/-0.0401	pCi/g					
[illegible]-210			U	0.0763 +/-1.22	pCi/g					
Lead-212			UI	0.00 +/-0.0588	pCi/g					
Lead-214			U	0.027 +/-0.0463	pCi/g					
Manganese-54			U	-0.00865 +/-0.0176	pCi/g					
Mercury-203			U	0.00501 +/-0.0207	pCi/g					
Neodymium-147			U	-0.0271 +/-0.181	pCi/g					
Neptunium-239			U	0.0492 +/-0.0952	pCi/g					
Niobium-94			U	0.00103 +/-0.0201	pCi/g					
Niobium-95			U	0.00459 +/-0.0204	pCi/g					
Potassium-40			U	0.0901 +/-0.244	pCi/g					
Promethium-144			U	0.00631 +/-0.0209	pCi/g					
Promethium-146			U	0.00465 +/-0.0235	pCi/g					
Radium-228			U	0.0126 +/-0.0745	pCi/g					
Ruthenium-106			U	0.142 +/-0.183	pCi/g					

QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 574347										
Silver-110m			U	-0.0136 +/-0.0183	pCi/g					
Sodium-22			U	0.00697 +/-0.0181	pCi/g				MJH1	10/02/06 04:46
Thallium-208			U	-0.0156 +/-0.0235	pCi/g					
Thorium-230			U	-0.012 +/-0.0521	pCi/g					
Thorium-234			U	-0.365 +/-0.512	pCi/g					
Tin-113			U	-0.0106 +/-0.0235	pCi/g					
Uranium-235			UI	0.00 +/-0.152	pCi/g					
Uranium-238			U	-0.365 +/-0.512	pCi/g					
Yttrium-88			U	0.00247 +/-0.0263	pCi/g					
Zinc-65			U	-0.0414 +/-0.0435	pCi/g					
[illegible]nium-95			U	-0.0233 +/-0.034	pCi/g					
Rad Liquid Scintillation										
Batch 571362										
QC1201189751 172277002 DUP										
Tritium	U	4.43 +/-3.67	U	3.98 +/-2.79	pCi/g	0		(0%-20%)	DFA1	09/29/06 17:01
QC1201189753 LCS										
Tritium	24.0			23.9 +/-3.05	pCi/g		100	(75%-125%)		09/29/06 17:48
QC1201189750 MB										
Tritium			U	1.36 +/-2.12	pCi/g					09/29/06 16:14
QC1201189752 172277002 MS										
Tritium	26.4	U 4.43 +/-3.67		27.0 +/-5.13	pCi/g		102	(75%-125%)		09/25/06 00:57
Batch 571365										
QC1201189755 172277003 DUP										
Carbon-14	U	-0.318 +/-0.841	U	-0.428 +/-0.889	pCi/g	0		(0%-20%)	AXD2	09/23/06 07:03
QC1201189757 LCS										
Carbon-14	32.7			36.1 +/-2.02	pCi/g		110	(75%-125%)		09/23/06 08:12
QC1201189754 MB										
Carbon-14			U	0.0937 +/-0.940	pCi/g					09/23/06 06:47
QC1201189756 172277003 MS										
Carbon-14	27.3	U -0.318		26.9	pCi/g		99	(75%-125%)		09/23/06 07:55

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QC Summary

Workorder: 172277

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Liquid Scintillation											
Batch 571365											
			+/-0.841		+/-1.61						
Batch 571387											
QC1201189798 172277003 DUP											
Iron-55		U	-0.661 +/-6.52	U	7.71 +/-7.40	pCi/g	0		(0%-30%)	MXP1	09/30/06 11:59
QC1201189800 LCS											
Iron-55	308				302 +/-9.04	pCi/g		98	(75%-125%)		09/30/06 16:06
QC1201189797 MB											
Iron-55				U	3.87 +/-5.96	pCi/g					09/30/06 09:56
QC1201189799 172277003 MS											
Iron-55	345	U	-0.661 +/-6.52		318 +/-10.4	pCi/g		92	(75%-125%)		09/30/06 14:03
Batch 571401											
QC1201189836 172277001 DUP											
Nickel-63		U	-0.718 +/-1.39	U	-0.681 +/-1.23	pCi/g	0		(0%-20%)	MXP1	09/29/06 13:05
QC1201189838 LCS											
Nickel-63	136				108 +/-3.16	pCi/g		80	(75%-125%)		09/29/06 15:09
QC1201189835 MB											
Nickel-63				U	-0.658 +/-1.17	pCi/g					09/29/06 12:04
QC1201189837 172277001 MS											
Nickel-63	137	U	-0.718 +/-1.39		116 +/-3.13	pCi/g		85	(75%-125%)		09/29/06 14:07

Notes:
The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- H Analytical holding time was exceeded
- J Value is estimated
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

QC Summary

Workorder: 172277

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI	Gamma Spectroscopy--Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

APPENDIX I

DAILY INSTRUMENT CHECK LOGS

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/6/2006

Meter	Serial #	Probe #	Range				Source Check (counts)	Background (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	114724	2892	10	289.2	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	132226	2481	10	248.1	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	127515	1619	10	161.9	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	132725	3566	10	356.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	116631	1694	10	1694.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	120653	3011	30	100.4	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	6791	7	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	0.8	0.3	Observe	0.30	11/16/2006	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	0.08	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Inst[illegible]t Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/7/2006

Meter	Serial #	Probe #	Range				Source Check (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	120000	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	100000	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	115484	10	277.9	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	129448	10	250.7	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	112508	10	163.9	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	132105	10	338.3	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	81888	10	1698.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	119884	30	100.1	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	6824	30	0.3	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	10	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	0.7	Observe	0.02	11/16/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/8/2006

Meter	Serial #	Probe #	Range				Source Check (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	120000	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	100000	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	119514	10	291.5	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	133918	10	226.9	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	121200	10	146.2	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	133069	10	314.0	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	70787	10	1690.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	120793	30	100.4	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	6940	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	10	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	0.8	Observe	0.10	11/16/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Ins[illegible] Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/11/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check (counts)	Background (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	116389	2874	10	287.4	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	122495	2512	10	251.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	121331	1670	10	167.0	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	133011	3374	10	337.4	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	99026	1791	10	1791.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121196	3072	30	102.4	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6889	11	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.01	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	240	13	Observe	13.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0.05	Observe	0.1	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/12/2006

Meter	Serial #	Probe #	Range				Source Check (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	120000	Observe	60.0	11/17/2006	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	100000	Observe	80.0	1/10/2007	22.42%	
L2360	193629	200130	96889	to	136712	cpm	116255	10	312.0	11/19/2006	25.92%	
L2360	184941	200125	91960	to	151472	cpm	129022	10	259.2	12/12/2006	21.46%	
L2360	202475	208667	46470	to	150459	cpm	124673	10	157.3	12/12/2006	17.98%	
L2360	202455	200135	119385	to	133132	cpm	123456	10	340.4	11/19/2006	22.96%	
L2360	202415	193917	66309	to	136194	cpm	108028	10	1637.0	12/13/2006	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	121409	30	107.9	12/5/2006	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	6632	30	0.2	12/5/2006	77.20%	
RO-2A	4568	na	9	to	12	mR/h	10	Observe	0.0	11/18/2006	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	0.8	Observe	0.04	11/16/2006	NA	
Model 19	148152	na	236	to	292	μR/h	240	Observe	14.0	3/5/2007	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	0.2	Observe	0.0	12/2/2006	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Inst[illegible] Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/13/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check (counts)	Background (counts)	Background Count Time (min)	Corrected Background (cpm)	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	40	Observe	40.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120844	2968	10	296.8	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	129644	2462	10	246.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	104523	1497	10	149.7	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	133116	3357	10	335.7	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	103949	1819	10	1819.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	123540	3005	30	100.2	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6795	7	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.03	Observe	0.03	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	260	10	Observe	10.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instr[illegible] Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/14/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	80	Observe	80.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	121169	2883	10	288.3	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	125949	2509	10	250.9	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	117514	1511	10	151.1	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	127019	3401	10	340.1	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	100477	1691	10	1691.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121396	2970	30	99.0	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6956	4	30	0.1	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.7	0.02	Observe	0.02	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	270	14	Observe	14.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/15/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	118477	2873	10	287.3	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	135605	2536	10	253.6	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	117413	1642	10	164.2	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	132444	3302	10	330.2	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	98835	1677	10	167.7	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	120952	2931	30	97.7	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6772	11	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.02	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	260	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.15	0	Observe	0.0	12/2/2006	In Service	NA	
L2221	68537	226943	263638	to	296412	cpm	Yes	292822	142507	10	14250.7	12/20/2006	Standby	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/18/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	40	Observe	40.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	128452	2752	10	275.2	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	113400	2439	10	243.9	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	96543	1520	10	152.0	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	126499	3315	10	331.5	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	107341	1710	10	171.0	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121496	2902	30	96.7	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6831	17	30	0.6	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.02	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	280	10	Observe	10.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/19/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	40	Observe	40.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120729	2665	10	266.5	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	124871	2375	10	237.5	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	99274	1498	10	149.8	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	130001	3283	10	328.3	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	117356	1617	10	161.7	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	120881	2989	30	99.6	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6774	7	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	260	14	Observe	14.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/20/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	114862	2796	10	279.6	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	129253	2472	10	247.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	119826	1578	10	157.8	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	132775	3429	10	342.9	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	119719	1633	10	163.3	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	120900	3006	30	100.2	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6891	8	30	0.3	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.7	0.02	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	μR/h	Yes	280	10	Observe	10.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	
L2221	68537	226943	263638	to	296412	cpm	Yes	290812	144417	10	14441.7	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/21/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	80	Observe	80.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120892	2944	10	294.4	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	128297	2445	10	244.5	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	92477	1503	10	150.3	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	129837	3151	10	315.1	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	112645	1649	10	164.9	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121945	3072	30	102.4	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6812	5	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	Yes	10	0	Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	μR/h	Yes	270	10	Observe	10.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	Yes	0.2	0	Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks- FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/22/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	80	Observe	80.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	112770	2823	10	282.3	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	130136	2416	10	241.6	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	80672	1456	10	145.6	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	122764	3259	10	325.9	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	120409	1647	10	164.7	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121876	2983	30	99.4	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6973	12	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	270	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/25/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	40	Observe	40.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	121719	3261	10	326.1	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	134665	2821	10	282.1	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	126598	1801	10	180.1	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	120172	3511	10	351.1	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	112052	1818	10	181.8	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121462	3027	30	100.9	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6768	4	30	0.1	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	280	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/26/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	123323	2756	10	275.6	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	110024	2936	10	293.6	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	125056	1519	10	151.9	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	130823	3269	10	326.9	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	114069	1593	10	159.3	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121365	2919	30	97.3	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6922	10	30	0.3	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	280	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	289577	152181	10	15218.1	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instru[illegible]Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/27/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	114729	2657	10	265.7	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	133660	2381	10	238.1	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	122541	1570	10	157.0	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	130672	3357	10	335.7	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	83316	1781	10	178.1	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121228	2899	30	96.6	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6901	11	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	280	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	291784	143311	10	14331.1	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instru[illegible] Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/28/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	40	Observe	40.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	108830	2701	10	270.1	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	129845	2432	10	243.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	105848	1551	10	155.1	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	128017	3406	10	340.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	102408	1905	10	190.5	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121278	2948	30	98.3	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6711	5	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	270	12	Observe	12.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	295584	136594	10	13659.4	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instr[illegible] Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 9/29/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	114644	2533	10	253.3	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	118165	1567	10	156.7	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	122496	3318	10	331.8	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	131151	1626	10	162.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	118094	3013	10	301.3	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	120643	10	30	0.3	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6870	5	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	270	11	Observe	11.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	293731	136056	10	13605.6	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/2/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120488	2794	10	279.4	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	134750	2392	10	239.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	120152	1650	10	165.0	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	130855	3236	10	323.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	99786	1586	10	158.6	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121835	2947	30	98.2	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6829	10	30	0.3	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	290	10	Observe	10.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	291485	138714	10	13871.4	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/3/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	80	Observe	80.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	101814	2843	10	284.3	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	123269	2355	10	235.5	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	125051	1529	10	152.9	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	128516	3076	10	307.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	123329	1607	10	160.7	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121803	2941	30	98.0	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6813	12	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.02	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	μR/h	Yes	280	11	Observe	11.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	287970	140190	10	14019.0	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/4/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120794	3100	10	310.0	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	124666	2606	10	260.6	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	105828	1677	10	167.7	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	130703	3358	10	335.8	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	114481	1681	10	168.1	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	120556	2988	30	99.6	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6749	12	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.01	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	µR/h	Yes	280	0.1	Observe	0.1	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	298412	cpm	Yes	292472	153079	10	15307.9	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/5/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	60	Observe	60.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	40	Observe	40.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	129140	2892	10	289.2	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	133887	2292	10	229.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	Yes	113934	1577	10	157.7	12/12/2006	In Service	17.98%	
L2360	202455	200135	119385	to	133132	cpm	Yes	126952	3046	10	304.6	11/19/2006	In Service	22.96%	
L2360	202415	193917	66309	to	136194	cpm	Yes	110074	1661	10	166.1	12/13/2006	In Service	13.28%	
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121147	2944	30	98.1	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6891	6	30	0.2	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	Yes	0.8	0.02	Observe	0.0	11/16/2006	In Service	NA	
Model 19	148152	na	236	to	292	μR/h	Yes	280	11	Observe	11.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	277900	142215	10	14221.5	12/20/2006	In Service	22.46%	

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/6/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	80	Observe	80.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	118941	2669	10	266.9	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	111804	2322	10	232.2	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	No			10	0.0	12/12/2006	In Service	17.98%	DNU
L2360	202455	200135	119385	to	133132	cpm	No			10	0.0	11/19/2006	In Service	22.96%	DNU
L2360	202415	193917	66309	to	136194	cpm	No			10	0.0	12/13/2006	In Service	13.28%	DNU
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121385	2716	30	90.5	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6807	11	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	No			Observe	0.0	11/16/2006	In Service	NA	DNU
Model 19	148152	na	236	to	292	µR/h	Yes	280	11	Observe	11.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	Yes	279891	141509	10	14150.9	12/20/2006	In Service	22.46%	DNU

Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Technician: LeRoy Cuneo

Date: 10/9/2006

Meter	Serial #	Probe #	Range				Acceptable	Source Check	Background	Background Count Time (min)	Corrected Background	Cal Due	Status	Efficiency	Notes
L177-61	166294	175105	114602	to	142398	cpm	Yes	120000	80	Observe	80.0	11/17/2006	In Service	24.10%	
L177-61	140756	175093	89748	to	134252	cpm	Yes	100000	60	Observe	60.0	1/10/2007	In Service	22.42%	
L2360	193629	200130	96889	to	136712	cpm	Yes	120804	2802	10	280.2	11/19/2006	In Service	25.92%	
L2360	184941	200125	91960	to	151472	cpm	Yes	128900	2481	10	248.1	12/12/2006	In Service	21.46%	
L2360	202475	208667	46470	to	150459	cpm	No			10	0.0	12/12/2006	In Service	17.98%	DNU
L2360	202455	200135	119385	to	133132	cpm	No			10	0.0	11/19/2006	In Service	22.96%	DNU
L2360	202415	193917	66309	to	136194	cpm	No			10	0.0	12/13/2006	In Service	13.28%	DNU
L2929	176107	181277	119031	to	126144	cpm (β,γ)	Yes	121961	2750	30	91.7	12/5/2006	In Service	36.60%	
L2929	176107	181277	6616	to	7097	cpm (α)	Yes	6890	12	30	0.4	12/5/2006	In Service	77.20%	
RO-2A	4568	na	9	to	12	mR/h	No			Observe	0.0	11/18/2006	In Service	NA	DNU
Model 5	201695	na	0.67	to	0.83	mR/h	No			Observe	0.0	11/16/2006	In Service	NA	DNU
Model 19	148152	na	236	to	292	µR/h	Yes	280	11	Observe	11.0	3/5/2007	In Service	NA	
Teletector 6112B	99259	na	0.08	to	0.34	mR/h	No			Observe	0.0	12/2/2006	In Service	NA	DNU
L2221	68537	226943	263638	to	296412	cpm	No			10	0.0	12/20/2006	In Service	22.46%	DNU

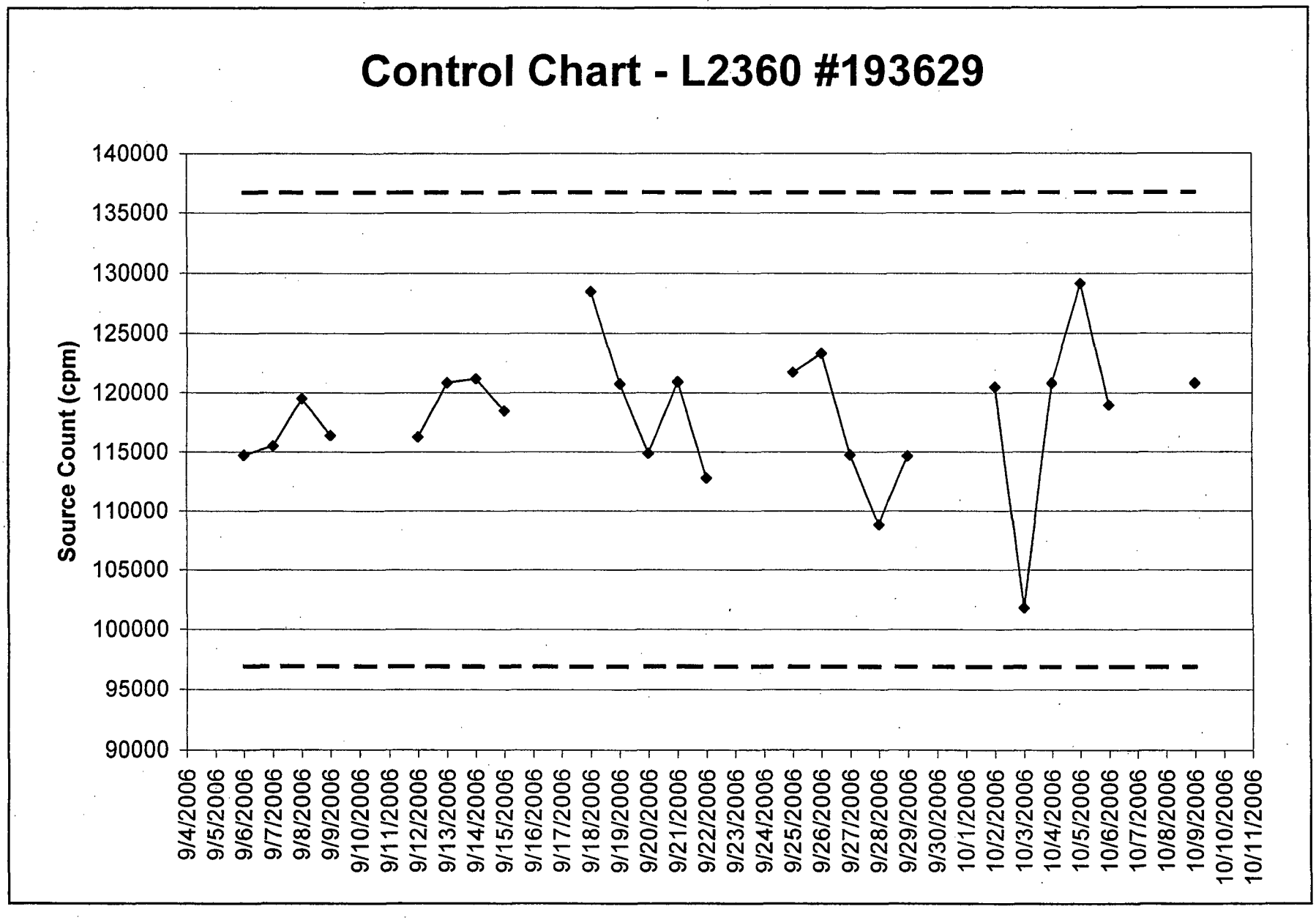
Note: All source checks are 1 minute in length

ENERGYSOLUTIONS

Daily Instrument Checks - FSS
Ward Center, Cornell University

Control chart data for the two Ludlum 2360s used for FSS measurements.

	#193629	Minimum	Maximum	#184941	Minimum	Maximum
9/6/2006	114724	96889	136712	132226	91960	151472
9/7/2006	115484	96889	136712	129448	91960	151472
9/8/2006	119514	96889	136712	133918	91960	151472
9/9/2006	116389	96889	136712	122495	91960	151472
9/10/2006		96889	136712		91960	151472
9/11/2006		96889	136712		91960	151472
9/12/2006	116255	96889	136712	129022	91960	151472
9/13/2006	120844	96889	136712	129644	91960	151472
9/14/2006	121169	96889	136712	125949	91960	151472
9/15/2006	118477	96889	136712	135605	91960	151472
9/16/2006		96889	136712		91960	151472
9/17/2006		96889	136712		91960	151472
9/18/2006	128452	96889	136712	113400	91960	151472
9/19/2006	120729	96889	136712	124871	91960	151472
9/20/2006	114862	96889	136712	129253	91960	151472
9/21/2006	120892	96889	136712	128297	91960	151472
9/22/2006	112770	96889	136712	130136	91960	151472
9/23/2006		96889	136712		91960	151472
9/24/2006		96889	136712		91960	151472
9/25/2006	121719	96889	136712	134665	91960	151472
9/26/2006	123323	96889	136712	110024	91960	151472
9/27/2006	114729	96889	136712	133660	91960	151472
9/28/2006	108830	96889	136712	129845	91960	151472
9/29/2006	114644	96889	136712	118165	91960	151472
9/30/2006		96889	136712		91960	151472
10/1/2006		96889	136712		91960	151472
10/2/2006	120488	96889	136712	134750	91960	151472
10/3/2006	101814	96889	136712	123269	91960	151472
10/4/2006	120794	96889	136712	124666	91960	151472
10/5/2006	129140	96889	136712	133887	91960	151472
10/6/2006	118941	96889	136712	111804	91960	151472
10/7/2006		96889	136712		91960	151472
10/8/2006		96889	136712		91960	151472
10/9/2006	120804	96889	136712	128900	91960	151472


Control Chart - L2360 #193629
Source Count (cpm)
140000
135000
130000
125000
120000
115000
110000
105000
100000
95000
90000
9/4/2006
9/5/2006
9/6/2006
9/7/2006
9/8/2006
9/9/2006
9/10/2006
9/11/2006
9/12/2006
9/13/2006
9/14/2006
9/15/2006
9/16/2006
9/17/2006
9/18/2006
9/19/2006
9/20/2006
9/21/2006
9/22/2006
9/23/2006
9/24/2006
9/25/2006
9/26/2006
9/27/2006
9/28/2006
9/29/2006
9/30/2006
10/1/2006
10/2/2006
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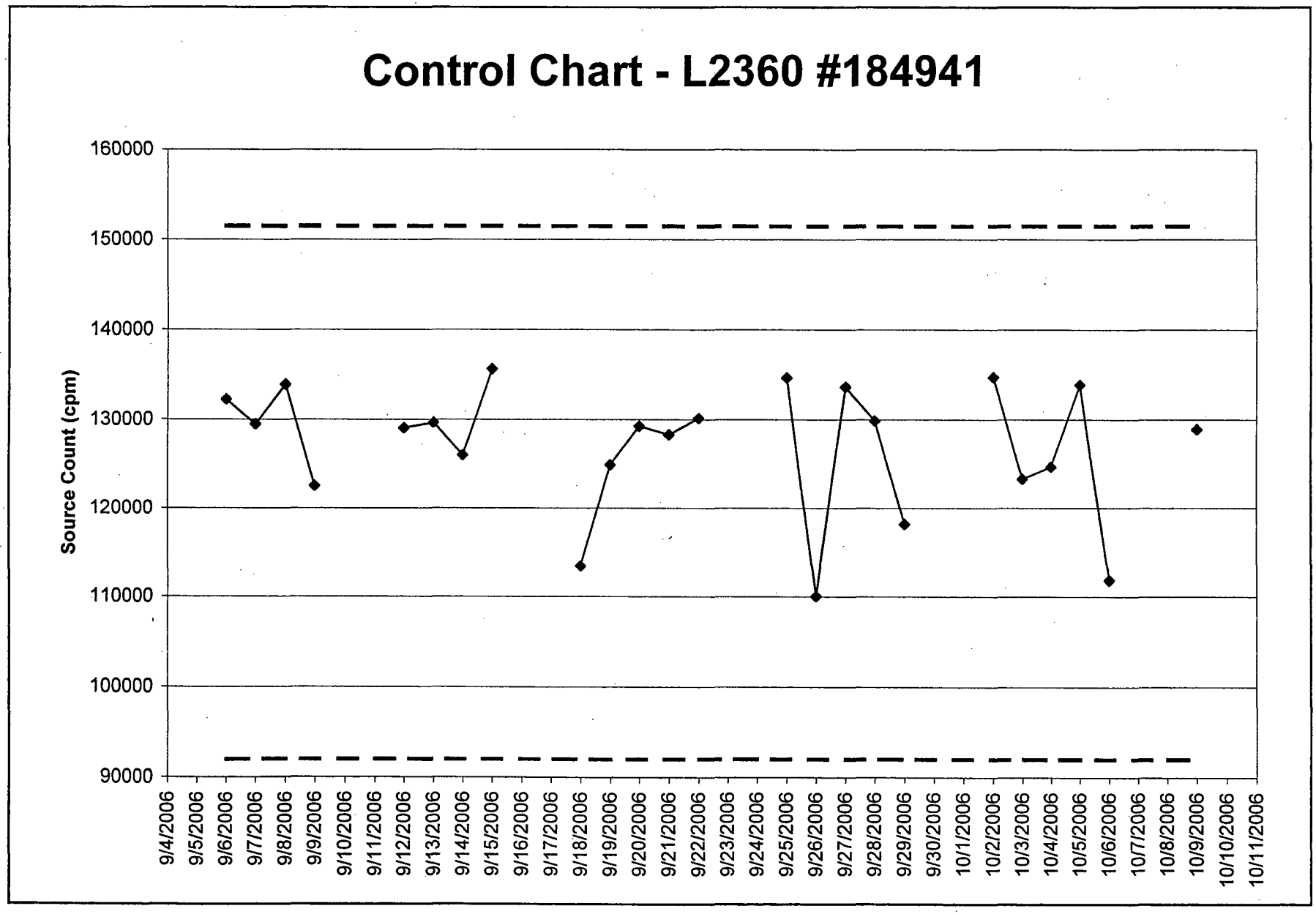
10/10/2006
10/11/2006


Control Chart - L2360 #184941
Source Count (cpm)
160000
150000
140000
130000
120000
110000
100000
90000
9/4/2006
9/5/2006
9/6/2006
9/7/2006
9/8/2006
9/9/2006
9/10/2006
9/11/2006
9/12/2006
9/13/2006
9/14/2006
9/15/2006
9/16/2006
9/17/2006
9/18/2006
9/19/2006
9/20/2006
9/21/2006
9/22/2006
9/23/2006
9/24/2006
9/25/2006
9/26/2006
9/27/2006
9/28/2006
9/29/2006
9/30/2006
10/1/2006
10/2/2006
10/3/2006
10/4/2006
10/5/2006
10/6/2006
10/7/2006
10/8/2006
10/9/2006
10/10/2006
10/11/2006

APPENDIX J

INSTRUMENT CALIBRATION RECORDS

Calibration Certificate
ID Number: 1662944954-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 177	166294

Probe Model	Serial Number
Ludlum 44-9	168825
Ludlum 44-9	175105

Precision Check

Test 1	Test 2	Test 3	Mean	Results
10.00 Kcpm	10.00 Kcpm	10.00 Kcpm	10.00 Kcpm	Satisfactory

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	400 Kcpm #	400 Kcpm #
X1000	100 Kcpm	100 Kcpm #	100 Kcpm #
X100	40 Kcpm	40 Kcpm #	40 Kcpm #
X100	10 Kcpm	10 Kcpm #	10 Kcpm #
X10	4 Kcpm	4 Kcpm #	4 Kcpm #
X10	1 Kcpm	1 Kcpm #	1 Kcpm #
X1	400 cpm	380 cpm #	380 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges where pulser was used.

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
44-9 175105	Th-230	0.1224 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
44-9 175105	Cs-137	0.0015 C/D	Cs-137 (S/N: 14290)	On Contact
44-9 175105	Tc-99	0.0874 C/D	Tc-99 (S/N: 63963 (Beta))	@1cm
44-9 175105	Tc-99	0.1205 C/D	Tc-99 (S/N: 63963 (Beta))	On Contact
44-9 175105	Th-230	0.0890 C/P (2 Pi)	Th-230 (S/N: S-963)	@1cm
44-9 175105	Th-230	0.0450 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm
44-9 175105	Th-230	0.2410 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
44-9 175105	Cs-137	0.0011 C/D	Cs-137 (S/N: 14290)	@1cm
44-9 168825	Th-230	0.2010 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
44-9 168825	Th-230	0.0246 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm
44-9 168825	Th-230	0.0480 C/P (2 Pi)	Th-230 (S/N: S-963)	@1cm
44-9 168825	Tc-99	0.1274 C/D	Tc-99 (S/N: 63963 (Beta))	On Contact
44-9 168825	Tc-99	0.0877 C/D	Tc-99 (S/N: 63963 (Beta))	@1cm
44-9 168825	Th-230	0.1020 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
44-9 168825	Cs-137	0.0011 C/D	Cs-137 (S/N: 14290)	@1cm
44-9 168825	Cs-137	0.0016 C/D	Cs-137 (S/N: 14290)	On Contact

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500 SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*
Geotropism Check: *Pass*

Electronics Checks	As Found	As Left
High Voltage	900 Volts	900 Volts

Atmospheric Conditions - Temperature: 72°F Humidity: 41% Barometric Pressure: 29.37"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1662944954-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 177	166294

Probe Model	Serial Number
Ludlum 44-9	168825
Ludlum 44-9	175105

Calibrated by: QA Review:

Calibration Date: 05/17/2006
Expires: 11/17/2006

Atmospheric Conditions - Temperature: 72°F Humidity: 41% Barometric Pressure: 29.37"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

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1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 01102006-1436-9526

Contact: Randy Smith

Customer: Envirocare of Utah LLC (CT)
143 West Street
New Milford, CT 06776

Instrument	Serial Number
Ludlum Model 177	140756

Probe Model	Serial Number
Ludlum 44-9	175093
Ludlum 44-40	092011

Precision Check

Test 1	Test 2	Test 3	Mean	Results
10.00 kcpm	10.00 kcpm	10.00 kcpm	10.00 kcpm	**Satisfactory**

Accuracy Check

Range	Target Value	As Found		As Left	
X1000	400 Kcpm	410 Kcpm	#	390 Kcpm	#
X1000	100 Kcpm	110 Kcpm	#	100 Kcpm	#
X100	40 Kcpm	39 Kcpm	#	39 Kcpm	#
X100	10 Kcpm	10 Kcpm	#	10 Kcpm	#
X10	4 Kcpm	3.9 Kcpm	#	3.9 Kcpm	#
X10	1 Kcpm	1 Kcpm	#	1 Kcpm	#
X1	400 cpm	390 cpm	#	390 cpm	#
X1	100 cpm	100 cpm	#	100 cpm	#

Readings in Blue indicate ranges where As-Found readings are >20% of Target value. Readings in red indicate As-left readings are >10% of Target value

Probe Model & S/N	Isotope	Efficiency	NIST Source ID	Geometry
44-9 175093	Th-230	0.1069 C/D (4 Pi)	Th-230 (S-963 (Alpha))	On Contact
44-9 175093	Th-230	0.2110 C/P (2 Pi)	Th-230 (S-963 (Alpha))	On Contact
44-9 175093	Th-230	0.0260 C/D (4 Pi)	Th-230 (S-963 (Alpha))	@1cm
44-9 175093	Th-230	0.0510 C/P (2 Pi)	Th-230 (S-963 (Alpha))	@1cm
44-9 175093	Tc-99	0.1121 C/D (4 Pi)	Tc-99 (93Tc4703139 (Beta))	On Contact
44-9 175093	Tc-99	0.0734 C/D (4 Pi)	Tc-99 (93Tc4703139 (Beta))	@1cm
44-9 175093	Cs-137	0.0015 C/D (4 Pi)	Cs-137 (14290 (Gamma))	On Contact
44-9 175093	Cs-137	0.0010 C/D (4 Pi)	Cs-137 (14290 (Gamma))	@1cm
44-40 092011	Th-230	0.0732 C/D (4 Pi)	Th-230 (S-963 (Alpha))	On Contact
44-40 092011	Th-230	0.1440 C/P (2 Pi)	Th-230 (S-963 (Alpha))	On Contact
44-40 092011	Th-230	0.0169 C/D (4 Pi)	Th-230 (S-963 (Alpha))	@1cm
44-40 092011	Th-230	0.0330 C/P (2 Pi)	Th-230 (S-963 (Alpha))	@1cm
44-40 092011	Tc-99	0.0937 C/D (4 Pi)	Tc-99 (93Tc4703139 (Beta))	On Contact
44-40 092011	Tc-99	0.0599 C/D (4 Pi)	Tc-99 (93Tc4703139 (Beta))	@1cm
44-40 092011	Cs-137	0.0012 C/D (4 Pi)	Cs-137 (14290 (Gamma))	On Contact
44-40 092011	Cs-137	0.0008 C/D (4 Pi)	Cs-137 (14290 (Gamma))	@1cm

Outer Physical Check	☑	Mechanical Zero	☑
Internal Check	☐	Tap Test	☑
Geotropism Check	☑	Desiccant Check	☐

Electronics Checks	As Found	As left
High Voltage	900 V	900 V

Comments: # Indicates scale calibrated with pulser Model 500 SN: 134720

Calibrated by: DSC Date: 01/10/2006 Expires: 01/10/2007

QA Review

This calibration was performed using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program and Standard Operating Procedure 2.4, Calibration of Radiation Survery Meters. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc. NIST Traceability certificates available at www.radsafety.com

Radiation Safety & Control Services, Inc.
91 Portsmouth Avenue · Stratham, NH 03885
1-800-525-8339 · (603) 778-2871 · Fax (603) 778-6879 · www.radsafety.com

esfsdoc@hotmail.com

Send | Save Draft | Attach | ? | Tools | Cancel

To: mtaylor@energysolutions.com

Cc:

Bcc:

Subject:

Mike,

I just wanted to give you a heads-up that you have some more instruments there whose calibrations will expire next week since Cornell requires a 6-month calibration period:

Instrument	serial #	cal. date	exp. date
Ludlum Model 177	140756	01/10/06	7/10/06*
Ludlum Model 177	140789	01/10/06	7/10/06*
Ludlum Model 177	166255	01/10/06	7/10/06*
Ludlum Model 3030	217546	01/11/06	7/11/06*

Also, did you ever find any calibration certs for these instruments? Are they all at Cornell?

Canberra IN1KS-2 ser #6059660

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Calibration Certificate
ID Number: 1936294956-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2360	193629

Probe Model	Serial Number
Ludlum 43-93	200130
Ludlum 43-93	208657

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	399.659 Kcpm #	399.659 Kcpm #
X1000	100 Kcpm	99.736 Kcpm #	99.736 Kcpm #
X100	40 Kcpm	39.978 Kcpm #	39.978 Kcpm #
X100	10 Kcpm	9.973 Kcpm #	9.973 Kcpm #
X10	4 Kcpm	3.999 Kcpm #	3.999 Kcpm #
X10	1 Kcpm	0.996 Kcpm #	0.996 Kcpm #
X1	400 cpm	400 cpm #	400 cpm #
X1	100 cpm	99 cpm #	99 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-93 208657	Pu-239	0.1975 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 208657	Pu-239	0.3880 C/P (2 Pi)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 208657	Pu-239	0.1236 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 208657	Pu-239	0.2430 C/P (2 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 208657	Sr/Y-90	0.2459 C/D	Sr/Y-90 (S/N: 63962 (Beta))	On Contact
43-93 208657	Sr/Y-90	0.2395 C/D	Sr/Y-90 (S/N: 63962 (Beta))	@1cm
43-93 208657	Tc-99	0.0874 C/D	Tc-99 (S/N: 63963 (Beta))	@1cm
43-93 208657	Tc-99	0.1186 C/D	Tc-99 (S/N: 63963 (Beta))	On Contact
43-93 208657	Th-230	0.1543 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 208657	Th-230	0.3040 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 208657	Th-230	0.1470 C/P (2 Pi)	Th-230 (S/N: S-963)	@1cm
43-93 208657	Th-230	0.0747 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm
43-93 200130	Pu-239	0.4270 C/P (2 Pi)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 200130	Pu-239	0.2960 C/P (2 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 200130	Pu-239	0.1505 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 200130	Pu-239	0.2174 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 200130	Sr/Y-90	0.2398 C/D	Sr/Y-90 (S/N: 63962 (Beta))	On Contact
43-93 200130	Sr/Y-90	0.2059 C/D	Sr/Y-90 (S/N: 63962 (Beta))	@1cm
43-93 200130	Tc-99	0.1296 C/D	Tc-99 (S/N: 63963 (Beta))	On Contact
43-93 200130	Tc-99	0.1021 C/D	Tc-99 (S/N: 63963 (Beta))	@1cm
43-93 200130	Th-230	0.1820 C/P (2 Pi)	Th-230 (S/N: S-963)	@1cm
43-93 200130	Th-230	0.1968 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 200130	Th-230	0.3880 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 200130	Th-230	0.0923 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	800 Volts	800 Volts

Atmospheric Conditions - Temperature: 73° F Humidity: 46 % Barometric Pressure: 29.37 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

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91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1936294956-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2360	193629

Probe Model	Serial Number
Ludlum 43-93	200130
Ludlum 43-93	208657

Calibrated by: QA Review:

Date: 05/19/2006
Expires: 11/19/2006

Atmospheric Conditions - Temperature: 73° F Humidity: 46 % Barometric Pressure: 29.37 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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91 Portsmouth Ave. Stratham, NH 03885
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1849415402-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2360	184941

Probe Model	Serial Number
Ludlum 43-93	200125

Precision Check

Test 1	Test 2	Test 3	Mean	Results
10.00 Kcpm	**10.00 Kcpm**	**10.00 Kcpm**	**10.00 Kcpm**	**Satisfactory**

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	400.133 Kcpm #	400.133 Kcpm #
X1000	100 Kcpm	99.821 Kcpm #	99.821 Kcpm #
X100	40 Kcpm	39.963 Kcpm #	39.963 Kcpm #
X100	10 Kcpm	9.977 Kcpm #	9.977 Kcpm #
X10	4 Kcpm	3.994 Kcpm #	3.994 Kcpm #
X10	1 Kcpm	0.995 Kcpm #	0.995 Kcpm #
X1	400 cpm	400 cpm #	400 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-93 200125	Pu-239	0.2520 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 200125	Pu-239	0.1281 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 200125	Pu-239	0.5170 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 200125	Pu-239	0.2629 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 200125	Sr/Y-90	0.1996 C/D	Sr/Y-90 (SN: 63962 (Beta))	@1cm
43-93 200125	Sr/Y-90	0.2167 C/D	Sr/Y-90 (SN: 63962 (Beta))	On Contact
43-93 200125	Sr/Y-90	0.2167 C/D	Sr/Y-90 (SN: 63962 (Beta))	On Contact
43-93 200125	Tc-99	0.0948 C/D	Tc-99 (SN: 63963 (Beta))	@1cm
43-93 200125	Tc-99	0.1073 C/D	Tc-99 (SN: 63963 (Beta))	On Contact
43-93 200125	Th-230	0.1410 C/P (2 Pi)	Th-230 (SN: S-963)	@1cm
43-93 200125	Th-230	0.0718 C/D (4 Pi)	Th-230 (SN: S-963)	@1cm
43-93 200125	Th-230	0.4340 C/P (2 Pi)	Th-230 (SN: S-963)	On Contact
43-93 200125	Th-230	0.2201 C/D (4 Pi)	Th-230 (SN: S-963)	On Contact

MTE Instrument Type	Model	CalDueDate
Multimeter	Wavetek RMS 225ASN: 981105722	09/20/2006
High Impedence probe	HV ProbeSN: RSCS-IMP-1	09/22/2006
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	800 Volts	743 Volts

Comments: All readings taken subsequent to repair. Crosstalk (on contact) for Th-230 in beta channel= 18.57%

Calibrated by: QA Review:

Date: 06/12/2006
Expires: 12/12/2006

Atmospheric Conditions - Temperature: 72° F Humidity: 51 % Barometric Pressure: 29.65 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Certificate
ID Number: 2024755399-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2360	202475

Probe Model	Serial Number
Ludlum 43-93	208667

Precision Check

Test 1	Test 2	Test 3	Mean	Results
9.96 Kcpm	9.96 Kcpm	9.96 Kcpm	9.96 Kcpm	Satisfactory

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	399.956 Kcpm #	399.956 Kcpm #
X1000	100 Kcpm	99.995 Kcpm #	99.995 Kcpm #
X100	40 Kcpm	39.965 Kcpm #	39.965 Kcpm #
X100	10 Kcpm	9.959 Kcpm #	9.959 Kcpm #
X10	4 Kcpm	4.012 Kcpm #	4.012 Kcpm #
X10	1 Kcpm	1.008 Kcpm #	1.008 Kcpm #
X1	400 cpm	399 cpm #	399 cpm #
X1	100 cpm	99 cpm #	99 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-93 208667	Pu-239	0.2090 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 208667	Pu-239	0.1063 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 208667	Pu-239	0.4340 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 208667	Pu-239	0.2211 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 208667	Sr/Y-90	0.1750 C/D	Sr/Y-90 (SN: 63962 (Beta))	@1cm
43-93 208667	Sr/Y-90	0.1921 C/D	Sr/Y-90 (SN: 63962 (Beta))	On Contact
43-93 208667	Tc-99	0.0680 C/D	Tc-99 (SN: 63963 (Beta))	@1cm
43-93 208667	Tc-99	0.0899 C/D	Tc-99 (SN: 63963 (Beta))	On Contact
43-93 208667	Th-230	0.1190 C/P (2 Pi)	Th-230 (SN: S-963)	@1cm
43-93 208667	Th-230	0.0605 C/D (4 Pi)	Th-230 (SN: S-963)	@1cm
43-93 208667	Th-230	0.3780 C/P (2 Pi)	Th-230 (SN: S-963)	On Contact
43-93 208667	Th-230	0.1918 C/D (4 Pi)	Th-230 (SN: S-963)	On Contact

MTE Instrument Type	Model	CalDueDate
Multimeter	Wavetek RMS 225ASN: 981105722	09/20/2006
High Impedence probe	HV ProbeSN: RSCS-IMP-1	09/22/2006
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	800 Volts	766 Volts

Comments: All readings taken subsequent to repair. Crosstalk (on contact) for Th-230 in beta channel= 18.63 %

Calibrated by: QA Review:

Date: 06/12/2006
Expires: 12/12/2006

Atmospheric Conditions - Temperature: 72° F Humidity: 51 % Barometric Pressure: 29.65 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 2024554992-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2360	202455

Probe Model	Serial Number
Ludlum 43-93	200135

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	399.433 Kcpm #	399.433 Kcpm #
X1000	100 Kcpm	99.995 Kcpm #	99.995 Kcpm #
X100	40 Kcpm	39.919 Kcpm #	39.919 Kcpm #
X100	10 Kcpm	9.998 Kcpm #	9.998 Kcpm #
X10	4 Kcpm	3.991 Kcpm #	3.991 Kcpm #
X10	1 Kcpm	1.001 Kcpm #	1.001 Kcpm #
X1	400 cpm	399 cpm #	399 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-93 200135	Pu-239	0.2442 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 200135	Pu-239	0.4800 C/P (2 PI)	Pu-239 (S/N: 93Pu470-3140)	On Contact
43-93 200135	Pu-239	0.1331 C/D (4 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 200135	Pu-239	0.2620 C/P (2 Pi)	Pu-239 (S/N: 93Pu470-3140)	@1cm
43-93 200135	Sr/Y-90	0.3152 C/D	Sr/Y-90 (S/N: 63962 (Beta))	On Contact
43-93 200135	Sr/Y-90	0.2264 C/D	Sr/Y-90 (S/N: 63962 (Beta))	@1cm
43-93 200135	Tc-99	0.1148 C/D	Tc-99 (S/N: 63963 (Beta))	On Contact
43-93 200135	Tc-99	0.1019 C/D	Tc-99 (S/N: 63963 (Beta))	@1cm
43-93 200135	Th-230	0.2242 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 200135	Th-230	0.4420 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
43-93 200135	Th-230	0.0909 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm
43-93 200135	Th-230	0.1790 C/P (2 PI)	Th-230 (S/N: S-963)	@1cm

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	750 Volts	750 Volts

Calibrated by: QA Review:

Date: 05/19/2006
Expires: 11/19/2006

Atmospheric Conditions - Temperature: 73° F Humidity: 46 % Barometric Pressure: 29.37 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 2024155478-0

Customer: Randy Smith
Energy Solutions, LLC
143 West Street
New Milford, CT 06776

Instrument	Serial Number
Ludlum Model 2360	202415

Probe Model	Serial Number
Ludlum 43-93	193917
Ludlum 43-93	221482

Precision Check

Test 1	Test 2	Test 3	Mean	Results
9.96 Kcpm	**9.96 Kcpm**	**9.96 Kcpm**	**9.96 Kcpm**	**Satisfactory**

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	398.236 Kcpm #	398.236 Kcpm #
X1000	100 Kcpm	99.525 Kcpm #	99.525 Kcpm #
X100	40 Kcpm	39.914 Kcpm #	39.914 Kcpm #
X100	10 Kcpm	9.955 Kcpm #	9.955 Kcpm #
X10	4 Kcpm	3.991 Kcpm #	3.991 Kcpm #
X10	1 Kcpm	0.999 Kcpm #	0.999 Kcpm #
X1	400 cpm	399 cpm #	399 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-93 221482	Pu-239	0.2460 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 221482	Pu-239	0.1251 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 221482	Pu-239	0.2510 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 221482	Pu-239	0.4930 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 221482	Sr/Y-90	0.1669 C/D	Sr/Y-90 (SN: 63962 (Beta))	@1cm
43-93 221482	Sr/Y-90	0.1879 C/D	Sr/Y-90 (SN: 63962 (Beta))	On Contact
43-93 221482	Tc-99	0.0689 C/D	Tc-99 (SN: 63963 (Beta))	@1cm
43-93 221482	Tc-99	0.0784 C/D	Tc-99 (SN: 63963 (Beta))	On Contact
43-93 221482	Th-230	0.1380 C/P (2 Pi)	Th-230 (SN: S-963)	@1cm
43-93 221482	Th-230	0.0703 C/D (4 Pi)	Th-230 (SN: S-963)	@1cm
43-93 221482	Th-230	0.4200 C/P (2 Pi)	Th-230 (SN: S-963)	On Contact
43-93 221482	Th-230	0.2132 C/D (4 Pi)	Th-230 (SN: S-963)	On Contact
43-93 193917	Pu-239	0.2150 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 193917	Pu-239	0.1093 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	@1cm
43-93 193917	Pu-239	0.2412 C/D (4 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 193917	Pu-239	0.4740 C/P (2 Pi)	Pu-239 (SN: 93Pu470-3140)	On Contact
43-93 193917	Sr/Y-90	0.1547 C/D	Sr/Y-90 (SN: 63962 (Beta))	@1cm
43-93 193917	Sr/Y-90	0.1841 C/D	Sr/Y-90 (SN: 63962 (Beta))	On Contact
43-93 193917	Tc-99	0.0577 C/D	Tc-99 (SN: 63963 (Beta))	@1cm
43-93 193917	Tc-99	0.0664 C/D	Tc-99 (SN: 63963 (Beta))	On Contact
43-93 193917	Th-230	0.1000 C/P (2 Pi)	Th-230 (SN: S-963)	@1cm
43-93 193917	Th-230	0.0509 C/D (4 Pi)	Th-230 (SN: S-963)	@1cm
43-93 193917	Th-230	0.2174 C/D (4 Pi)	Th-230 (SN: S-963)	On Contact
43-93 193917	Th-230	0.4280 C/P (2 Pi)	Th-230 (SN: S-963)	On Contact

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	**1500 Volts**	**750 Volts**

Comments: All readings taken subsequent to repair. Probe SN: 193917 Crosstalk (on contact) for Th-230 in beta channel = 10.64%. Probe SN: 221482 Crosstalk (on contact) for Th-230 in beta channel = 11.58%

Atmospheric Conditions - Temperature: 72° F Humidity: 42 % Barometric Pressure: 29.92 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 2024155478-0

Customer: Randy Smith
Energy Solutions, LLC
143 West Street
New Milford, CT 06776

Instrument	Serial Number
Ludlum Model 2360	202415

Probe Model	Serial Number
Ludlum 43-93	193917
Ludlum 43-93	221482

Calibrated by: QA Review:

Date: 06/13/2006
Expires: 12/13/2006

Atmospheric Conditions - Temperature: 72° F Humidity: 42 % Barometric Pressure: 29.92 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1761075401-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2929	176107

Probe Model	Serial Number
Ludlum 43-10-1	181277

Precision Check

Test 1	Test 2	Test 3	Mean	Results
9.99 Kcpm	**9.99 Kcpm**	**9.99 Kcpm**	**9.99 Kcpm**	**Satisfactory**

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	400.245 Kcpm #	400.245 Kcpm #
X1000	100 Kcpm	99.989 Kcpm #	99.989 Kcpm #
X100	40 Kcpm	39.860 Kcpm #	39.860 Kcpm #
X100	10 Kcpm	9.987 Kcpm #	9.987 Kcpm #
X10	4 Kcpm	3.994 Kcpm #	3.994 Kcpm #
X10	1 Kcpm	0.999 Kcpm #	0.999 Kcpm #
X1	400 cpm	400 cpm #	400 cpm #
X1	100 cpm	100 cpm #	100 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
43-10-1 181277	Cs-137	0.0040 C/D	Cs-137 (SN: 14290)	On Contact
43-10-1 181277	Tc-99	0.1073 C/D	Tc-99 (SN: 93Tc4703139)	@1cm
43-10-1 181277	Tc-99	0.1830 C/D	Tc-99 (SN: 93Tc4703139)	On Contact
43-10-1 181277	Th-230	0.4600 C/P (2 Pi)	Th-230 (SN: S-963)	@1cm
43-10-1 181277	Th-230	0.2337 C/D (4 Pi)	Th-230 (SN: S-963)	@1cm
43-10-1 181277	Th-230	0.7720 C/P (2 Pi)	Th-230 (SN: S-963)	On Contact
43-10-1 181277	Th-230	0.3920 C/D (4 Pi)	Th-230 (SN: S-963)	On Contact

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	**900 Volts**	**900 Volts**

Calibrated by: QA Review:

Date: 06/05/2006
Expires: 12/05/2006

Atmospheric Conditions - Temperature: 72° F Humidity: 36 % Barometric Pressure: 29.94 in/hg
This calibration was performed by RSCS using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 45684950-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument
Eberline Model RO-2A

Serial Number
4568

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
1.00 R/hr	**1.00 R/hr**	**1.00 R/hr**	**1.00 R/hr**	**Satisfactory**

Accuracy Check			
Range	Target Value	As Found	As Left
50	40 R/Hr	40 R/Hr	40 R/Hr
50	10 R/Hr	10 R/Hr	10 R/Hr
5	4 R/Hr	4 R/Hr	4 R/Hr
5	1 R/Hr	1 R/Hr	1 R/Hr
500	400 mR/Hr	420 mR/Hr	440 mR/Hr
500	100 mR/Hr	80 mR/Hr	90 mR/Hr
50	40 mR/Hr	42 mR/Hr	42 mR/Hr
50	10 mR/Hr	10 mR/Hr	10 mR/Hr

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value

Outer Physical Check: *Pass*	Mechanical Zero: *Pass*
Internal Check: *Pass*	Tap Test: *Pass*
Geotropism Check: *Pass*	Dessicant Check: *Pass*

Comments: This calibration was performed in accordance with RSCS Quality Assurance Program using Cs-137 sources: S-364, Activity 145.30 mCi on 7/13/81 & 9141, Activity 400 Ci on 12/20/91

Calibrated by: QA Review:

Calibration Date: 05/18/2006
Expires: 11/18/2006

Atmospheric Conditions - Temperature: 73°F Humidity: 47% Barometric Pressure: 29.33"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 2016954953-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument
Ludlum Model 5

Serial Number
201695

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
4.00 mR/hr	**4.00 mR/hr**	**4.00 mR/hr**	**4.00 mR/hr**	**Satisfactory**

Accuracy Check			
Range	Target Value	As Found	As Left
X1000	1600 mR/hr	1550 mR/hr	1550 mR/hr
X1000	400 mR/hr	400 mR/hr	400 mR/hr
X100	160 mR/hr	170 mR/hr	170 mR/hr
X100	40 mR/hr	40 mR/hr	40 mR/hr
X10	16 mR/hr	17 mR/hr	17 mR/hr
X10	4 mR/hr	4 mR/hr	4 mR/hr
X1	1.6 mR/hr	1.75 mR/hr	1.6 mR/hr
X1	0.4 mR/hr	0.45 mR/hr	0.4 mR/hr
X0.1	0.16 mR/hr	0.165 mR/hr #	0.165 mR/hr #
X0.1	0.04 mR/hr	0.04 mR/hr #	0.04 mR/hr #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges where pulser was used.

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500 SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	550 Volts	550 Volts

Comments: This calibration was performed in accordance with RSCS Quality Assurance Program using Cs-137 sources: S-364, Activity 145.30 mCi on 7/13/81 & 9141, Activity 400 Ci on 12/20/91

Calibrated by: QA Review:

Calibration Date: 05/16/2006
Expires: 11/16/2006

Atmospheric Conditions - Temperature: 75°F Humidity: 40% Barometric Pressure: 29.52"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

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Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 1481525398-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument
Ludlum Model 19

Serial Number
148152

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
1.00 mR/hr	1.00 mR/hr	1.00 mR/hr	1.00 mR/hr	Satisfactory

Accuracy Check			
Range	Target Value	As Found	As Left
5000	4 mR/Hr	4.5 mR/Hr	4.2 mR/Hr
5000	1 mR/Hr	1.1 mR/Hr	1.0 mR/Hr
500	400 µR/Hr	350 µR/Hr	400 µR/Hr
500	100 µR/Hr	80 µR/Hr #	100 µR/Hr #
250	200 µR/Hr	145 µR/Hr *	200 µR/Hr
250	50 µR/Hr	40 µR/Hr #	50 µR/Hr #
50	40 µR/Hr	35 µR/Hr #	40 µR/Hr #
50	10 µR/Hr	9 µR/Hr #	10 µR/Hr #
25	20 µR/Hr	17.5 µR/Hr #	20 µR/Hr #
25	5 µR/Hr	4 µR/Hr #	5 µR/Hr #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges where pulser was used.

MTE Instrument Type	Model	CalDueDate
Pulser	Ludlum 500 SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Comments: Failed:

Calibrated by: QA Review:

Calibration Date: 06/02/2006
Expires: 12/02/2006

Atmospheric Conditions - Temperature: 75°F Humidity: 43% Barometric Pressure: 29.75"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

Radiation Safety and Control Services, Inc.
91 Portsmouth Ave. Stratham, NH 03885
1-800-525-8339 (603) 778-2871 Fax (603) 778-6879 www.radsafety.com

Calibration Technology

A Division of RSCS, Inc.

Calibration Certificate
ID Number: 992595403-0

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument
Automess Model Teletector 6112B

Serial Number
99259

Precision Check				
Test 1	Test 2	Test 3	Mean	Results
10.00 R/hr	10.00 R/hr	10.00 R/hr	10.00 R/hr	Satisfactory

Accuracy Check			
Range	Target Value	As Found	As Left
1000	835 R/hr	835 R/hr	835 R/hr
1000	214 R/hr	214 R/hr	214 R/hr
50	46 R/hr	45 R/hr	45 R/hr
50	10.1 R/hr	10 R/hr	10 R/hr
2	1.6 R/hr	1.5 R/hr	1.5 R/hr
2	0.4 R/hr	0.4 R/hr	0.4 R/hr
50	40 mR/hr	40 mR/hr	40 mR/hr
50	10 mR/hr	10 mR/hr	10 mR/hr
2	1.6 mR/hr	1.6 mR/hr	1.6 mR/hr
2	0.4 mR/hr	0.4 mR/hr	0.4 mR/hr

*Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value*

Outer Physical Check: *Pass*
Tap Test: *Pass*

Comments: X1000 Scale readings are approximate due to scale graduations. This calibration was performed in accordance with RSCS Quality Assurance Program using Cs-137 sources: S-364, Activity 145.30 mCi on 7/13/81 & 9141, Activity 400 Ci on 12/20/91

Calibrated by: QA Review:

Calibration Date: 06/02/2006
Expires: 12/02/2006

Atmospheric Conditions - Temperature: 75°F Humidity: 43% Barometric Pressure: 29.75"hg
This calibration was performed by RSCS Inc. using a NIST Traceable radiation source, in conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4. This calibration certificate shall not be reproduced except in full without the express written consent of RSCS, Inc

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EC:# 5

Calibration Certificate
ID Number: 685375775-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 2221	68537

Probe Model	Serial Number
Ludlum 44-10	226943

Precision Check

Test 1	Test 2	Test 3	Mean	Results
40.00 Kcpm	40.00 Kcpm	40.00 Kcpm	40.00 Kcpm	Satisfactory

Accuracy Check

Range	Target Value	As Found	As Left
X1000	400 Kcpm	400 Kcpm #	400 Kcpm #
X1000	100 Kcpm	100 Kcpm #	100 Kcpm #
X100	40 Kcpm	40 Kcpm #	40 Kcpm #
X100	10 Kcpm	10 Kcpm #	10 Kcpm #
X10	4 Kcpm	4 Kcpm #	4 Kcpm #
X10	1 Kcpm	1 Kcpm #	1 Kcpm #
X1	400 cpm	401 cpm #	401 cpm #
X1	100 cpm	99 cpm #	99 cpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model & SN	Isotope	Efficiency	NIST Source ID	Geometry
44-10 226943	Cs-137	0.0742 C/D	Cs-137 (SN: 14290)	@1cm
44-10 226943	Cs-137	0.1123 C/D	Cs-137 (SN: 14290)	On Contact

MTE Instrument Type	Model	Calibrate
Multimeter	Fluke 73 III SN: 70681048	06/07/2007
High Impedence probe	HV Probe SN: RSCS-IMP-1	09/22/2006
Pulser	Ludlum 500 SN: 134720	08/16/2006

Outer Physical Check: *Pass*
Internal Check: *Pass*
Geotropism Check: *Pass*
Mechanical Zero: *Pass*
Tap Test: *Pass*

Electronics Checks	As Found	As Left
High Voltage	961 Volts	961 Volts
Low Level Discriminator #1	160	160
Window	out	out

Calibrated by: QA Review:

Date: 06/20/2006
Expires: 12/20/2006

Atmospheric Conditions - Temperature: 75° F Humidity: 45 % Barometric Pressure: 29.60 inhg
This calibration was performed by RSCS using a NIST Traceable radiation source. In conformance to the following standards: ANSI N323A (1997). RSCS New Hampshire Radioactive Material License Number: 381R. RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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Calibration Certificate
ID Number: 2176174957-0

Calibration Technology
A Division of RSCS, Inc.

Customer: Mike Taylor
Energy Solutions - Cornell University
Ward Center Laboratory
Central Avenue
Ithaca, NY 14853

Instrument	Serial Number
Ludlum Model 3030	217617

Probe Model	Serial Number
Ludlum 43-10-1	229370

Accuracy Check

Range	Target Value	As Found	As Left
Alpha	8 Kcpm	7.989 Kcpm #	7.989 Kcpm #
Alpha	2 Kcpm	1.995 Kcpm #	1.995 Kcpm #
Beta	8 Kcpm	7.986 Kcpm #	7.986 Kcpm #
Beta	2 Kcpm	1.995 Kcpm #	1.995 Kcpm #

Readings with * indicate ranges where As-Found readings are >20% of Target value. Readings with ** indicate As-left readings are >10% of Target value
Readings with # indicate ranges were calibrated using a pulser

Probe Model	S/N	Isotope	Efficiency	NIST Source ID	Geometry
43-10-1	229370	Th-230	0.4840 C/P (2 Pi)	Th-230 (S/N: S-963)	@1cm
43-10-1	229370	Th-230	0.2459 C/D (4 Pi)	Th-230 (S/N: S-963)	@1cm
43-10-1	229370	Th-230	0.9050 C/P (2 Pi)	Th-230 (S/N: S-963)	On Contact
43-10-1	229370	Th-230	0.4614 C/D (4 Pi)	Th-230 (S/N: S-963)	On Contact
43-10-1	229370	Tc-99	0.1361 C/D	Tc-99 (S/N: 03Tc4703139)	@1cm
43-10-1	229370	Tc-99	0.2337 C/D	Tc-99 (S/N: 03Tc4703139)	On Contact
43-10-1	229370	Cs-137	0.0039 C/D	Cs-137 (S/N: 14290)	On Contact
43-10-1	229370	Cs-137	0.0031 C/D	Cs-137 (S/N: 14290)	@1cm

NIST Instrument Type	Model	Calibration Date
Pulser	Ludlum 500S/N: 134720	08/16/2006

Outer Physical Check: Pass
Top Test: Pass

Electronics Checks	As Found	As Left
High Voltage	700 Volts	700 Volts

Calibrated by: [signature]
QA Review: [signature]
Date: 05/17/2006
Expires: 11/17/2006

Atmospheric Conditions - Temperature: 72 F Humidity: 41 % Barometric Pressure: 29.37 inHg
This calibration was performed by RSCS using a NIST Traceable radiation source, in compliance to the following standards: ANSI N323A (1997), RSCS New Hampshire Radioactive Material License Number: 361R, RSCS calibration services are performed in accordance with the RSCS Radiation Protection Program Manual and Standard Operating Procedure 2.4.
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