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Radiological Characterization and Final Facility Status Report Tritium Research Laboratory

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RADIOLOGICAL CHARACTERIZATION AND FINAL FACILITY STATUS REPORT TRITIUM RESEARCH LABORATORY

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ABSTRACT

This document contains the specific radiological characterization information on Building 968, the Tritium Research Laboratory (TRL) Complex and Facility. We performed the characterization as outlined in its Radiological Characterization Plan (SAND95-8216). The Radiological Characterization and Final Facility Status Report (RC&FFSR) provides historic background information on each laboratory within the TRL complex as related to its original and present radiological condition. Along with the work outlined in the Radiological Characterization Plan (RCP), we performed a Radiological Soils Characterization, Radiological and Chemical Characterization of the Waste Water Hold-up System including all drains, and a Radiological Characterization of the Building 968 roof ventilation system. These characterizations will provide the basis for the Sandia National Laboratory, California (SNL/CA) Site Termination Survey Plan, when appropriate.

ACKNOWLEDGMENT

The authors wish to acknowledge and thank Charles L. Laguer for his significant contribution to this report.

The completion of this report represents the completion of a cleanup and transition process involving over a hundred thousand man-hours and the tedious planning, coordination and execution of activities by a relatively small force of dedicated individuals who faithfully worked toward very uncertain personal ends. Few of these people remain at the time of this writing, having moved on to other projects and, in many cases to other occupations.

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EXECUTIVE SUMMARY

This report documents the results of the final radiological characterization survey and the final facility status of the former Tritium Research Laboratory (TRL). The TRL, which has been converted to a general purpose laboratory known as the Chemical and Radiation Detection Laboratory (CRDL), is located at the Sandia National Laboratories (SNL) California site about 70 km east of San Francisco, in eastern Alameda County, at the southeast end of the Livermore Valley, roughly 5 km east of the city of Livermore. The TRL functioned from November 1976 to November 1994 as a non-reactor nuclear facility designed to handle tritium, a radioactive isotope of hydrogen, and its associated compounds in support of the Department of Energy's (DOE) Office of Defense Program's research and development activities. During its peak operation, the TRL handled approximately 200 grams of accountable tritium, housed experiments in 17 laboratories and employed approximately 35 experimenters and staff support personnel.

In January 1992, SNL management, in cooperation with DOE, decided to cease tritium handling operations at the TRL, based on the economy of consolidating tritium research activities to minimize the costs associated with operating multiple facilities within the DOE complex. A reuse alternative was chosen in lieu of the traditional decontamination and decommissioning process, resulting in cost savings estimated at \$106 million and resulting in a modern and high quality laboratory facility available for immediate use.

From January 1992 to December of 1995, the TRL underwent a cleanup and transition process in which all active experiments were completed or relocated; all accountable tritium was transferred to other tritium facilities within the DOE complex; re-useable contaminated equipment was reallocated within the DOE complex; and all remaining building facilities and equipment were surveyed, decontaminated as necessary, and released for uncontrolled use or disposed of as radioactive waste and sent to the Nevada Test Site for permanent burial. During the course of this process, the facility was downgraded from a Category II non-reactor nuclear facility to a Category III non reactor nuclear facility and then, to where it is currently, a non-nuclear low hazard facility.

A threefold process was performed to establish the final radiological condition of the facility. A comprehensive radiological scoping survey was performed, a Radiological Characterization Plan (RCP), SAND 95-8216, was written and approved, and a final radiological characterization survey was performed and documented in this report.

The comprehensive radiological scoping survey, performed in early 1995, consisted of wipe surveys on floor, wall areas, ventilation ducting, overhead lights and drain systems in all lab spaces, once emptied of experiments and equipment. This survey provided a basis for focus in planning the final characterization survey, as well as indicated areas that would require decontamination or remediation prior to performing the final radiological characterization survey.

The Radiological Characterization Plan, SAND 95-8216, completed in May 1995, set forth a detailed description of radiological surveys and analysis that would be performed to complete the final radiological characterization of the TRL complex. The plan provided for radiological wipe surveys in every square meter of floor space, at

least four wipes per each room wall and ceiling, as well as wipes in lower sections of vent ducting and in floor drains. Grid maps and a data base were developed for use in documenting results of these wipe surveys. Additional analysis were planned to sample auxiliary liquid and gas systems used at the facility, as well as auxiliary buildings and common areas.

The final radiological characterization survey, documented in this report, was completed in December of 1995. This report documents the results of the surveys and analysis performed in accordance with the RCP. This report also includes additional activities, not specifically called for in the RCP, including TRL complex soil characterization; sampling of concrete beneath floor tiles in chosen labs; flushing and analysis of the waste water drainage system; and survey of remaining vent ducting following removal of contaminated sections. This report further documents a brief history of the TRL including, sources and characteristics of tritium, an overview of TRL operations and a description of TRL auxiliary systems. This report discusses the final status of the TRL complex at the time of writing, including Radioactive Material Management Area (RMMA) status, asbestos abatement activities, location of historical files and long-term contamination issues. Regulatory memorandums specific to the cleanup and transition process at the TRL, TRL formal Cleanup and Transition Plans and TRL historical data and charts are presented in the Appendices of this report.

In brief, the results of the final radiological characterization indicated the following:

- TRL complex laboratories, structures, common areas and remaining auxiliary systems, all exhibit radiological conditions below levels requiring radiological controls as specified in DOE Order 5400.5, *Radiation Protection of the Public and Environment*.
- Further future radiological characterization is recommended in the area below ground, now housing the emergency diesel fuel storage tank if, and when the site is released.

At the time of the writing of this report, the former TRL complex is in the process of conversion to the Chemical and Radiation Detection Laboratory. This facility is being developed in support of Sandia's Advanced Detection Technologies Program. Current laboratories in the construction and move-in phase include, Laser Based Chemical Detection, Biochemistry, Analytical and Synthetics, Microelectronics Biosensors, Crystalline Radiation Sensors, Radiation Detector Test, Electronics Circuit Design Analysis, and Environmental Fluorescence Laboratories. Remaining lab space will be occupied as needs are identified and funding is available. The completion of this conversion represents a significant accomplishment in transitioning a state of the art non-reactor nuclear facility to a state of the art general purpose laboratory in a five year period, far below anticipated costs for decommissioning one facility and building another.

ACRONYMS

ALARA	as low as reasonably achievable
BAAQMD	Bay Area Air Quality Management District
CWS	Chilled Water System
DOE	Department of Energy
EPA	Environmental Protection Agency
EPS	Emergency Power Systems
ES&H	Environment, Safety and Health
GERT	General Employee Radiological Training
GPS	Gas Purification System
HPS	Health Physics Society
HTO	Tritium Oxide
HVAH	High Velocity Air Hood System
ICRP	International Commission for Radiation Protection
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LNS	Liquid Nitrogen System
LSA	Low Specific Activity
NCRP	National Council on Radiation Protection and Measurements
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NMR	Nuclear Magnetic Resonance
NTS	Nevada Test Site
OBT	Organically Bound Tritium
PVT	Pressure Volume Temperature
RCP	Radiological Characterization Plan
RMMA	Radiological Materials Management Area
RR&FFSR	Radiological Characterization and Final Facility Status Report
SNL/CA	Sandia National Laboratories/California
SWP	Safe Work Permit
TEM	Transmission Electron Microscope
T ₂	Tritium Gas
TRL	Tritium Research Laboratory
UPS	Uninterruptible Power Supply
VERS	Vacuum Effluent Recovery System
WWES	Waste Water Evaporator System
WWRS	Waste Water Recovery System

RADIOLOGICAL CHARACTERIZATION AND FINAL FACILITY STATUS REPORT TRITIUM RESEARCH LABORATORY

HISTORICAL BACKGROUND INFORMATION

Sandia National Laboratory, California (SNL/CA) is about 70 km east of San Francisco, in eastern Alameda County, at the southeast end of the Livermore Valley. The approximately 413 acre site is roughly 5 km east of the city of Livermore.

Sandia designed the TRL as a modern research and development facility to safely handle tritium and its associated compounds in support of the DOE weapon complex. After completing the basic laboratory building during the summer of 1975 (a single-story structure approximately 24 m wide and 55 m long), Sandia began initial testing with limited quantities of tritium in November of 1976. Following these initial tests, Sandia completed and tested the Gas Purification System (GPS) and the Vacuum Effluent Recovery System (VERS) during the first part of 1977, attaining operational status in late 1978. During 1984, Sandia added a separate office building to the complex, and in 1985 made extensive seismic upgrade modifications on the laboratory building and exhaust system.

The TRL was the first major tritium research and development complex to use secondary containment coupled with a cleanup system as a means to control personnel exposure to levels as low as reasonably achievable (ALARA) and reduce environmental releases. The TRL complex included the laboratory Building 968, the office Building 967, an equipment room, storage Building 969, a liquid effluent control system, and exhaust stack.

Cleanup and Transition of the TRL

In January of 1992, Sandia informed the Department of Energy (DOE), Kirtland Area Office (KAO) that it was Sandia's intention to cease tritium operations at the TRL. They based this decision on increased operating costs as a result of projected costs associated with regulatory compliance and the availability of similar facilities at other sites. Sandia formed the TRL Cleanup and Transition Team to study requirements and plan activities associated with carrying out this cessation of tritium operations. The team's goal was to cease tritium operations at the California site and to continue to manage the TRL facility as the facility was transitioned to some other application. To achieve this goal, the team identified two sets of objectives:

Cleanup:

- bring accountable tritium inventory to zero
- transfer operational experiments to other facilities
- reallocate excess equipment
- determine remaining tritium level

These objectives involved continuing operation of the TRL while preparing (cleaning up) the facility for transition operations.

Transition:

- clean up, remove and/or reallocate nonsafety-related excess equipment
- obtain DOE approval to transition from a Category III Nuclear Facility to a Radiological Facility
- clean up, remove and/or reallocate safety-related equipment
- Characterize the SNL/CA Building 968 complex
- transfer transition technology

These objectives involved cessation of TRL operations and preparing the facility for other applications.

The TRL Cleanup and Transition Team subsequently split into two separate teams: the Cleanup Team and the Transition Team. The charters for each of these teams, along with the detailed plan developed and carried out by each of these teams, are included in the appendices of this document.

Characteristics of Tritium

Tritium, with a half-life of 12.35 years (NCRP 1985), is a radioactive isotope of hydrogen. With an atomic number of 1 and an atomic weight of 3, tritium decays with an emission of an electron to form Helium-3 (^3He). The average energy of the electron emitted from the decay is 5.6 keV with a maximum energy of 18.6 keV. At the maximum energy, its track length is 6 μm in water, and is insufficient to penetrate human skin, making it an internal hazard only. This fact also shows that traditional methods for personnel dose assessment, such as film badges, thermoluminescent dosimeters, or pocket ionization chambers, are unsuited to detect tritium in the body. Bioassay of bodily fluids using liquid scintillation counting is the best means for detection. There are three main pathways in which tritiated water can incorporate into the human body: 1) through the lungs by respiration, 2) by oral ingestion and absorption through the gastrointestinal tract, and 3) absorption through the skin. Tritium remains in the body in the forms of tritiated water and organically bound tritium (OBT). Tritiated water is eliminated from the body with a biological half-life of 9.7 days, and OBT with half-lives of 30 to 450 days (ICRP 1979–1982; Taylor 1990).

Tritium physical and chemical characteristics are nearly identical to hydrogen. Tritium gas burns in oxygen to form tritiated water. It can and readily does exchange with hydrogen atoms of organic compounds. Tritium gas (T_2) can diffuse through almost any container regardless of its material.

Tritium has unique characteristics that provide unusual challenges for dosimetry and health risk assessment. For additional information on tritium and its effects, there are many papers and journals available for review, including Health Physics Journal, Special Issue; Vol. 65, No. 6, December 1993, titled: "Tritium Dosimetry, Health Risks, and the Environmental Fate" and "Internal Dosimetry Programs for Tritium Exposure-Minimum Requirements"; HPS N13.14-1944.

Other Sources of Tritium

The TRL was not the only source of tritium at SNL/CA or in the Livermore Valley. Natural tritium production is estimated to be 5 million curies per year worldwide (AEC, 1968). SNL/CA handles low-level contaminated materials from test operations, waste handling, packaging, and storage operations. In addition to the SNL/CA operations, LLNL has a tritium facility and a radioactive waste handling facility that contribute to the overall background in the Livermore Valley. Sandia monitors tritium levels both on site and off site and reports results in the annual SNL/CA Site Environmental Report.

TRL Operations Overview

Used to support operations related to weapon development, component functional testing, engineering design, and applied materials research the TRL's mission varied over the years due to changing requirements. Generally, its mission centered around three major goals:

- Examining the behavior of hydrogen isotopes and helium in metals in order to understand transport and structural properties.
- Examination of tritium and its compounds in pursuit of understanding their physical and chemical behavior.
- The formulation and fabrication of tritium compounds for engineering components.

Over the past approximately 18 years, the TRL complex accomplished its mission using a wide range of state-of-the-art equipment to perform diverse operations. Some of the dynamic operations include the following categories:

Sample Preparation

Instrument Operation and Maintenance

Scanning Electron Microscopy

Transmission Electron Microscopy

Auger Spectrometry

Nuclear Magnetic Resonance

Light Isotope Mass Spectrometry

Constant-Heat-Flow Calorimetry

Helium-in-Metals Mass Spectrometry

Tritium Assay/Accountability and Control

Tritium Contaminated Waste Handling, Packaging, and Disposal

High Pressure Tritium Pumping

System and Component Functional Testing

Tritium Permeation and Diffusion Research

Tritium Charging of Tensile Bars at High Pressure and Temperature

Research on First-Wall Fusion-Reactor Materials

Research on Tritium Solubility in Metals

TRL Complex Specific Operations

A containment/cleanup philosophy of operations considered the quantity, pressure and form of tritium. During normal operations, the administrative inventory limits were: 120 grams of T₂ outside the vault, 50 grams within any one glove box and for experimentation in an open laboratory, and 45 curies with the TRL's Manager approval. Staff conducted all operations above the 45 curie limit to 1,000 curies (0.1 grams) in high-velocity air hoods. They required glove box containment or approved secondary container storage for all quantities greater than 1,000 curies with TRL Director approval required for experiments of 3 grams or more. The maximum allowed on site was 300 grams. The conversion from grams to curies for tritium gas (T₂) is 9637 curies per gram.

A description of the operational activities within each laboratory of Building 968 follows along with an assessment of its auxiliary systems.

Laboratory 102 Vault Storage

This lab was designed and used as a hardened storage vault for bulk tritium not being used for research and development operations. The large sealed glove boxes initially installed in this lab were to provide tertiary containment of tritium storage vessels and long-term material sample storage vessels. This area was to be equipped with a sophisticated access control, alarm system, and personnel safety features.

The glove boxes were initially installed in this lab; however, prior to any operations with tritium, the uncontaminated boxes were disassembled and reappplied. All subsequent operations within this lab area were nonradiological.

Laboratory 110 Tritium Imaging/Waste Processing

The initial use of this lab was to determine two-dimensional tritium distributions near solid surfaces using a noncontact method of tritium imaging. Most samples analyzed in this lab were metal-tritide thin films with diameters of 1 to 5 mm and several microns thick. The maximum activity of any sample was 50 mCi and did not produce tritium off-gassing.

In recent years, staff completed all operations associated with tritium imaging, cleaned up and emptied the lab. Following the cleanup operations and in preparation for the TRL Cleanup and Transition process, the lab was modified to serve as a waste processing area. The lab contained a waste compactor, large high velocity air hood for radioactive materials disassembly and processing along with a tritium off-gassing analysis station. However, no waste handling operations were performed in this lab.

Laboratory 112 Temporary Vault

This vault area was used for the temporary storage of tritium and long-term material sample storage awaiting the operational readiness of the new vault. Staff used this lab to secondarily contain all tritium not being used in the facility. Special monitoring by a security alarm system prevented unauthorized entry. Besides these features, this lab contained temperature-controlled systems for sample storage. In this lab, staff stored small amounts of Pu-238 and Pu-239 in the form of sealed sources, used for calibration.

Laboratory 115 Materials Characterization

Staff examined the behavior of hydrogen in metals in this lab. They used specialized equipment in this area to inspect, polish, and prepare metal surfaces for examination and characterization in the Scanning Electron Microscope. All operations associated with sample preparation and analyses were housed in high velocity air hoods. The staff also used a darkroom to process photographs from operations in this lab. Two glove boxes inside the lab provided for charging and aging material specimens in high temperature furnaces. The amounts of tritium handled in this lab for charging test specimens varied from milligram quantities to grams.

Laboratory 115A Decontamination Systems

This lab contained the Gas Purification System (GPS) and Vacuum Effluent Recovery System (VERS).

The GPS removed tritium gas, tritiated water and hydrocarbons from sealed glove box gases. The system consisted of the following: a central inlet and exhaust manifold that extended down the 180 foot central corridor, a distribution system to interconnect the sealed glove boxes to the manifold, a carbon trap to remove oil vapors, a blower section to circulate the gas, a catalyst section to crack hydrocarbons and oxidize the tritium, a dryer section to remove the tritiated water from the gas stream, and a regeneration section to remove the tritiated water from the dryers. For a complete description of the operation of this system review SP472824 Issue B.

The VERS collected, stored, and decontaminated tritium contaminated vacuum pump effluent from vacuum systems located throughout the TRL. The system consisted of the following: a manifold extending down the 180 foot central corridor, a piping system to interconnect the manifold to the individual vacuum systems, a pumping system to transfer the effluent from the manifold to the system, a separate system to evaluate and separate the effluents, a storage system to collect the effluent, a decontamination system to remove the tritium from the effluent, and a control system. For a complete description of the operation of this system review SP472823 Issue B.

The lab was set up with these systems located inside a ceiling-to-floor plastic curtain that served, in essence, as its own high velocity air hood. The GPS waste water regeneration operation was housed inside a small glove box to provide extra protection to personnel during operations. This protection is very important as tritium gas (HT) is converted to tritium oxide (HTO) in this system. Continuous tritium air monitoring was provided both inside and outside the curtain area. During peak operations tritium quantities ranging from a few grams to tens of grams were processed.

Laboratory 116 Monitoring Room

The TRL Monitoring Room provided the operations staff timely, critical information about the conditions throughout the complex. In addition to continuously monitoring all systems by a PDP computer system, the control console for the GPS and VERS were located in the room as well as the High Pressure Station Control System. Staff could view radiation monitoring systems throughout the facility from this room including stack, process systems, room air, and glove boxes. An audio and visual alarm that was responded to 24 hours a day immediately notified operational staff of changes in the

facility or hazardous conditions. No tritium handling operations were conducted in the monitoring room.

Laboratory 119 Nuclear Magnetic Resonance (NMR) and Plasma Studies

This laboratory housed the NMR and Plasma Studies Experiments. The NMR project improved the basic knowledge of hydrogen in all of its isotopic forms in metals and hydrides. These tests were specifically designed to determine how hydrogen embrittles metals and to understand hydride kinetics and local structure. The main focus of the tritium plasma experiment was to study the effects of tritium plasma discharges on material properties. Additionally, staff performed the study of tritium absorption on reactor wall materials. Generally, small quantities of tritium were used in this lab with the NMR using milligrams or less and the plasma experiment up to 0.1 grams.

Laboratory 120 Pressure Systems

The Pressure Systems laboratory was the support lab for all operations within the TRL. Staff performed extensive tritium handling operations in this lab. The lab equipment included glove boxes for assay, high pressure loading and unloading, component disassembly, pinch welding, x-ray inspection, vacuum pump maintenance and short-term experiments. The high pressure station used to load and unload experiments and specimens used man-rated equipment. Tritium handling operations consisted of assaying incoming shipments, removing tritium from received containers, the mixing of hydrogen isotopes, storage of T₂ gas for future use and transferring T₂ gas to users' containers for experimental work. The quantity of tritium used and handled varied from a few grams to tens of grams, depending on specific operations.

Staff used the Assay Station to assess accountable quantities of tritium received from incoming shipments as well as outgoing shipments. This system used a Pressure Volume Temperature (PVT) mass spectrometer technique and associated hardware such as surge tanks, transducers and controls for assaying.

Laboratory 121 Microscope Lab/Health Physics Lab

The work in this laboratory involved understanding hydrogen behavior in metals. It housed the Transmission Electron Microscope (TEM) used for analyzing the micro structure of specific materials charged with tritium. In this lab, staff used the beta decay of tritium to expose photographic emulsions in the analysis process. The lab also had an auto radiography capability and dark room for processing. Test specimens used and analyzed in this lab typically contained milligram quantities of tritium or less.

During 1991, this laboratory and all of its associated equipment was disassembled and subsequently disposed of or reapplied.

In 1992, this laboratory was remodeled for reuse as the Main Health Physics Laboratory. The lab contains two liquid scintillation counters, low-level tritium air monitoring equipment, fixed surface contamination measurement monitors, portable tritium monitors and a wide range of analytical lab supplies.

Laboratory 122 Analysis and Assay

Noninvasive assay and gas analysis were the objectives in this lab using calorimetry, mass spectrometry, and gravimetric capabilities. A high velocity air hood housed the mass spectrometer where a high-vacuum system with a low-pressure sampling manifold provided for an accurate analytical means. Staff provided this analytical service to facility operations along with experimenters. Tritium quantities in the analysis process ranged up to tens of milligrams.

Staff used calorimetry in the noninvasive assay of sealed tritium containers. A glove box in this lab housed the two constant-heat flow calorimeters.

Laboratory 125 Permeation Studies

Transport properties for hydrogen isotopes and helium were extensively examined in the permeation lab. Various experimental apparatus were used to study the effects in metals over a wide range of temperatures and pressures. Tritium permeability, diffusivity, and solubility at temperatures between 50 and 250 degrees Centigrade and pressures to 1 atmosphere were the main focus.

Equipments that allowed loading tritium on samples and aging them at liquid nitrogen temperatures to study the mobility effects of the decay product helium-3 as a function of temperature, were also in operation. Additional transport studies were done above 1 atmosphere in a sealed glove box. This system was set up in the TRL in 1977 after first being established at Lawrence Livermore National Laboratory in 1974. Tritium quantities used in this lab ranged up to a few grams.

Laboratory 126 Component Development

Staff used this experimental facility to test and evaluate classified test units at high temperatures and pressures using both ionizing and laser radiation. They used a large bell jar to contain any T_2 gas from explosive-component design testing activities. The concentration, pressure, and form of tritium within the manifold varied. The only sources of tritium at elevated pressures and temperatures were the test units. Tritium quantities approved for operations in this lab ranged from a few grams to several tens of grams.

Laboratory 129 Machine Shop/Tritide Materials

This lab was initially used as a clean machine shop during the early years of the TRL's existence. This operation eventually gave way to the tritide materials studies experiments. The machine shop was relocated to Building 969.

The radioactive materials work, which was performed in this lab, dealt with tritide materials studies. A glove box was used to contain tritium-exposed materials and metal tritides being evaluated. The surface composition of these samples were examined using a scanning Auger spectrometer. The quantity of tritium approved for operation ranged from a few grams to tens of grams.

TRL Auxiliary Systems

The TRL is supported by a number of auxiliary systems that enhance its overall safety. There are 12 main systems that are used at the TRL Complex. These systems include: Ventilation System, High Velocity Air Hood System, Gas Purification System, Vacuum Effluent Recovery System, Chilled Water System, Waste Water System, Evaporation System, Emergency Power System, Liquid Nitrogen System, Breathing Air System, Radiation Monitoring System, and Fire Protection System. These support and safety systems made the TRL a unique complex and a valuable asset to SNL/CA.

The following is a description of their operation and importance to the TRL.

Ventilation System

The ventilation system is a high-flow system ~1300 cubic meters per minute, using a temperature-controlled, once-through system designed to provide 6 to 10 room air changes per hour in each laboratory of Building 968. Consistent with ALARA, the system maintains the building at a slightly negative pressure to the outside area. This ensured the air flow was from lower contamination areas to higher contamination areas, such as HVAH's, and then exhausted through the 30 meter stack.

High Velocity Air Hood System

The High Velocity Air Hood System was connected directly to the ventilation system and served many functions. Its main function was to provide personnel protection from tritium and tritium-contaminated materials in the lab. There were many different types of hoods used in the various labs. All glove boxes were equipped with HVAH's over the pass-throughs to allow the transfer of equipment to and from the boxes safely. HVAH's housed special experiments that contained up to 0.1 gram (1,000 curies); vacuum pump maintenance station; the Mass Spectrometer Assay System; general contaminated equipment and materials storage and radiological analytical equipment.

Gas Purification System

The Gas Purification System's main function was to remove tritium, tritiated water, and tritiated hydrocarbons from glove box atmospheres. The system, which ran through a building-wide manifold, serviced all labs in the TRL. The system was computer controlled and required no facility personnel to operate it, however, the system could be operated manually as well. The system operated in one of two modes: recirculation mode or stack mode. The normal method of operation was the recirculation mode where glove box gases were pumped from the box through the system and returned to the box. The returned gas which was greatly reduced in T_2 concentration mixed with the gas in the glove box and diluted the concentration. The operation of this system in stack mode was identical except that the processed gas from the system was vented through the TRL stack when the concentrations were low enough.

Vacuum Effluent Recovery System

The Vacuum Effluent Recovery System served as a collection system for tritium contaminated gases generated in experiments at the TRL. Gases from experimental

operations and vacuum-pump exhausts, which were potentially tritium contaminated, were processed through this system. The system manifold ran through the main corridor and ultimately was pumped into one of two 5.7 cubic meter holding tanks located on the Building 968 roof.

Chilled Water System

The Chilled Water System, located in the Building 967 Equipment Room, provided cooling to the entire TRL Complex. The system is used to control temperature throughout Buildings 968 and 967. Additionally, it provided cooling for critical systems such as the GPS, VERS, Mass Spectrometer and glove box heat exchangers via a main manifold in the hallway.

Waste Water Recovery System (WWRS)

The Waste Water Recovery System is composed of two 2500 gallon holding tanks and its associated operating equipment. It is located within the TRL complex just north of the Building 967 office area inside an open concrete pit that serves as secondary containment. This system was maintained and operated under the direction of the TRL Health Physics Staff using Operating Procedure 471097. The procedure gave complete details of all waste water handling operations as well as the system's limitations and restrictions. All lab waste water from the TRL Complex was collected in these tanks via its drain system and was sampled for tritium and released to the sanitary sewage system or processed through the evaporator system. The total tritium activity (HTO) processed through this system was 4.775 curies in 438,328 gallons.

Waste Water Evaporator System

The Waste Water Evaporator System was connected to the Waste Water Recovery System. Water from the holdup system was pumped to the evaporator with the effluent being exhausted directly into the stack. The system was limited by a National Emission Standards for Hazardous Air Pollutants (NESHAPS) and a Bay Area Air Quality Management District (BAAQMD) Permit, air permit source number 38, to 100 curies per year release to the environment. All operations associated with this system were managed by the TRL Health Physics Staff. The total activity of HTO evaporated during operation from 1989 to 1994 was 31.06 curies in 97,449 gallons.

Emergency Power Systems

The TRL's main emergency power is provided by a 200 kVA diesel driven generator. A computer control system automatically starts the system should there be an interruption in commercial power. All critical equipment and systems that require power for safe operation are powered by this system.

There is a large Uninterruptible Power Supply located in Building 968 that is capable of providing 50 kVA of power.

Liquid Nitrogen System

The Liquid Nitrogen System provided gas to the safety systems' control valves and for the back-filling of glove boxes.

Breathing Air System

The Breathing Air System used at the facility was provided by an air compressor coupled to an accumulator and manifold system. The system could be accessed from both inside the facility as well as outside. The system was designed to allow four people to work in Air-Supplied Suits at a time while providing adequate protection from tritium environments. This system was used for hazardous repair, maintenance and/or disassembly operations and was part of the Emergency Radiological Re-entry Team's air supply. The system also used a backup system of medical air, which was automatically activated should the main pressure fall below preset values.

Tritium Air Monitoring Systems

Tritium Air Monitoring Systems were used throughout the TRL Complex to ensure personnel were aware of conditions and to monitor releases to the environment. The three main systems used at the TRL Complex were: the Room Air Monitoring System, Glove Box Monitoring System, and Stack Monitoring System.

The Room Air Monitoring System was used throughout the laboratory areas of Building 968 and was equipped with a two-level alarm system. It was operated through a central pumping station that moved samples of room air through an ionization chamber. This system also had a backup room air monitoring system with separate pumping station, ionization chamber and readout in the Monitoring Room. This was only used as a backup during maintenance operations and or performing a cross-check of primary system readings.

The Glove Box Monitoring System operated in the same way as the Room Air Monitoring System except that it did not exhaust to the stack. It also had a separate backup support system that allowed for a cross-check of glove box atmosphere.

The Stack Monitoring System quantified the tritium release to the environment. This system used two ionization chambers that tracked low and high level releases. These ionization chambers were used primarily for accident assessments. The Stack Bubbler System used a series of six ethylene glycol bubblers and Pd catalyst to distinguish between tritium gas and tritium oxide at extremely low levels. The stack bubbler system was used for final documentation of releases.

Fire Protection System

The main features of the Fire Protection System were: an Automatic Sprinkler System, Automatic Detection System, and Area Separation.

The Automatic Sprinkler System fully protected Building 968. It was supported by three onsite reserve water tanks with a volume of ~1.2 million gallons. If activated, the system would sound an area alarm and notify the Lawrence Livermore National Laboratory Emergency Dispatch Center and the SNL/CA Security Communications Center.

The Automatic Detection System, a Pyrotronics System 3, was located in the main corridor of Building 968. It provided coverage to the glove boxes and several laboratories. The system also automatically sounded an alarm and notified LLNL and SNL/CA.

Area Separation was used in the TRL between the Monitoring Room and Lab 120. It contained approved fire-rated windows, and walls and doors that could withstand a one-hour fire. The wall area was replaced with a standard sheet rock wall following the cleanup process.

TRL COMPLEX RADIOLOGICAL HISTORY OVERVIEW

The TRL Complex Radiological History Overview describes the major aspects of the Environmental Health and Safety Department's radiological oversight. The Radiological Safety Program at the TRL Complex has been an important factor in its ability to provide quality timely service to the nation's weapons needs while minimizing the exposure to personnel and the environment. These aspects include: Bioassay Program and Dose Assessments, Environmental Releases (stack and liquid effluent), Radioactive Contamination Control, Personnel Training, and Waste Management activities. In addition to the major aspects of the program, a review of the major incidents are included.

Bioassay Program and Dose Assessment

The Bioassay Program consisted of continuous *in vitro* analysis and radiological protection oversight of TRL personnel for all radiological operations. The normal routine schedule for TRL personnel who worked and frequented the Radiological Materials Management Area (RMMA) was to provide a sample for analysis weekly. The program required additional samples be left at the discretion of Health Physics or as outlined in a Safe Work Permit (SWP). Health Physics performed bioassay analysis weekly or as required to assure adherence to the requirements and dose assessment on a monthly basis. The program was managed by the Health Protection Department, 8421, a department of Environment, Safety & Health (ES&H). Guidelines for this program appear in Health Physics Operating Procedure 471583. A history of the bioassay program and dose assessment appear in the attached Appendix G.

Environmental Tritium Release

The management of environmental releases from the TRL Complex was an extremely important aspect of the ES&H program at the SNL/CA site. This program included environmental releases into stack effluent, both as oxide and as gas, and liquid effluent discharged to SNL/CA sewage system.

The monitoring of tritium released into the stack effluent was quantified by using the Stack Bubbler System. This system was capable of distinguishing between tritium as an oxide and as a gas. The six-bubbler system used the first three bubblers to remove tritium oxide from a sample stream of the stack effluent, and through a Palladium catalyst converted the gas to oxide in the final three bubblers. Health Physics performed the analysis of the bubbler system and reported its value. The system was a valuable tool in determining the location of releases from the building, because the ionization chambers that were used in conjunction with the system couldn't distinguish between the two species being released. The stack bubbler system was processed approximately twice per month, or as required. Guidelines for this program appear in Health Physics

Operating Procedure 471108. A history of the environmental stack releases appear in the attached Appendix G.

The Health Protection Department, 8421, managed the TRL Waste Water Holding System. Waste water from Building 968 laboratory areas and personnel decontamination showers, as well as the Building 967 equipment room, was collected in two 2500 gallon hold tanks. The West Tank generally held moderate- to high-activity water and was typically evaporated via the Waste Water Evaporator System. The Evaporator system was operated on an as-needed basis in accordance with SOP #1345. SNL/CA used a Bay Area Air Quality Management District (BAAQMD) Permit, air permit source number 38, and was approved to evaporate up to 100 curies per year into the stack effluent

The East Tank routinely collected water from Building 968 laboratory sinks. Prior to any release of this water, tritium analysis was performed by liquid scintillation analysis techniques to assure any release were less than 10 millicuries per day and 1 curie per year. Guidelines for this program appear in Health Physics Operating Procedure OP471097. A history of the Waste Water Holding System and Evaporator System discharges appear in the attached Appendix G.

Radioactive Contamination Control

The control of radioactive contamination was critical to the safe operation and transition of the TRL Complex. Radiological controls associated with these issues appear in the Department of Energy, Radiological Control Manual and the Code of Federal Regulations, 10 CFR 835. The site specific procedures used at SNL/CA are; OP471356, Administrative Procedure for Control Of Radioactive Contamination, and OP471354, Operating Procedure for Health Physics Workplace Surveys.

The release limits established by DOE Order 5400.5 were used for the release of equipment and reapplicable materials from the building for unconditional use. We used these same limits to release the building for reuse as a non-RMMA facility after the levels were achieved. The specific criteria for control of a RMMA is established in IP-28, and it includes a section on both the establishment and disestablishment of a RMMA.

SNL/CA required storing all contaminated items and equipment in HVAH's and good housekeeping practices throughout the building. Staff measured removable surface contamination by wipe tests — by wiping a suitable material (filter paper or Que-tip) over a portion of a surface and measuring contamination levels on the material using liquid scintillation counting techniques. Allowable contamination levels in the RMMA were up to 10,000 dpm/100cm² on readily accessible surfaces. Staff used other contamination controls including: marking contaminated tools with red paint to identify them as contaminated; discarding all protective clothing each day; and the posting survey results on each laboratory door to inform workers of the conditions within each lab.

Personnel Training

Personnel training at the TRL and SNL/CA was consistent with the requirements of the DOE Rad Con Manual. All personnel who work with or handle radioactive materials are trained to Radiological Worker II level. This level of training is required for personnel who work in High and Very High Radiation Areas, Contaminated Areas,

High Contamination Areas, and Airborne Radioactivity Areas. In addition to this training, two site specific modules were given to TRL workers before access was granted into the laboratory. These two modules were a tritium specific module (2 hours) and a TRL Access module (2 hours). For non-radiological workers who required access to Building 968, General Employee Radiological Training (GERT), and the TRL Access Module were required to gain unescorted access to the TRL.

Waste Management Operations

Waste Management operations at the TRL Complex were covered by a multitude of different procedures. Some were specific procedures and guidelines that are required by the Nevada Test Site to meet its acceptance criteria for radioactive waste disposal. These guidelines deal with radioactive waste handling and packaging of Low Specific Activity waste (LSA) from the TRL. Additionally, the document, Guidelines For Hazardous Waste Generators At SNL/CA, GN 470075, gives handling and disposal requirements for chemical, radioactive, mixed, infectious, and explosive type wastes.

The handling and packaging of LSA radioactive waste was generally performed by eight specific procedures. These procedures are: Tritiated Water, Solidified on Clay, Waste Packaging OP471101; Stainless Steel Containers, With Small Quantities of Metal Tritides, Waste Packaging OP471096; TRL, Manifolds and Containers, Waste Packaging OP471344; TRL, Oversize Container, Waste Packaging OP471384; TRL, Treatment and Disposal of Acid Containing Low-level Waste OP471076; TRL, Solid, Non-Compactible Low-level Waste (Radioactive) Disposal OP 471080; TRL, Low-level Waste (Radioactive), Liquid Solidification OP471403; TRL, Compactible Low-level Waste Disposal (Radioactive) OP471079. Adherence to these procedures allowed SNL/CA to process its radioactive waste materials from the Complex.

Mixed Waste was analyzed by Health Protection Department, 8421, and categorized and processed through the Environmental Protection Department, 8418. A mixed waste is any waste material that contains both a chemical hazardous component as defined by EPA or California regulations, and a radioactive component, or any two hazardous components. The TRL's major mixed waste streams were pump oil and liquid scintillation cocktail. Pump Oil was overpacked per OP TRL-012 and then transferred to Environmental Protection Department, 8418. Additionally, over the years, small quantities of other mixed wastes were generated.

Chemical Waste was analyzed for radioactivity by Health Protection Department, 8421 per Operating Procedure HP-10. Because the TRL was a RMMA, DOE required that it meet specific DOE criteria to prove that hazardous and sanitary waste has no measurable increase in radioactivity above background, and no surface contamination above the regulatory limits of DOE 5400.5.

Occurrences

Over the years there have been a few unusual occurrences that are important to mention. These incidents include environmental releases, personnel exposure, contaminated water leaks, power outages, and suspension of operations. The following is a short critique of these events.

Personnel Exposure and Tritium Release, July 1984

During the disassembly of an engineering experiment in Lab 115A, an environmental release of approximately 2.5 curies of HTO occurred. Seven employees received doses ranging from a high of 1650 millirems down to 2 millirems.

Tritium Release, January 1986

A weld crack in a storage container caused a leak and release in the Decontamination Lab 115A causing an environmental release of 200 curies of HTO. The process that caused this release was redesigned and placed in a glove box. There were no personnel exposures associated with this event.

Tritium Release, February 1987

A 3000 curie T₂ release occurred in a sealed glove box in Lab 115. The tritium was apparently trapped in a vessel by a copper disk that sealed the unit and the subsequent release occurred during disassembly. The GPS was used to clean up the glove box. No environmental release or personnel exposure were observed.

Personnel Exposure and Tritium Release, August 1987

An 1100 curie environmental release occurred when an operator disassembled a vessel outside a glove box in Lab 115. This release of T₂ caused a building evacuation and the operator received a dose of 15 millirems.

Tritium Release, October 1988

An environmental release occurred during GPS Regeneration operation in Lab 115A. The release was estimated at 124 curies of HTO, and no personnel exposure was involved.

Contaminated Water Leak, February 1989

Unusually cold weather caused the freezing of the Chilled Water System lines in the stack exhaust duct over the TRL equipment room. The subsequent line rupture caused approximately 700 gallons of contaminated water with ~18 curies of activity to be sent to the Waste Water Holdup System. No measurable increase in personnel exposures occurred. The water was eventually evaporated with the Waste Water Evaporator.

Personnel Exposure and Tritium Release, March 1989

A personnel exposure of ~180 millirems occurred during VERS pump maintenance operations in Lab 120. An environmental release of approximately 11.5 curies of HTO occurred. Subsequent operation required the flushing of pumps prior to pump maintenance operations.

Suspension of TRL Operations, March 1990

All operations at the TRL were suspended by SNL/CA management to assure that personnel were aware safety takes precedence over program schedules.

Power Outages (4), October 1990

Due to a bad splice on an incoming 480 Volt wire, four power outages were experienced. Once the problem was identified, it was quickly fixed and normal operations resumed.

Personnel Exposure and Tritium Release, October 1993

Six personnel received doses from 2 millirems to 5 millirems when a VERS pump transient caused a pump failure and release in Lab 115A. The doses that totaled 21 millirems came from both cleanup and pump replacement operations. The environmental release associated with the pump transient was 2 curies of HTO.

RADIOLOGICAL SURVEY DESCRIPTION

The scope of the survey was to provide a comprehensive and detailed survey and analysis of the radiological conditions of the TRL Facility and Complex following final transition activities. The basis of the survey was derived from: the DOE Decommissioning Handbook DOE/EM-0142P, March 1994; The NRC Manual for Conducting Radiological Surveys in Support of License Termination NUREG/CR-5849 Draft, June 1992; and previous personal experience from the decommissioning of the General Electric Company Advanced Fuels Laboratory, 1979-1981.

For the purpose of identifying the areas with the highest potential for contamination, staff performed a limited scoping survey prior to publishing the RCP. The limited scoping survey was the basis for the design of the RCP and appears in the RCP SAND95-8216. Following the limited scoping survey, staff performed a comprehensive scoping survey prior to TRL Characterization. This comprehensive scoping survey provided additional data, causing the expansion of the original RCP design. Other contributing factors to the inclusion of additional survey requirements were: comments from the State of California, Department of Health Services, letter dated August 8, 1995; Health Protection request for Site Soil Characterization; Health Protection request for Building 968 Waste Water Hold-up System Characterization; TRL Manager's request for Building 968 Ventilation System Characterization; and the Environmental Operations post-transition Asbestos Remediation project. All aspects of the original RCP and the above mentioned additions appear in this final report.

Comprehensive Scoping Survey

This scoping survey consists of a representative number of radiological measurements throughout the TRL Complex to provide guidance in the classification of the site. The radiological assessment data were obtained when each laboratory was emptied. A series of wipe surveys on floor and wall areas, ventilation ducting interiors, overhead lights, and drain systems were taken, and the data is a range of the contamination conditions found. This scoping survey did not include all areas and is not meant to be a formal quantitative analysis of the conditions within the TRL complex; however, it provides a basis for the focus of the Characterization Survey.

SCOPING SURVEY DATA SHEET
RANGE of dpm/100cm²

LAB #	FLOORS	WALLS	CEILING	DUCTING	DRAINS	LIGHTS
102	< 200	< 200	200-600	535	< 200	864
104	< 200	< 200	<200	505	< 200	462
110	< 200	< 200	<200	<260	< 200	200-7029
112	< 200	< 200	300-8800	<1000	< 200	3k-5.6k
114	< 200	< 200	<200	<200	n/a	600-1300
115W	< 200	< 200	<200	1-10k	1-4k	1k-6k
115E	< 200	< 200	<200	30-50k	n/a	3k-8k
115A	< 200	< 200	<200	10k-40k	< 1k	2k-12k
115B	< 200	< 200	<200	<7k	n/a	<200
115C	< 200	< 200	<200	<1k	< 200	<200
115D	< 200	< 200	<200	<1k	n/a	<200
116sub	< 200	n/a	n/a	n/a	<200	n/a
116	< 200	< 200	<200	<200	n/a	200-800
119	< 200	< 200	<200	100k max.	< 200	800-36864
120W	< 200	< 200	<200	14k-149k	< 200	300-5900
120E	< 200	< 200	<200	23k-193k	< 200	200-2488
121	< 200	< 200	100-500	<200	< 200	100-320
122	< 200	< 200	200-3845	1-6k	< 200	300-14484
125	< 200	< 200	<200	2-11k	< 200	200-1979
126W	< 200	< 200	<200	<200-7251	< 200	<200
126E	< 200	< 200	<200	<200	n/a	<200
129	< 200	< 200	<200	570-9673k	< 200	<200
Hallway	< 200	< 200	<200	n/a	n/a	<200

Scoping Survey: Report of Findings

The interpretation of this radiological survey data is made using the comprehensive scoping survey and process knowledge. All nonventilation ducting areas and items identified as being > 1k dpm/cm² in the comprehensive scoping survey were decontaminated to < 1k dpm/100cm² and noted in the comment section of the survey report. The building ventilation system ducting referenced in this survey was decontaminated or remediated as a separate project of the transition plan.

Laboratory 102 Vault Storage

No radioactive materials were handled or stored in the area. Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

Laboratory 104 VIDMAR Storage

No radioactive materials were handled or stored in the area. Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

Laboratory 110 Tritium Imaging

Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

Laboratory 112 Temporary Vault

Results indicated only low-level contamination in all areas. Initial decontamination efforts indicated no special remedial actions were required. Staff continued to perform routine surveys in this lab until final release.

Laboratory 114 Health Physics Analysis

Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

Laboratory 115 Materials Characterization

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 115A Decontamination Systems

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 116 Monitoring Room

Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Please note that the floor area is a false raised floor; staff surveyed both this floor and the subfloor. Staff continued to perform routine surveys in this lab until final release.

Laboratory 119 Nuclear Magnetic Resonance (NMR) and Plasma Studies

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 120 Pressure Systems

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 121 Microscope Lab/Health Physics Lab

Initial results indicated only low-level contamination in all areas. This laboratory contains numerous accountable sealed sources used by Health Physics personnel to perform radio analysis. No special remedial actions were required. Staff continued to perform routine surveys in this working lab.

Laboratory 122 Analysis and Assay

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 125 Permeation Studies

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Laboratory 126 Component Development

Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

Laboratory 129 Machine Shop/Tritide Materials

Results indicated only low-level contamination in all areas. Special remedial actions were required following initial decontamination efforts on the ventilation ducting system. Staff continued to perform routine surveys in this lab until final release.

Restrooms and Janitor Closets

Results indicated only low-level contamination in all areas. No special remedial actions were required following initial decontamination efforts. Staff continued to perform routine surveys in this lab until final release.

TRL Complex Auxiliary Systems

Ventilation System

We have surveyed the interior of the main building ventilation plenum ducting over the years for various maintenance operations. We have not found it to be highly contaminated (~1-2k dpm /100cm²) in any accessible area. This includes the area where the VERS discharges into the stack exhaust. No special remedial actions were required until a detailed survey was performed.

High Velocity Air Hood System

We disposed of all HVAH's used in the building as contaminated waste, or transferred to LANL for reapplication or decontaminated and released for reuse at SNL/CA. No special remedial actions were required.

Gas Purification System

We disassembled the GPS into its three component skids for disposal and reapplication, packaging the regeneration skid as LSA waste and sending it to NTS for disposal. The heater and blower skids were reapplied for use by LLNL. No special remedial actions were required.

Vacuum Effluent Recovery System

We disassembled the VERS and disposed of it at the NTS as LSA waste. Many special remedial actions were required for disassembly of this system. Some of the actions were: gravity draining the hallway manifold, collecting and processing oil (a mixed waste), and cutting VERS piping into sections compatible with DOT 7A 55 gallon drums. Staff sealed all drums to minimize personnel exposure.

Chilled Water System

The CWS was a contaminated system and efforts to reduce its activity to an acceptable level (20,000 pCi/l) were successful. The system released on March 6, 1995.

The system had extensive remedial actions: removing dead legged lines and installing jumpers at all lab locations. The system was continuously flushed to reduce the activity over many years.

Waste Water Recovery System

The WWRS was a low-level radioactive contaminated system. The activity levels being discharged through this system were very low and varied over the remainder of the transition activities. Staff performed an assessment of the system along with the evaporator system. Remedial actions included flushing operations, line breaks and radiological surveys and analysis. Specific information and data on these operations appear in the characterization section of this report.

Waste Water Evaporator System

The WWES was a low-level, radioactivity contaminated system. The activity levels being discharged through this system were very low. Following the transition activities, staff performed an assessment of the system and some components were disposed of as LSA waste. Remedial action included flushing operations, line breaks and radiological surveys and analysis; extensive remedial actions were not required.

Emergency Power Systems

The EPS used at the TRL Complex include the 200 kVA diesel generator and 50 kVA. EPS will remain following transition activities. No special remedial actions were required.

Liquid Nitrogen System

The LNS provided gas to the safety systems' control valves for back-filling glove boxes. It will remain following transition activities. No special remedial actions were required.

Breathing Air System

TRL staff did not use the BAS during disassembly operations. Its final disposition following transitions activities may include removal; however, no special remedial actions were required.

Radiation Monitoring Systems

The RMS used throughout the TRL Complex was required for the transition activities. Following the transition, staff disassembled and disposed of the system as low-level radioactive waste, where required, or reapplied to various DOE sites. No special remedial actions were required.

Fire Protection System

The FPS will be required for the remainder of the transition activities and beyond. No special remedial actions were required.

Building 968 Roof Area

The VERS tanks and associated piping were located on the roof area. Following disassembly and removal for disposal (per SWP 471034) as LSA waste, staff surveyed the roof area as part of the characterization survey; however, no special remedial actions were required.

Building 967 Office Area and Equipment Room

No radioactive materials were used or stored in the office area of Building 967 or its associated equipment room. Although the equipment room has chilled water lines for the cooling system, it was remediated as part of the CWS cleanup. The area was routinely surveyed by Health Physics staff and no special remedial actions were required.

Building 968 Equipment Room

No radioactive materials were used or stored in this area. Although the equipment room houses the chilled water system, it was remediated as part of the CWS cleanup. The area was routinely surveyed by health physics and no special remedial actions were required.

Building 969

No radioactive materials have been used or stored in this building or yard since 1988. Prior to 1988, the north side of the building was used to store low-level waste and contaminated equipment. Since 1989, this area has no longer been used for this purpose, and the area was subsequently surveyed routinely by Health Physics Department staff, who required no special remedial actions.

Underground Storage Tanks

Prior to 1986, the original underground WWRS storage system resided outside of the monitoring room. After the installation of the existing WWRS, staff removed the original system. Personnel who were familiar with the system when it was operational indicate that the system would overflow from time to time. The area below ground, now housing the emergency diesel fuel storage tank, should be considered for monitoring if and when the site is released.

AREA CLASSIFICATION

Area classification was used to establish the sampling and measurement frequency and pattern at the TRL. Using the system described in NUREG/CR5849 (3.4.1), area classification was divided into affected and unaffected areas. The basis for these classifications are:

"Affected areas: Areas that have potential radioactive contamination (based on plant operating history) or known radioactive contamination (based on past or preliminary radiological surveillance). This includes areas where radioactive materials were used and stored, where records indicate spills or other unusual occurrences that could have resulted in spread of contamination, and where radioactive materials were buried. Areas immediately surrounding or adjacent to locations where radioactive materials were used or stored, spilled, or buried were included in this classification because of the potential for inadvertent spread of contamination.

Unaffected areas: All areas not classified as affected. These areas are not expected to contain residual radioactivity, based on a knowledge of site history and previous survey information."

**Classification Of The TRL Complex Surfaces
And Areas According To Contamination Potential**

Complex Location	Lab # or Area	Classification	Remarks
Building 968	Lab 102	Affected	Upper Surfaces not affected.
Building 968	Lab 104	Affected	Upper Surfaces not affected.
Building 968	Lab 110 Tritium Imaging	Affected	
Building 968	Lab 112 Storage Vault	Affected	
Building 968	Lab 114 Health Physics	Affected	
Building 968	Lab 115 West Side Materials Characterization	Affected	
Building 968	Lab 115 East Side Materials Characterization	Affected	
Building 968	Lab 115 A Decontamination Systems	Affected	
Building 968	Lab 115 B Tensile Testing	Affected	
Building 968	Lab 115 C Sample Preparation	Affected	
Building 968	Lab 115 D SEM Laboratory	Affected	
Building 968	Lab 116 Monitoring Room	Affected	
Building 968	Lab 116 Subfloor	Affected	Concrete Floor
Building 968	Lab 119 NMR and Plasma Studies Lab	Affected	
Building 968	Lab 120 West Side Pressure Systems	Affected	
Building 968	Lab 120 East Side Pressure Systems	Affected	
Building 968	Lab 121 TEM Laboratory	Affected	
Building 968	Lab 125 Permeation Studies	Affected	

**Classification Of The TRL Complex Surfaces
And Areas According To Contamination Potential (Continued)**

Complex Location	Lab # or Area	Classification	Remarks
Building 968	Lab 126 West Side Component Development Lab	Affected	
Building 968	Lab 126 East Side Component Development Lab	Affected	
Building 968	Lab 129 Tritide Materials Lab	Affected	
Building 968	Hallway	Unaffected	
Building 968	Restrooms/Janitor Closet	Unaffected	
Building 968	Ventilation System	Affected	Internal Components Only.
Building 968	High Velocity Air Hood System	Affected	
Building 968	Gas Purification System	Affected	
Building 968	Vacuum Effluent Recovery System	Affected	
Building 968	Chilled Water System	Affected	Internal Components Only.
Building 968	Waste Water Recovery System	Affected	Internal Components Only.
Building 968	Waste Water Evaporator System	Affected	Internal Components Only.
Building 968	Emergency Power Systems	Unaffected	
Building 968	Liquid Nitrogen System	Unaffected	
Building 968	Breathing Air System	Unaffected	
Building 968	Radiation Monitoring System	Affected	
Building 968	Fire Protection System	Unaffected	
Building 968	Roof Area	Unaffected	
Building 968	Equipment Room	Unaffected	Housed CWS
Building 967	Office Area and Equipment Room	Unaffected	
Building 969	Equipment Storage Modification Lab	Affected	

DISESTABLISHMENT OF THE RADIOACTIVE MATERIAL MANAGEMENT AREA

During the cleanup and transition of the TRL, DOE designated the facility as a Radioactive Materials Management Area (RMMA). The definition of RMMA is *"an area in which a reasonable potential exists for contamination due to the presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams of particles (neutrons, protons, etc.) capable of causing activation."* Operating procedures must specify the physical boundaries of areas qualifying as RMMAs from which all waste streams exiting would be considered to be potentially contaminated. The defined boundaries of the TRL RMMA consisted of the confines of Building 968 only. Staff posted Building 968 entrance as a RMMA and all waste generated within the building was disposed of as low-level radioactive waste or mixed waste, as applicable.

Once building cleanup operations reached the point where all radioactive systems, equipment and waste were removed from the entire building with the exception of Rooms 115, 115A, 115B, 115C, the 121 High Velocity Air Hood (HVAH) and some sections of ventilation ducting above the ceiling level, TRL and Health Protection Management decided it was time to redefine the boundaries of the RMMA to these locations only. We based our decision upon the opportunity to minimize the generation of a large volume of otherwise clean waste that would have to be disposed of as low level radioactive waste while proceeding to transition the building to its future use.

The RMMA boundaries were redefined in accordance with requirements set forth in Health Protection Implementing Procedure 28 "Control of RMMAs." This procedure provides for the disestablishment of RMMAs when radiological surveys demonstrate that the criteria for an RMMA, as listed in OP471354, "Operating Procedure for Health Physics Workplace Surveys" and SAND91-8005C, "Guidelines for Hazardous, Radioactive and Mixed Waste Generators," no longer exist. Staff conducted a detailed contamination survey as required and redefined the boundaries.

Using the same procedure, staff removed radioactive systems, equipment and waste from rooms 115, 115A, 115B, 115C and 115D (with the exception of vent ducting above the ceiling level), thus disestablishing the RMMA in these locations. To date, the HVAH in Lab 121 constitute the boundary of the only remaining RMMA in building 968.

Asbestos Abatement

In July of 1994, staff sampled Building 968 for asbestos. They found the gypsum wallboard compound and vinyl floor tiles and mastics to be positive for asbestos in specific areas (greater than 0.1% in California). The gypsum wallboard compounds contained Chrysotile asbestos ranging from 5 -15%, and the vinyl floor tiles and mastics from 6 - 16%. Due to the fact that the building was to be converted for other uses, staff abated the vinyl floor tiles following transition activities and prior to reoccupation in September 1995. The complete asbestos survey results for the Building 968 are located in SNL/CA September 1995 Asbestos Inspection Report Volume IV. The original RCP did not include a section for this type of abatement. The radiological characterization of the building vinyl flooring was done as described in the RCP and because of the

abatement, staff performed additional wipe surveys on the concrete beneath them. The results of these wipes appear in the Laboratory Survey Results Section of this report.

CHARACTERIZATION SURVEY

The Characterization Survey used the information provided from the Scoping Survey as well as additional characterizations that were added to the original RCP, previously referenced, as the basis for an in-depth investigative survey and analysis. The Characterization Survey more precisely defined the extent and magnitude of the contamination found in a controlled environment. Staff removed or defined the entire source term of the building. The major areas they found contaminated during the scoping survey were generally expected and remediated. These areas were: the building exhaust ventilation ducts; floor areas at various experiment locations, liquid effluent collection system, and chilled water system.

Grid System Description

The Characterization Survey was established to identify specific locations throughout the TRL Complex. Staff designed and used a grid system to identify exactly where a survey indicated contamination levels greater than the release criteria (established in DOE order 5400.5). They derived the system's basic design from the NUREG/CR-5849 Draft document 4.2.2. This system divided the Building 968 complex interior into identifiable quadrants of floor areas, ceiling areas, and wall areas. Staff then took wipe surveys on the floor areas of each affected laboratory at intervals of 1 per m², on lower ceiling areas and walls at intervals of at least 4 per ceiling/wall area, and on lower sections of the exhaust ventilation ducting system.

The building is divided into three main categories for the purpose of distinguishing the exact location of a data point: the floor areas, ceiling areas and wall areas. The floor area of the Building 968 is sectioned into 66 sections running west to east and numbered 1—66; and into 24 sections running north to south numbered A—X. The ceiling area of the building is sectioned into 129 sections that run west to east. Sections 1—51 on the north half of the building; sections 52—65 and 74—85 in the hallway, which separate the north and south sides of the building running west to east, and sections 66—73 running north to south; and sections 86—129 on the south half of the building. The wall areas of each lab are sectioned into 4—8 areas per wall with each wall using north, south, east, west, and top and bottom designations.

Instrumentation

Staff performed the TRL Characterization survey according to the requirements set forth in OP471354, Operating Procedure for Health Physics Workplace Surveys. This procedure provides the technical basis for selection of radiological survey instrumentation, specifies the location and frequency of routine workplace surveys and provides instructions and forms for the documentation of radiological surveys performed at Sandia/California. OP471354 includes the following sections pertinent to the TRL Characterization survey:

- 4.1 Prerequisites
- 4.2 Preparing For Operation
- 4.3 General Survey Requirements
- 4.4 Establishing Background With Portable Survey Instruments
- 4.5 External Radiation Level Surveys
- 4.6 Determining Surface Contamination Levels
- 4.8 Documenting Radiological Surveys

Attachment 7.4: Technical Basis for Selection of Equipment

Based upon the requirements of OP471354, staff chose and used the following instruments to perform the TRL Characterization survey:

EG&G/Berthold LB 1210 Monitor with the LB 6255 Tritium Probe

The EG&G/Berthold LB 1210 Monitor with the LB 6255 Tritium Probe is an open-faced, gas-flow proportional counter used to detect tritium contamination on flat nonporous surfaces. This instrument will accurately indicate tritium surface contamination levels above 10,000 dpm/100cm². It is not useful below this level. Staff operated this instrument in accordance with OP471116, "Operating Procedure for Operation of the EG&G/Berthold LB 1210 Tritium Contamination Monitor," and maintained calibration in accordance with OP471115, "Operating Procedure for Calibration and Maintenance of the EG&G/Berthold LB 1210 Tritium Contamination Monitor."

EG&G/Berthold Model LB 110 Tritium in Air Monitor

The EG&G/Berthold Model LB 110 Tritium in Air Monitor is a gas-flow proportional continuous air sampling instrument used to measure real time tritium activity in air. This instrument is calibrated and operated to provide airborne tritium measurements to levels as low as .01 DAC (Derived Air Concentration) for tritium (.2 µCi/m³). Staff operated this instrument in accordance with OP471124, "Operating Procedure for Operation of the EG&G/Berthold Model LB 110 Tritium Monitor," and maintained calibration in accordance with OP471124, "Operating Procedure for Calibration and Maintenance of the EG&G/Berthold Model LB 110 Tritium Monitor."

Eberline E-520 Geiger Counter with the HP-210 probe

The Eberline E-520 Geiger Counter with the HP-210 probe uses a thin-window Geiger-Mueller (GM) detector that provides output to a count rate meter calibrated to indicate on the counts per minute (cpm) scale. Staff used this instrument to detect beta-gamma surface contamination. The instrument will accurately indicate beta-gamma surface contamination levels above about 100 dpm/100cm² depending upon the background radiation level at the location of the survey. Staff operated this instrument in accordance with OP471632, "Operating Procedure Using the Eberline Model E-520 Geiger Counter," and maintained calibration in accordance with OP471659, "Operating Procedure for Calibration and Maintenance of Portable Radiation Protection Instruments."

Ludlum Model 19 Micro-R Meter

The Ludlum Model 19 Micro-R Meter incorporates a sodium iodide scintillation detector that provides output to a count rate meter calibrated to provide indication in units of micro-Roentgens per hour ($\mu\text{R/hr}$). Staff used this instrument to measure low level ($<5 \text{ mR/hr}$) gamma radiation (photons $>70 \text{ Kev}$). Staff operated this instrument in accordance with OP471621, "Operating Procedure Using the Ludlum Model 19 Micro-R Meter," and maintained calibration in accordance with OP471659, "Operating Procedure for Calibration and Maintenance of Portable Radiation Protection Instruments."

Packard Tri-Carb 2550 Liquid Scintillation Counter

The Packard Tri-Carb 2550 Liquid Scintillation Counter employs photo multiplier tubes that measure light and incorporates associated instrumentation that converts the signals generated to useful units. Staff used this unit to measure tritium contamination picked up from surfaces wiped with cotton swabs. The swabs are added to a "cocktail" that consists of a solvent and a fluor. Beta radiation emitted by tritium collected on the swab excite the fluor resulting in the emission of light that is detected by the photomultiplier tubes and converted to units of disintegrations per minute (dpm). Staff used this method to measure tritium contamination levels on surfaces between 0 and 5,000,000 dpm per amount of surface area wiped (normally 100cm^2). The instrument is also used to measure tritium activity in liquid samples, such as water, glycol or oil. A small volume of the sample (.05 -1 ml) is pipetted into the "cocktail" and analyzed in the instrument. The disintegrations per minute indicated are converted to units of $\mu\text{Ci/ml}$. Staff used the Packard Tri-Carb 2550 Liquid Scintillation Counter to analyze all wipe (swipe) surveys performed, as well as all liquid samples collected during the characterization survey (including stack release and bioassay samples). Staff operated and maintained this instrument in accordance with OP471652, "Operating Procedure for the Packard Instruments Model 2550 Liquid Scintillation," and HP-10, "Health Physics Counting Procedures." These procedures address counting statistics and analysis techniques to ensure specified detection limits are met.

Oxford/Tennelec Model 5100-W Low Background Counting System

The Oxford/Tennelec Model 5100-W Low Background Counting System is a gas-flow proportional counting system used to count paper wipes for low level alpha and beta contamination. The system counts each wipe for alpha and beta radiation simultaneously, providing results in disintegrations per minute (dpm). The instrument will accurately detect alpha activity down to about 2 dpm and beta activity down to about 4 dpm above background with a ten minute count time. Staff operated this instrument in accordance with OP471432, "Operating Procedure for the Use of the Oxford/Tennelec Model LB5100-W Low Background Counting System" and maintained calibration in accordance with OP471669, "Operating Procedure for Calibration and Maintenance of the Oxford/Tennelec Model 5100-W Low Background Counting System" and HP-10, "Health Physics Counting Procedures." These procedures address counting statistics and analysis techniques to ensure specified detection limits are met. The following table indicates specific instruments used to perform the TRL Characterization Survey:

Instrument Type	Survey Type	Serial Number	Calibrated
LB-1210B	Tritium Frisk	960	12/7/95
LB-110	Tritium in Air	101024	1/27/95
E-520 w/HP-210	Beta/Gamma Frisk	560	1/12/95
Ludlum Model 19	Gamma Dose Rate	23045	12/6/94
LSC/PTC 2550	Tritium Swipe	104314	Daily
LB5100W	Alpha Contamination	78354	6/22/95

LABORATORY SURVEY RESULTS

This section presents a summary of the results of the TRL Characterization Survey. Complete results at each survey point can be obtained by cross-referencing the data sheets with the grid maps provided in Appendix A of this report.

This section provides:

- A review of radiological units
- A discussion of building release criteria

For rooms and hallways in Building 968, Building 967, Building 969, Equipment Rooms and the TRL complex outside areas:

- Tritium swipe results
- Alpha -Beta swipe results
- Tritium surface scan results
- Beta-Gamma surface scan results
- Gamma Dose rate survey results
- Tritium in air survey results
- Swipe and outside laboratory analysis of concrete beneath floor tiles (Building 968 only)

Radiological Units Applicable to this Section

Disintegrations per minute (dpm): A radioactive disintegration involves the breakdown of a radioactive atom with the discharge of alpha, beta, gamma or some other type of radiation. The unit of disintegrations per minute (dpm) expresses how many times this occurs in a minute in a given medium or material. The International System of Units (SI) equivalent of this unit is the Becquerel (Bq), which is equal to one disintegration per second.

Curie: A unit of radioactivity equal to 2.22×10^{12} dpm. This unit is often expressed as a fraction with an SI prefix. Fractions used in this report include:

- microcurie (μCi), one-millionth of a curie

- millicurie (mCi), one-thousandth of a curie
- picocurie (pCi), one millionth of a microcurie

Minimum Detectable Activity (MDA): That activity giving an indication corresponding to 4.65 times the standard deviation of the indication given by a specific background, divided by the appropriate conversion factor to result in units of activity. (ANSI N42.17B-1989).

RAD (rad): A unit of absorbed dose, which is equal to 100 ergs per gram. The rad is a measure of the energy imparted to matter by ionizing particles per unit of mass of the irradiated material. The SI equivalent is the Gray (Gy) which is equal to 100 rad.

REM (rem): A measure of equivalent biological damage caused by radiation. One rem is equal to the quantity of any ionizing radiation such that the energy imparted to a biological system per gram of living matter has the same biological effectiveness as an absorbed dose of 1 rad from lightly filtered x-rays generated at potentials of 200 to 300 kilovolts. The SI equivalent is the Sievert (Sv), which is equal to 100 rem.

Roentgen (R): A traditional unit of exposure to gamma or x-ray radiation representing the charge liberated by the radiation per unit mass of air. One Roentgen equals 2.58×10^{-4} Coulomb per kilogram of air. For the purpose of radiation protection one Roentgen may be taken as equivalent to 1 rem for gamma rays and x-rays. The gamma dose rate instrument used in the TRL characterization survey provides indication in microroentgen (μ R/hr). Some survey results are expressed in milliroentgen (mR/hr).

Building Release Criteria

Management based the decision to release Building 968 for uncontrolled use on ensuring that criteria for establishing radiological controls listed in the following procedures no longer existed:

- OP471354, "Operating Procedure for Health Physics Workplace Surveys"
- OP471356, "Administrative Procedure for Control of Radioactive Contamination"
- OP471360, "Administrative Procedure for Radiological Access Control"
- OP471363, "Administrative Procedure for Radiological Posting and Labeling"
- OP471363, "Administrative Procedure for Occupational Airborne Radioactivity Monitoring and Control"
- Health Protection Implementing Procedure 28 "Control of RMMAs"
- SAND91-8005C, "Guidelines for Hazardous, Radioactive, and Mixed Waste Generators"

These criteria included:

- Airborne Radioactivity Area: Any area where the measured concentration of airborne radioactivity, above natural background levels, exceeds or is likely to exceed 10 percent of the derived air concentration (DAC) values listed in 10 CFR 835, Appendix A or Appendix C.

- Contamination Area: Any area where contamination levels are greater than the values specified in 10 CFR 835, Appendix D and DOE Radiological Control Manual Table 2-2 for tritium.
- Controlled Area: Any area to which access is managed in order to protect individuals from exposure to radiation and/or radioactive materials. Individuals who enter only the controlled area without entering radiological areas are not expected to receive a total effective dose equivalent of more than 100 mrem in a year.
- Fixed Contamination Level: Any area with detectable removable contamination levels less than the removable contamination values listed in 10 CFR 835, Appendix D and fixed contamination at levels that exceed the total contamination values specified in 10 CFR 835, Appendix D.
- Radiation Area: Any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 0.005 rem in 1 hour at 30 centimeters from the source or from any surface that the radiation penetrates.
- Radioactive Material Area: An area where radioactive material is used, handled, or stored which is not already required to be posted as a "Contamination Area" or "Airborne Radioactivity Area" or higher.
- Radioactive Material: Any material, equipment, or system component determined to be contaminated or suspected of being contaminated. Radioactive material also includes activated material, sealed and unsealed sources, and material that emit radiation per 10 CFR 835, Appendix D.
- Radioactive Materials Management Area: An area in which the potential exists for contamination due to the presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles capable of causing activation.
- Radiological Area: Any area within a controlled area which must be posted as a "Radiation Area," "Contamination Area," or "Airborne Radioactivity Area" or higher.

Laboratory 102, Vault Storage

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	19	175	C9
Walls	14	36	4B
Ceiling	18	36	7
Vent Duct	26	26	4
Floor Drain	26	26	E4

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	5.250	0	0
C	0	0	0
D	0	0	0
	*MDA = 1.15	background = 45 cpm**	background = 22 cps***

*Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 102 indicated 3 microrem per hour above this background level and was noted on the northeast wall at waist level. All other locations in Laboratory 102 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location E1 and peaked at .72 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 102

Room 104, Part Storage

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	13	66	E9
Walls	4	16	B10
Ceiling	2	3	10
Vent Duct	13	13	9
Floor Drain	1	1	E10

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	.1300	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 104 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location E9 and peaked at .68 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

45-46	37-38
W/W 9T	W/W 9B
W/W 11T	W/W 11B

N/W 9T	N/W 10T
47-48	
39-40	
N/W 9B	N/W 10B

ROOM 104 CEILING

SW 11B	SW 12B
35-36	
43-44	
SW 11T	SW 12T

41-42	49-50
EW 10B	EW 10T
EW 12B	EW 12T

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- X ALPHA SWIPE(LETTERS)

Floor plan for Laboratory 104

Laboratory 110, Tritium Imaging/Waste Processing

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	22	197	G11
Walls	18	46	13T
Ceiling	19	24	13
Vent Duct	16	16	16
Floor Drain	101	101	C15

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	0	0	0
C	.3060	0	0
D	3.310	0	0
	*MDA = 1.15	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 110 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location A11 and peaked at .60 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 110

Laboratory 112, Temporary Vault

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	31	64	I15
Walls	163	939	19T
Ceiling	88	142	19
Vent Duct	889	889	20
Floor Drain	134	134	J15

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	0	0	0
C	0	0	0
	*MDA = 1.15	background = 45 cpm **	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 112 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location J17 and peaked at .54 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- X ALPHA SWIPE(LETTERS)

ROOM 112 FLOOR
Floor plan for Laboratory 112

Laboratory 114, Health Physics Laboratory

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	49	111	G24
Walls	24	54	26B
Ceiling	12	17	27
Vent Duct	18	24	26
Floor Drain	188	188	K23

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	0	0	0
	*MDA = .96	background = 45 cpm **	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 114 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location G23 and peaked at .57 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

ROOM 114 CEILING

NOTE: 48-VENT INTAKE

ROOM 114 FLOOR

NOTE: 46-IN HVAH DRAIN, 47-IN HVAH VENT
2, 6, 10, 14, 18 TAKEN INSIDE CABINETS
11, 15, 18, TAKEN ON COUNTER TOP
23 TAKEN INSIDE HVAH ON WORK SURFACES

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- X ALPHA SWIPE(LETTERS)

Floor plan for Laboratory 114

Laboratory 115, Materials Characterization

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	103	823	R20
Walls	88	506	109T
Ceiling	23	52	107
Vent Duct	199	719	109
Floor Drain	150	150	T25

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.3890	0	0
B	.0353	0	0
C	.0353	0	0
D	.0353	0	0
E	.0353	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 115 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location T25 and peaked at .59 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 115

Laboratory 115A, Decontamination Systems

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	196	870	P14
Walls	17	39	89T
Ceiling	26	44	88
Vent Duct	40	63	87
Floor Drain	241	241	R14

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.5650	0	0
B	0	0	0
C	.3890	0	0
D	.3890	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 115A indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location U18 and peaked at .71 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Laboratory 115B

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	81	653	P22
Walls	10	77	93B
Ceiling	0	0	90-93
Vent Duct	19	19	91
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.0212	0	0
B	.3890	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 115B indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location T25 and peaked at .59 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- X ALPHA SWIPE(LETTERS)

Floor plan for Laboratory 115B

Laboratory 115C

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	170	667	X26
Walls	66	334	101B
Ceiling	4	11	99
Vent Duct	275	392	98
Floor Drain	19	19	X25

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	2.16	0	0
B	.0353	0	0
	*MDA = 1.01	background = 45 cpm **	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 115C indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location T25 and peaked at .59 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 115C

Laboratory 115D

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	91	147	U20
Walls	40	165	95B
Ceiling	2	5	95
Vent Duct	12	12	97
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	0	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 115D indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location T25 and peaked at .59 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- X ALPHA SWIPE(LETTERS)

Floor plan for Laboratory 115D

Laboratory 116, Monitoring Room

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	33	362	I30
Walls	33	109	28B
Ceiling	11	15	29
Vent Duct	10	10	29
Floor Drain	0	0	F30

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.0522	0	0
B	.2260	0	0
C	.2260	0	0
D	.5750	0	0
E	.5750	0	0
F	4.580	0	0
G	0	0	0
H	0	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

*Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to building 913 indicated 5 microrem per hour. The highest reading in Laboratory 116 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location C26 and peaked at .60 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

ROOM 116 CEILING

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- * DRAIN
- xxx ALPHA SWIPE(LETTERS)

ROOM 116 FLOOR

ROOM 116 SUBFLOOR

Floor plan for Laboratory 116

Laboratory 119, Nuclear Magnetic Resonance and Plasma Studies

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	54	219	R34
Walls	88	180	113T
Ceiling	73	146	110
Vent Duct	468	881	111
Floor Drain	86	86	T38

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	0	0	0
C	.5650	0	0
D	.0353	0	0
	*MDA = 1.01	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 119 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location R38 and peaked at .59 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 119

Laboratory 120, Pressure Systems

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	40	185	E42
Walls	50	144	36T
Ceiling	83	100	37, 39
Vent Duct	288	390	32, 33
Floor Drain	153	164	E34 & 44

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	3.036	0	0
C	0	0	0
D	0.226	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 120 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location A34 and peaked at .60 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 120

Laboratory 121, Microscope Lab/Health Physics Lab

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	40	257	N47
Walls	1	3	116T
Ceiling	0	0	114-117
Vent Duct	68	79	114
Floor Drain	125	125	Q46

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.0522	0	0
B	0	0	0
C	4.93	0	0
D	.0522	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 121 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location R43 and peaked at .60 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

NOTE: 37, 43, 49, 61, 67, 93 & 94 TAKEN ON COUNTER TOP
55 TAKEN INSIDE HVAH

Floor plan for Laboratory 121

Laboratory 122, Analysis and Assay

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	18	65	K50
Walls	5	53	41B
Ceiling	4	17	43
Vent Duct	128	232	43
Floor Drain	17	17	E51

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	6.3	0	0
B	0	0	0
C	0	0	0
D	.23	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 122 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location E48 and peaked at .58 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 122

Laboratory 125, Permeation Studies

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	59	756	R56
Walls	84	412	121B
Ceiling	62	157	121
Vent Duct	390	720	119
Floor Drain	164	164	S53

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.226	0	0
B	.0522	0	0
C	0	0	0
D	.0522	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 125 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location V56 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 125

Laboratory 126, Component Development

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	81	791	A54
Walls	75	111	50T, 51T
Ceiling	73	81	45, 47
Vent Duct	263	877	50
Floor Drain	119	119	E60

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	4.00	0	0
C	0	0	0
D	0	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 126 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location E54 and peaked at .58 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 126

Laboratory 127

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	2	30	S56
Walls	4	34	124T
Ceiling	0	0	122-125
Vent Duct	55	66	124
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.122	0	0
B	.749	0	0
C	5.10	0	0
D	.400	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 127 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location Q56 and peaked at .60 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 127

Laboratory 129, Machine Shop/Tritide Materials/Container Storage

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	45	391	W66
Walls	157	208	129T
Ceiling	154	195	127
Vent Duct	316	965	128
Floor Drain	574	946	T62

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.052	0	0
B	.575	0	0
C	0	0	0
D	.400	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Laboratory 129 indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location T66 and peaked at .61 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Laboratory 129

Hallway West

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	37	67	N2
Walls	35	87	56B
Ceiling	48	74	57
Vent Duct	N/A	N/A	N/A
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	.5750	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Hallway West indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location N9 and peaked at .63 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Hallway West

Hallway Central

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	34	214	K23
Walls	52	133	66B
Ceiling	39	75	61
Vent Duct	N/A	N/A	N/A
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.0522	0	0
B	0	0	0
C	.4000	0	0
	*MDA = .96	background = 45 cpm **	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Hallway Central indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location L23 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Hallway Central

Hallway East

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	66	562	L62
Walls	135	748	83T
Ceiling	119	142	81
Vent Duct	N/A	N/A	N/A
Floor Drain	N/A	N/A	N/A

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
B	.0522	0	0
C	0	0	0
	*MDA = .96	background = 45 cpm **	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in Hallway East indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location M50 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- ⊗ DRAIN
- ⊗ ALPHA SWIPE(LETTERS)

Floor plan for Hallway East

Janitor Room

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	87	159	I21
Walls	114	250	23T
Ceiling	102	102	23
Vent Duct	N/A	N/A	N/A
Floor Drain	14	14	K22

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.0522	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity ** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in the Janitor Room indicated levels equal to the noted background.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location L23 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

Floor plan for Janitor Room

Men's Restroom

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	10	75	E21
Walls	13	34	21B
Ceiling	0	0	21
Vent Duct	N/A	N/A	N/A
Floor Drain	30	87	C23

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	0	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in the Men's Room indicated levels of up to 9 microrem per hour at the floor level.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location L23 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

ROOM MEN CEILING

Floor plan for the Men's Restroom

Women's Restroom

Tritium Surface Contamination

Location	Average (dpm/100cm ²)	High (dpm/100cm ²)	@ Grid
Floor	78	969	H22
Walls	1	7	22B
Ceiling	15	15	22
Vent Duct	N/A	N/A	N/A
Floor Drain	2	6	E25

Alpha Swipe, Beta-Gamma Frisk and Tritium Surface Scan

Location	Alpha Swipe (dpm/100cm ²)	Beta-Gamma Frisk (dpm/100cm ²)	Tritium Surface Scan (dpm/100cm ²)
A	.4000	0	0
	*MDA = .96	background = 45 cpm**	background = 22 cps***

* Minimum Detectable Activity

** counts per minute

*** counts per second

Gamma Dose

The background reading taken in the road next to Building 913 indicated 5 microrem per hour. The highest reading in the Women's Room indicated levels of up to 9 microrem per hour at the floor level.

Tritium In Air

The EG&G/Berthold Model LB 110 Tritium in Air Monitor was operated at grid location L23 and peaked at .55 $\mu\text{Ci}/\text{m}^3$ during a 1 hour continuous run.

ROOM WOMEN CEILING

ROOM WOMEN FLOOR

- VENTILATION DUCT
- ⊗ CONCRETE CORE SAMPLE
- ★ DRAIN
- X ALPHA SWIPE(LETTERS)

Floor plan for the Women's Restroom

Auxiliary Facilities

Supplemental surveys were performed in the following auxiliary facilities:

- Building 967
- Building 969
- Building 967 Equipment Room
- Building 968 Equipment Room
- Building 968 Outside Area
- Waste Water Tank Pit
- Waste Water Evaporator

The following table summarizes surface contamination results for tritium and alpha contamination obtained in these surveys. Original copies of these surveys are filed in the Health Physics Record Retention System:

Location	Average Tritium (dpm/100cm ²)	High Tritium (dpm/100cm ²)	Average Alpha (dpm/100cm ²)	High Alpha (dpm/100cm ²)
Building 967	4	19	.1909	.9190
Building 969	10	22	.0053	.0212
Building 967 Equipment Room	16	36	.0117	.0353
Building 968 Equipment Room	7	15	.0706	.2120
Waste Water Tank Pit	9	75	.634	1.162
Waste Water Evaporator	26	644	N/A	N/A

Gamma dose rate surveys in each of the above locations indicated no readings above instrument background.

Direct frisk of floor areas for beta-gamma and tritium surface contamination in Building 967, Building 969 and the two equipment rooms indicated no readings above instrument background.

Gas Systems

Building 968 gas systems analyzed for tritium contamination included:

- Nitrogen
- Breathing air
- Service air

The following table summarizes results obtained:

Location	Average Tritium Activity (dpm/100cm ²)	High Tritium Activity (dpm/100cm ²)
Nitrogen	3	4
Breathing Air	3	3
Service Air	4	4

Water Systems

Building 968 water systems analyzed for tritium contamination included:

- Cold water
- Hot water
- Cooling tower
- Chill Water

The following table summarizes results obtained:

Location	Tritium Contamination (picocuries per liter)
Cold water	0
Hot water	0
Cooling tower	0
Chill Water	12337

CONCRETE BENEATH FLOOR TILES

Swipe Surveys Beneath Floor Tiles

Swipe surveys were performed in the rooms and hallways of Building 968 following the removal of floor tiles. The following table summarizes results obtained:

Location	Average Tritium Activity (dpm/100cm ²)	High Tritium Activity (dpm/100cm ²)
Hallways/Restrooms	6	74
Laboratory 112	0	0
Laboratory 114	0	0
Laboratory 115	1	6
Laboratory 115A	1	14
Laboratory 120	1	10
Laboratory 122	0	0
Laboratory 125	1	8
Laboratory 129	1	6

Concrete Floor Samples

Staff collect concrete core samples at locations where spills of radioactive liquids were known or likely to have occurred over the life of the TRL. Samples were taken at the following grid locations: In Laboratory 115 at R27, P23, X32, T20; in Laboratory 115A at N14, Q14, T14, X17; and in Laboratory 119 at P37, S40, W38, W39, W40. These samples were sent off site for tritium and gamma analysis at Thermo Analytical Labs in Richmond, CA. Results are summarized on the following table. Detailed analysis records are filed in the ES&H Records Center under file # HP-215.02.

Location	Tritium Activity in pCi/g	Gamma Activity (other than naturally occurring isotopes)
Lab 115 @ R27	210	none detected
Lab 115 @ P23	150	none detected
Lab 115 @ X32	56	none detected
Lab 115 @ T20	93	none detected
Lab 115A @ N14	1400	none detected
Lab 115A @ Q14	1500	none detected
Lab 115A @ T14	1000	none detected
Lab 115A @ X17	190	none detected

Location	Tritium Activity in pCi/g	Gamma Activity (other than naturally occurring isotopes)
Lab 115A @ P37	1000	none detected
Lab 119 @ S40	190	none detected
Lab 119 @ W38	220	none detected
Lab 119 @ W39	92	none detected
Lab 119 @ W40	94	none detected

Using the Proposed Cleanup Guidelines published by the California Department of Health Services on January 13, 1994, establishing lifetime cancer risk based on soil ingestion, we found the maximum tritium contamination of the concrete (1500 pCi/g) is far below the 10^{-6} acceptable risk category of 7,400 pCi/g.

FLOOR DRAIN FLUSH, ASSESSMENT AND RELEASE

Floor drainage in each of the rooms in Building 968, as well as in the north and south buttresses, are collected in drain piping that runs in 9 sections. The pipe runs north and south through the length of the building and connects at a header on the north side of the building. Drains are directed to one of the two 2500 gallon tanks in the Waste Water Recovery System (WWRS). From this point, they collect and are sampled and released in accordance with OP471097, "Operating Procedure for the Processing of TRL Waste Water." Over the history of the facility, tritium-contaminated liquids have been introduced into the drainage system through routine mopping, decontamination operations, spillage and equipment failure.

In November 1995, staff conducted flushing, analysis, and sampling of the Building 968 drain system. This involved flushing 500 gallons of potable water from the far end of each drain header (on the south side of Building 968) into the waste water collection tanks. Samples were collected at the drainage point into the waste collection tank at the 100, 300 and 500 gallon point (100 and 200 gallon point on the two short lines on the west side of the building.) Results of flushing and sampling indicated that the entire Building 968 drainage and waste water collection system presented no radiological hazard and further radiological sampling and control of the system was suspended. In addition to the flushing procedure, maintenance personnel thoroughly cleaned the waste water collection tank pit, after which staff completed a surface contamination survey that indicated no beta, gamma or alpha radioactivity levels above site limits for uncontrolled release.

Tables and graphs follow:

Building 968 Drain Flush Data

Date/Time	Location	<u>counts</u> 60 min-ml	pCi/l	Comments
11/9/95 1600	Background	1497	22770	10ml Ultima Gold Only. <1569 cts/60 min = bkgd Decision Level = $2.33(1497)^{1/2} = 72.15$ cts/60 min
11/7/95 0800	Lab 129 @100gal	3531	30834	
11/7/95 0800	Lab 129 @300gal	2539	15518	
11/7/95 0800	Lab 129 @ 500gal	2382	13266	
11/7/95 0800	Lab 127 @100gal	4673	47500	
11/7/95 0800	Lab 127 @300gal	2603	16419	
11/7/95 0800	Lab 127 @ 500gal	2295	11915	
11/7/95 0800	Lab 125 @100gal	1427	<bkgd	
11/7/95 0800	Lab 125 @300gal	1454	<bkgd	
11/7/95 0800	Lab 125 @ 500gal	1442	<bkgd	East tank released
11/9/95 0800	Background	1172	17752	10ml Ultima Gold Only. <1251 cts/60 min = bkgd Decision Level = $2.33(1172)^{1/2} = 79.76$ cts/60 min,
11/9/95 0800	Lab 121 @100gal	1991	12428	
11/9/95 0800	Lab 121 @300gal	1874	10262	
11/9/95 0800	Lab 121 @ 500gal	1313	2068	
11/9/95 0800	Lab 119 @100gal	1059	<bkgd	
11/9/95 0800	Lab 119 @300gal	1153	<bkgd	
11/9/95 0800	Lab 119 @ 500gal	1182	126	
11/9/95 0800	Lab 115 East @100gal	1348	2604	
11/9/95 0800	Lab 115 East @300gal	1213	541	
11/9/95 0800	Lab 115 East @ 500gal	1361	2847	East tank released
11/14/95 0800	Background	959	13176	10ml Ultima Gold Only. <1031 cts/60 min = bkgd Decision Level = $2.33(959)^{1/2} = 72.15$ cts/60 min
11/14/95 0800	Lab 115 Center @100gal	2170	19707	
11/14/95 0800	Lab 115 Center @300gal	1730	12950	

Building 968 Drain Flush Data (Continued)

Date/Time	Location	<u>counts</u> 60 min-ml	pCi/l	Comments
11/14/95 0800	Lab 115 Center @ 500gal	1477	9347	
11/14/95 0800	Lab 115B @100gal	1155	3941	
11/14/95 0800	Lab 115B @300gal	1150	4392	
11/14/95 0800	Lab 115B @ 500gal	1053	2590	
11/14/95 0800	Lab 115A @100gal	1105	3491	
11/14/95 0800	Lab 115A @300gal	1011	2139	
11/14/95 0800	Lab 115A @ 500gal	1332	7094	East tank released
11/14/95 0800	Lab 104 @100gal	1092	3491	
11/14/95 0800	Lab 104 @ 200gal	1021	2139	
11/14/95 0800	Lab 102 @100gal	950	1238	
11/14/95 0800	Lab 102 @ 200gal	1087	3040	

*Federal and State Public Drinking Water Standard = 20,000 pCi/l

RADIOLOGICAL SOIL CHARACTERIZATION

Although not specifically required or requested by TRL Management, Health Protection Department requested that the Environmental Protection Department perform a TRL and Site Radiological Soil Characterization. This was requested to provide as much detailed information on the condition of the area and site that could be obtained following the cleanup and transition of the facility.

The characterization consisted of 21 samples taken throughout the site. Nineteen of the 21 results registered below the analytical detection limit. Only two samples indicated a result statistically above background. These two samples were in the proximity of the TRL Complex; however, two other samples taken from the same general area were found negative. The resulting maximum activity found in the soil was 0.096 pCi/g and represents a concentration equal to 0.009% of the allowable limit (1.03 E3 pCi/g) for unrestricted release and protection of the public. The Radiological Soil Characterization Report appears in Appendix D. A complete copy of the plan, procedures, and report is filed under RRS #EM-204.04 in the ES&H Records Center.

NESHAPS AGREEMENT

In February of 1995, D. D. Brekke of the Environmental Operations Department drafted a monitoring plan for the California site. The plan proposed specific steps and

requirements following the removal of the source term and transition of the facility. The plan was presented to the interested parties at a meeting on February 9th. The Federal EPA formally approved the plan, as written, on June 13, 1995. The monitoring plan included a background on the facility, compliance update, post-operational and future monitoring plans. The agreement allows for the discontinuation of emission monitoring and reporting when the maximum offsite radiation dose via air pathway (stack emissions) becomes less than 0.001 mrem in a year. Using the EPA-required methodology, this dose is approximately equal to a discharge of 7 curies. A copy of the approval letter and the plan appears in the Appendix E.

Please note that to date we are unaware of any previous written agreement with the Federal EPA that allows for the future discontinuation of environmental monitoring and reporting at another facility. This agreement may serve as a model for other DOE facilities.

WASTE MANAGEMENT

Low-level Radioactive Waste from the TRL Cleanup and Transition Projects was shipped to the Nevada Test Site for burial. Many different and unique types of materials were handled for packaging at the facility. All items and materials were required to meet NTS, NVO-325 specifications. NVO-325 is the Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements. The primary driver behind NVO-325 is DOE Order 5820.2A. The orders' main purpose is to ensure: waste storage and disposal are consistent with DOE policy; radiation exposures are kept ALARA; the environment is adequately protected from chemical hazards; generators adhere to DOE regulations; and Quality Assurance programs are developed, implemented and maintained.

Numerous procedures were used to satisfy the requirements of NVO-325. The following is a listing of the procedures primarily used to process, handle and package the waste at the TRL.

- Characterization of Radioactivity in Waste OP471587.
- Treatment and Disposal of Acid Containing Low-level Waste OP471076.
- Low-level Waste (Radioactive). Liquid Solidification OP471403.
- Collection, Classification and Unrestricted Release of Non-Compactable Scrap and Reaplicable Materials OP471083.
- Solid, Non-Compactable Low-level Waste (Radioactive) Disposal OP471080.
- Tritiated Water, Solidification on Clay, Waste Packaging OP471101.
- Stainless Steel Containers, with Small Quantities of Metal Tritides, Waste Packaging OP471096.
- Solid Metal Tritide, Containing Tritium, Waste Packaging OP471346.
- Manifolds and Vessels, Waste Packaging OP471344.
- Oversize Container, Waste Packaging OP471384.

There were additional procedures available for the handling of Vacuum Pump Oil (OP471351) and Pyrophoric Materials (OP471107), however, these procedures were not used. These materials were handled through agreements with Sandia/New Mexico and LLNL, respectively.

HAZARDOUS CHEMICALS

Over the years, TRL personnel used chemicals extensively throughout the laboratory. Starting with the initial cleanup of the facility in 1991. All chemicals that were previously stored within the building were moved to storage outside to remove chemicals from an RMMA building. (See RCP SAND95-8216 for initial chemical inventories.) As the cleanup and transition projects progressed, staff returned the chemicals for reapplication and/or disposal. By the end of the project, no chemicals were stored inside the building and only the Health Protection Department 8421 routinely used chemicals inside the building for laboratory analysis.

Infectious or explosive materials were never handled at the TRL.

TRL HISTORICAL FILES

The ES&H Records Center houses all records associated with the Health Physics aspects of the TRL. The Records Center, which is located in Building 922, manages and categorizes each individual record and report that is generated. The reports and information contained in the TRL Cleanup and Transition Data file, HP-213.07 are the Radiological Characterization Plan, SAND95-8216, and this document. Although there is one designated file location as a TRL Cleanup and Transition data file, the following raw data, from which these reports were generated, appears in the following areas:

Tritium Bioassay Results: HP-201.01

Bioassay Data Interpretation: HP-201.03

Health Physics Quarterly Reports, HP-215.02

Radiation Work Permits: HP-213.08

Waste Water Analysis: HP-217.02

Miscellaneous Waste Analysis: HP-217.03

TRL Stack Releases: HP-217.04

Miscellaneous Contamination Surveys: HP-219.01

Routine Facility Contamination Survey: HP-219.06

Radioactive Material Shipment Survey: HP-219.05

Bioassay Results MREM: HP-223.

TRL Logbooks, HP-221

LONG-TERM CONTAMINATION ISSUES

Underground Storage Tanks

Prior to 1986, an underground WWRS storage system was located outside the monitoring room. We removed this system after installing the existing WWRS. Information taken from personnel who were here when the system was operational indicates the system would overflow from time to time. Sandia should consider monitoring the area below ground, now housing the emergency diesel fuel storage tank, if and when the site is released.

Radiological Characterization Ventilation Ducting

Prior to the final transition activities associated with the remediation of the ventilation ducting, Health Protection recommended removing and replacing the ventilation system ducting. TRL Management decided to use a process using a HEPA vacuum cleaner to decontaminate the ducting. Health Protection and the TRL Management reached an agreement to use the HEPA vacuum, performing the characterization of the ducting to as far as the surveyor could reach into the affected duct. From this, management could operate the building, so long as they did not impact the ventilation ducting. The original plan and survey was written and performed to this agreement. To provide as much information as possible about the TRL residual contamination in the ducting, Health Protection documented the conditions within each ventilation duct from each lab to the main exhaust duct. They presented the documentation of the conditions to TRL Management. During the remodeling transition period, it became evident that leaving contaminated ducting in place was not possible or practical. Using the detailed survey of each ventilation duct from the original assessment, they devised a remediation plan. The remediation plan called for removal of all tritium contaminated ducting in excess of 1000 dpm/100cm². In doing this, it eliminated further requirements for posting or monitoring of ventilation duct work from each lab. Additionally, during the remediation, Health Physics performed a characterization and remediation of the main exhaust ducting. Following a general cleanup of debris inside the main exhaust, a series of ~50 wipe survey was taken. The average concentration was ~3200 dpm/100cm². This value is below the established limit in 5400.5.

Lessons Learned

Over the years, there were a number of issue that came up where we learned through the process of experience. The sharing of lessons learned is a valuable tool to others who may undertake a task as we did. We have listed a few of the most significant and those worthy of mentioning below.

VERS Gas to Water Heat Exchanger: After approximately eight years of operation, a breakthrough occurred from the gas side to the water side of the heat exchanger. As the house Chilled Water System (~2650 liters) cooled this system, the process continuously contaminated the entire content of this volume. It is our view that we should have separated the heat exchanger cooling water from the house Chilled Water System. In doing this, we could have avoided the extensive manpower needed to remediate this system following the operation of the VERS. However, the use of this type of system

could generate a high concentration of tritium contaminated water and would require periodic monitoring and special handling.

Oversized Waste Containers: We used oversized waste containers to contain large bulk radioactive contaminated waste items. These items included; the VERS skid, hallway manifold and waste hold tanks, and the GPS skids and hallway manifold. By using these oversized waste containers, we eliminated a great amount of disassembly work, and ultimately reduced the amount of dose each individual would have received.

Ion Chamber Limitations: Although most manufacturers build ion chambers that operate far into the curie per cubic meter range (Ci/m³), we established that our Overhoff Betatech Models experienced recombination effects at ~200 millicuries per cubic meter (200 mCi/m³). By establishing the upper level where recombination effects occurred, we used this level for establishing our emergency response criteria.

Decontamination of Materials: We found the most effective method of decontaminating surfaces and materials to be a staged process. In the first attempt, we used a cleaning solution, such as Windex or an alcohol, to remove the dirt and grease materials. We followed this by using a dilution of the initial material, ultimately accomplishing final cleaning by using tap water. The decontamination process using a pure cleaning solution was unsuccessful at reducing the surface contamination levels to a level where we could release the material unconditionally (<1000 dpm/100cm²).

Environmental Release Identification: By using the stack bubbler system that differentiates between HTO and HT, we were able to identify when the ratio of release changed. An increase in the ration of tritium gas was a main factor in the discovery of low-level tritium gas releases through leaking valves and regulators. It is very important to follow the activities of each experiment and establish and monitor normal release ratios.

Pre-disassembly Cleanup System Analysis: Before disassembling the cleanup system, we performed an analysis of the individual sections of the system without breaching the system. We accomplished this by using an in-house designed technique using the Portable Tritium Monitoring System (PTMS). We operated the system under the Safe Operating Procedure, SP472672.

Vacuum Effluent Recovery System (VERS) Disassembly: We disassembled the VERS after analyzing and flushing individual sections using the PTMS. Following the cleanup, we disassembled the VERS primarily using "the jaws of life," an Ankus Rescue Systems cutter. The large hydraulic cutters were extremely helpful in sectioning the piping rapidly. We did the cutting operations using a snorkel exhaust for personnel exposure control. We cut sections small enough to fit into a DOT Type 7A 55 gallon drum that, when filled, we sealed to prevent personal exposure from out-gassing materials.

Gas Purification System (GPS) Disassembly: We contained the largest components of the GPS on skids, which we disposed of in the oversized waste containers. We disassembled the GPS hallway manifold piece by piece, using a clam-shell cutter. We used the cutter to cut the manifold into section of less than fourteen feet, placing them in sections into wooden boxes. We stored the wooden boxes until completing the entire hallway manifold disassembly, and then we loaded them for shipment and burial in the oversized waste containers.

Mixed Waste Reduction: The Health Protection Staff switched from 20 ml vials to 7 ml vials for surface contamination wipes. This change reduced the overall volume of liquid scintillation cocktail by ~60%.

For information on lessons learned associated with Experiment Relocation, Sandia Report SAND94-8236 chronicles the activities from laboratories 110, 115, 119, 120, 121, 122, 125, and 129.

RADIOLOGICAL OVERVIEW

This radiological overview includes a historical look at Dose Assessments, Environmental Releases, and Accountable Tritium Inventory at the facility. For an in-depth look at the radiological conditions of the TRL, review the Health Physics Quarterly Reports. This report focuses on activities during each quarter of operation and identifies significant accomplishments and areas of concern. We have chronicled all the historical data along with charts as part of the Appendix G.

Dose Assessment

The total effective dose equivalent to employees and contractors were extremely low throughout the life of the facility. Except for a single incident exposure in 1984, the yearly lifetime average of positively recorded exposures was ~39 millirems. It is important to note that this is only inclusive of positive exposures, and the majority of personnel who worked and/or frequented the facility received no measurable exposure. During the final five years of cleanup and transition of the facility, the yearly average positively recorded exposure for workers was ~15 millirems. We accomplished this during the most hazardous operations, and it is a tribute to truly outstanding personnel at the facility.

Environmental Releases

The Stack Effluent varied over the life of the facility. From 1979 to 1995, the total effluent release was 7,425.31 curies. We determined the tritium concentrations in the stack effluent on a real-time basis. We used low-level and high-level ionization monitors concurrently. These monitors measure the total ionization produced, including that from smoke, dust, and fumes, as well as that from tritium. Ionization monitors cannot distinguish between tritium in the two predominate forms one would expect at the TRL (tritium as a gas (T_2 or HT) and tritiated water vapor (HTO)). The stack bubbler system provided this, from which we determined the reportable data by liquid scintillation analysis techniques.

The Health Physics Representative managed the Waste Water Effluent activities and volumes. The waste water totals for 1979 to 1995 were 4,775 millicuries in 438,328 gallons.

Accountable Tritium Inventory

TRL Staff maintained and updated monthly the Accountable Tritium Inventory. The first accountable tritium inventories began in July of 1977 and the final close-out occurred in October 1994. The maximum quantity of tritium at the facility was 200.85 grams in September of 1985. For a detailed listing of the Accountable Tritium Inventory, see SAND96-8005.

APPENDIX A
TRL CHARACTERIZATION SURVEY DATA PART 1

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe*	T2 Direct*	Alpha Wipe	Beta Wipe	Beta Direct
102	CEILING	001	8/26/95	T. Gorman	9				
102	CEILING	002	8/26/95	T. Gorman	9				
102	CEILING	003	8/26/95	T. Gorman	14				
102	CEILING	004	8/26/95	T. Gorman	14				
102	CEILING	005	8/26/95	T. Gorman	11				
102	CEILING	006	8/26/95	T. Gorman	36				
102	CEILING	007	8/26/95	T. Gorman	36				
102	CEILING	008	8/26/95	T. Gorman	36				
102	DRAIN	E05	8/26/95	T. Gorman	26				
102	DUCT	001	8/26/95	T. Gorman	26				
102	EAST WALL	004B	8/26/95	T. Gorman	36				
102	EAST WALL	004T	8/26/95	T. Gorman	0				
102	EAST WALL	008B	8/26/95	T. Gorman	0				
102	EAST WALL	008T	8/26/95	T. Gorman	17				
102	FLOOR	A01	8/26/95	T. Gorman	6				
102	FLOOR	A02	8/26/95	T. Gorman	0				
102	FLOOR	A03	8/26/95	T. Gorman	0				
102	FLOOR	A04	8/26/95	T. Gorman	9				
102	FLOOR	A05	8/26/95	T. Gorman	0				
102	FLOOR	A06	8/26/95	T. Gorman	0				
102	FLOOR	A07	8/26/95	T. Gorman	0				
102	FLOOR	A08	8/26/95	T. Gorman	0				
102	FLOOR	A09	8/26/95	T. Gorman	14				
102	FLOOR	B01	8/26/95	T. Gorman	0				
102	FLOOR	B02	8/26/95	T. Gorman	1				
102	FLOOR	B03	8/26/95	T. Gorman	10				
102	FLOOR	B04	8/26/95	T. Gorman	6				
102	FLOOR	B05	8/26/95	T. Gorman	23				
102	FLOOR	B06	8/26/95	T. Gorman	9				
102	FLOOR	B07	8/26/95	T. Gorman	0				
102	FLOOR	B08	8/26/95	T. Gorman	36				
102	FLOOR	B09	8/26/95	T. Gorman	10				
102	FLOOR	C01	8/26/95	T. Gorman	0				
102	FLOOR	C02	8/26/95	T. Gorman	0				
102	FLOOR	C03	8/26/95	T. Gorman	0				
102	FLOOR	C04	8/26/95	T. Gorman	0				
102	FLOOR	C05	8/26/95	T. Gorman	10				
102	FLOOR	C06	8/26/95	T. Gorman	33				
102	FLOOR	C07	8/26/95	T. Gorman	12				
102	FLOOR	C08	8/26/95	T. Gorman	8				
Comments:					0	0	5.25	9.42	0
TRL Radiological Characterization Survey									

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
102	FLOOR	C08	8/26/95	T. Gorman	19				
102	FLOOR	C09	8/26/95	T. Gorman	175				
102	FLOOR	D01	8/26/95	T. Gorman	3				
102	FLOOR	D02	8/26/95	T. Gorman	12				
102	FLOOR	D03	8/26/95	T. Gorman	23				
102	FLOOR	D04	8/26/95	T. Gorman	7				
102	FLOOR	D05	8/26/95	T. Gorman	16				
102	FLOOR	D06	8/26/95	T. Gorman	23				
102	FLOOR	D07	8/26/95	T. Gorman	23				
102	FLOOR	D08	8/26/95	T. Gorman	10				
102	FLOOR	D09	8/26/95	T. Gorman	23				
102	FLOOR	E01	8/26/95	T. Gorman	16				
102	FLOOR	E02	8/26/95	T. Gorman	14				
102	FLOOR	E03	8/26/95	T. Gorman	9				
102	FLOOR	E04	8/26/95	T. Gorman	7				
102	FLOOR	E05	8/26/95	T. Gorman	8				
102	FLOOR	E06	8/26/95	T. Gorman	20				
102	FLOOR	E07	8/26/95	T. Gorman	21				
102	FLOOR	E08	8/26/95	T. Gorman	12				
102	FLOOR	E09	8/26/95	T. Gorman	19				
102	FLOOR	F01	8/26/95	T. Gorman	13				
102	FLOOR	F02	8/26/95	T. Gorman	30				
102	FLOOR	F03	8/26/95	T. Gorman	17				
102	FLOOR	F04	8/26/95	T. Gorman	22				
102	FLOOR	F05	8/26/95	T. Gorman	12				
102	FLOOR	F06	8/26/95	T. Gorman	23				
102	FLOOR	F07	8/26/95	T. Gorman	8				
102	FLOOR	F08	8/26/95	T. Gorman	81				
102	FLOOR	F09	8/26/95	T. Gorman	23				
102	FLOOR	G01	8/26/95	T. Gorman	33				
102	FLOOR	G02	8/26/95	T. Gorman	21				
102	FLOOR	G03	8/26/95	T. Gorman	28	0	0	0	0
102	FLOOR	G04	8/26/95	T. Gorman	19				
102	FLOOR	G05	8/26/95	T. Gorman	31				
102	FLOOR	G06	8/26/95	T. Gorman	11				
102	FLOOR	G07	8/26/95	T. Gorman	19	0	0	0	0
102	FLOOR	G08	8/26/95	T. Gorman	16				
102	FLOOR	G09	8/26/95	T. Gorman	35				
102	FLOOR	H01	8/26/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
102	FLOOR	H02	8/26/95	T. Gorman	16				
102	FLOOR	H03	8/26/95	T. Gorman	46				
102	FLOOR	H04	8/26/95	T. Gorman	26				
102	FLOOR	H05	8/26/95	T. Gorman	9				
102	FLOOR	H06	8/26/95	T. Gorman	64				
102	FLOOR	H07	8/26/95	T. Gorman	31				
102	FLOOR	H08	8/26/95	T. Gorman	18				
102	FLOOR	H09	8/26/95	T. Gorman	41				
102	FLOOR	I01	8/26/95	T. Gorman	3				
102	FLOOR	I02	8/26/95	T. Gorman	14				
102	FLOOR	I03	8/26/95	T. Gorman	14				
102	FLOOR	I04	8/26/95	T. Gorman	36				
102	FLOOR	I05	8/26/95	T. Gorman	26				
102	FLOOR	I06	8/26/95	T. Gorman	38				
102	FLOOR	I07	8/26/95	T. Gorman	18				
102	FLOOR	I08	8/26/95	T. Gorman	27				
102	FLOOR	I09	8/26/95	T. Gorman	16				
102	FLOOR	J01	8/26/95	T. Gorman	5				
102	FLOOR	J02	8/26/95	T. Gorman	25				
102	FLOOR	J03	8/26/95	T. Gorman	23				
102	FLOOR	J04	8/26/95	T. Gorman	32				
102	FLOOR	J05	8/26/95	T. Gorman	27				
102	FLOOR	J06	8/26/95	T. Gorman	0				
102	FLOOR	J07	8/26/95	T. Gorman	41				
102	FLOOR	J08	8/26/95	T. Gorman	33				
102	FLOOR	J09	8/26/95	T. Gorman	12				
102	FLOOR	K01	8/26/95	T. Gorman	29				
102	FLOOR	K02	8/26/95	T. Gorman	17				
102	FLOOR	K03	8/26/95	T. Gorman	6				
102	FLOOR	K04	8/26/95	T. Gorman	28				
102	FLOOR	K05	8/26/95	T. Gorman	9				
102	FLOOR	K06	8/26/95	T. Gorman	26				
102	FLOOR	K07	8/26/95	T. Gorman	18				
102	FLOOR	K08	8/26/95	T. Gorman	15				
102	FLOOR	K09	8/26/95	T. Gorman	4				
102	NORTH WALL	001B	8/26/95	T. Gorman	16				
102	NORTH WALL	001T	8/26/95	T. Gorman	16				
102	NORTH WALL	002B	8/26/95	T. Gorman	25				
102	NORTH WALL	002T	8/26/95	T. Gorman	25				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
102	NORTH WALL	003B	8/26/95	T. Gorman	9				
102	NORTH WALL	003T	8/26/95	T. Gorman	9				
102	NORTH WALL	004B	8/26/95	T. Gorman	7				
102	NORTH WALL	004T	8/26/95	T. Gorman	7				
102	SOUTH WALL	005B	8/26/95	T. Gorman	15				
102	SOUTH WALL	005T	8/26/95	T. Gorman	15				
102	SOUTH WALL	006B	8/26/95	T. Gorman	4				
102	SOUTH WALL	006T	8/26/95	T. Gorman	4				
102	SOUTH WALL	007B	8/26/95	T. Gorman	15				
102	SOUTH WALL	007T	8/26/95	T. Gorman	15				
102	SOUTH WALL	008B	8/26/95	T. Gorman	25				
102	SOUTH WALL	008T	8/26/95	T. Gorman	25				
102	WEST WALL	001B	8/26/95	T. Gorman	0				
102	WEST WALL	001T	8/26/95	T. Gorman	0				
102	WEST WALL	005B	8/26/95	T. Gorman	29				
102	WEST WALL	005T	8/26/95	T. Gorman	29				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
104	CEILING	009	8/22/95	T. Gorman	3				
104	CEILING	010	8/22/95	T. Gorman	3				
104	CEILING	011	8/22/95	T. Gorman	2				
104	CEILING	012	8/22/95	T. Gorman	0				
104	DRAIN	E10	8/23/95	T. Gorman	1				
104	DUCT	009	8/23/95	T. Gorman	13				
104	EAST WALL	010B	8/22/95	T. Gorman	16				
104	EAST WALL	010T	8/22/95	T. Gorman	2				
104	EAST WALL	012B	8/22/95	T. Gorman	2				
104	EAST WALL	012T	8/22/95	T. Gorman	2				
104	FLOOR	A09	8/22/95	T. Gorman	11				
104	FLOOR	A10	8/22/95	T. Gorman	4				
104	FLOOR	A11	8/22/95	T. Gorman	7				
104	FLOOR	B09	8/22/95	T. Gorman	10				
104	FLOOR	B10	8/22/95	T. Gorman	10				
104	FLOOR	B11	8/22/95	T. Gorman	12				
104	FLOOR	C09	8/22/95	T. Gorman	4				
104	FLOOR	C10	8/22/95	T. Gorman	5				
104	FLOOR	C11	8/22/95	T. Gorman	4				
104	FLOOR	D09	8/22/95	T. Gorman	5				
104	FLOOR	D10	8/22/95	T. Gorman	7	0	0	0	0
104	FLOOR	D11	8/22/95	T. Gorman	12				
104	FLOOR	E09	8/22/95	T. Gorman	66				
104	FLOOR	E10	8/22/95	T. Gorman	17				
104	FLOOR	E11	8/22/95	T. Gorman	4				
104	FLOOR	F09	8/22/95	T. Gorman	11				
104	FLOOR	F10	8/22/95	T. Gorman	17				
104	FLOOR	F11	8/22/95	T. Gorman	48				
104	FLOOR	G09	8/22/95	T. Gorman	11				
104	FLOOR	G10	8/22/95	T. Gorman	9				
104	FLOOR	G11	8/22/95	T. Gorman	1				
104	FLOOR	H09	8/22/95	T. Gorman	17				
104	FLOOR	H10	8/22/95	T. Gorman	16	0	0.13	0	0
104	FLOOR	H11	8/22/95	T. Gorman	11				
104	FLOOR	I09	8/22/95	T. Gorman	35				
104	FLOOR	I10	8/22/95	T. Gorman	14				
104	FLOOR	I11	8/22/95	T. Gorman	18				
104	FLOOR	J09	8/22/95	T. Gorman	13				
104	FLOOR	J10	8/22/95	T. Gorman	11				

Comments:

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
104	FLOOR	J11	8/22/95	T. Gorman	11				
104	FLOOR	K09	8/22/95	T. Gorman	12				
104	FLOOR	K10	8/22/95	T. Gorman	5				
104	FLOOR	K11	8/22/95	T. Gorman	7				
104	NORTH WALL	009B	8/22/95	T. Gorman	0				
104	NORTH WALL	009T	8/22/95	T. Gorman	2				
104	NORTH WALL	010B	8/22/95	T. Gorman	4				
104	NORTH WALL	010T	8/22/95	T. Gorman	5				
104	SOUTH WALL	011B	8/22/95	T. Gorman	0				
104	SOUTH WALL	011T	8/22/95	T. Gorman	4				
104	SOUTH WALL	012B	8/22/95	T. Gorman	1				
104	SOUTH WALL	012T	8/22/95	T. Gorman	16				
104	WEST WALL	009B	8/22/95	T. Gorman	2				
104	WEST WALL	009T	8/22/95	T. Gorman	1				
104	WEST WALL	011B	8/22/95	T. Gorman	9				
104	WEST WALL	011T	8/22/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
110	CEILING	013	8/24/95	T. Gorman	24				
110	CEILING	014	8/24/95	T. Gorman	10				
110	CEILING	015	8/24/95	T. Gorman	21				
110	CEILING	016	8/24/95	T. Gorman	20				
110	DRAIN	C15	8/24/95	T. Gorman	101				
110	DUCT	018	8/24/95	T. Gorman	16				
110	EAST WALL	014B	8/24/95	T. Gorman	17				
110	EAST WALL	014T	8/24/95	T. Gorman	12				
110	EAST WALL	016B	8/24/95	T. Gorman	15				
110	EAST WALL	016T	8/24/95	T. Gorman	18				
110	FLOOR	A11	8/24/95	T. Gorman	12				
110	FLOOR	A12	8/24/95	T. Gorman	7				
110	FLOOR	A13	8/24/95	T. Gorman	9				
110	FLOOR	A14	8/24/95	T. Gorman	10				
110	FLOOR	A15	8/24/95	T. Gorman	15				
110	FLOOR	A16	8/24/95	T. Gorman	11				
110	FLOOR	A17	8/24/95	T. Gorman	14				
110	FLOOR	A18	8/24/95	T. Gorman	12				
110	FLOOR	B11	8/24/95	T. Gorman	11				
110	FLOOR	B12	8/24/95	T. Gorman	14				
110	FLOOR	B13	8/24/95	T. Gorman	11	0	0	0	0
110	FLOOR	B14	8/24/95	T. Gorman	15				
110	FLOOR	B15	8/24/95	T. Gorman	11				
110	FLOOR	B16	8/24/95	T. Gorman	12				
110	FLOOR	B17	8/24/95	T. Gorman	17	0	0	2.46	0
110	FLOOR	B18	8/24/95	T. Gorman	11				
110	FLOOR	C11	8/24/95	T. Gorman	11				
110	FLOOR	C12	8/24/95	T. Gorman	13				
110	FLOOR	C13	8/24/95	T. Gorman	27				
110	FLOOR	C14	8/24/95	T. Gorman	18				
110	FLOOR	C15	8/24/95	T. Gorman	19				
110	FLOOR	C16	8/24/95	T. Gorman	14				
110	FLOOR	C17	8/24/95	T. Gorman	14				
110	FLOOR	C18	8/24/95	T. Gorman	13				
110	FLOOR	D11	8/24/95	T. Gorman	21				
110	FLOOR	D12	8/24/95	T. Gorman	11				
110	FLOOR	D13	8/24/95	T. Gorman	17				
110	FLOOR	D14	8/24/95	T. Gorman	15				
110	FLOOR	D15	8/24/95	T. Gorman	9				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
110	FLOOR	D16	8/24/95	T. Gorman	11				
110	FLOOR	D17	8/24/95	T. Gorman	29				
110	FLOOR	D18	8/24/95	T. Gorman	10				
110	FLOOR	E11	8/24/95	T. Gorman	18				
110	FLOOR	E12	8/24/95	T. Gorman	19	0	0	0.715	0
110	FLOOR	E13	8/24/95	T. Gorman	32				
110	FLOOR	E14	8/24/95	T. Gorman	24				
110	FLOOR	E15	8/24/95	T. Gorman	17				
110	FLOOR	E16	8/24/95	T. Gorman	18				
110	FLOOR	E17	8/24/95	T. Gorman	15	0	3.31	28	0
110	FLOOR	E18	8/24/95	T. Gorman	41				
110	FLOOR	F11	8/24/95	T. Gorman	18				
110	FLOOR	F12	8/24/95	T. Gorman	30				
110	FLOOR	F13	8/24/95	T. Gorman	17				
110	FLOOR	F14	8/24/95	T. Gorman	76				
110	FLOOR	F15	8/24/95	T. Gorman	29				
110	FLOOR	F16	8/24/95	T. Gorman	14				
110	FLOOR	F17	8/24/95	T. Gorman	67				
110	FLOOR	F18	8/24/95	T. Gorman	16				
110	FLOOR	G11	8/24/95	T. Gorman	197				
110	FLOOR	G12	8/24/95	T. Gorman	17				
110	FLOOR	G13	8/24/95	T. Gorman	16				
110	FLOOR	G14	8/24/95	T. Gorman	17				
110	FLOOR	G15	8/24/95	T. Gorman	24				
110	FLOOR	G16	8/24/95	T. Gorman	9				
110	FLOOR	G17	8/24/95	T. Gorman	11				
110	FLOOR	G18	8/24/95	T. Gorman	18				
110	NORTH WALL	013B	8/24/95	T. Gorman	16				
110	NORTH WALL	013T	8/24/95	T. Gorman	46				
110	NORTH WALL	014B	8/24/95	T. Gorman	9				
110	NORTH WALL	014T	8/24/95	T. Gorman	9				
110	SOUTH WALL	015B	8/24/95	T. Gorman	22				
110	SOUTH WALL	015T	8/24/95	T. Gorman	20				
110	SOUTH WALL	016B	8/24/95	T. Gorman	38				
110	SOUTH WALL	016T	8/24/95	T. Gorman	16				
110	WEST WALL	013B	8/24/95	T. Gorman	11				
110	WEST WALL	013T	8/24/95	T. Gorman	14				
110	WEST WALL	015B	8/24/95	T. Gorman	10				
110	WEST WALL	015T	8/24/95	T. Gorman	14				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
112	CEILING	017	8/25/95	T. Gorman	26				
112	CEILING	018	8/25/95	T. Gorman	86				
112	CEILING	019	8/25/95	T. Gorman	142				
112	CEILING	020	8/25/95	T. Gorman	97				
112	DRAIN	J15	8/25/95	T. Gorman	134				
112	DUCT	020	8/25/95	T. Gorman	889				
112	EAST WALL	018B	8/25/95	T. Gorman	93				
112	EAST WALL	018T	8/25/95	T. Gorman	117				
112	EAST WALL	020B	8/25/95	T. Gorman	56				
112	EAST WALL	020T	8/25/95	T. Gorman	51				
112	FLOOR	G11	8/25/95	T. Gorman	14				
112	FLOOR	G12	8/25/95	T. Gorman	5				
112	FLOOR	G13	8/25/95	T. Gorman	15				
112	FLOOR	G14	8/25/95	T. Gorman	27				
112	FLOOR	G15	8/25/95	T. Gorman	28				
112	FLOOR	G16	8/25/95	T. Gorman	24				
112	FLOOR	G17	8/25/95	T. Gorman	4				
112	FLOOR	G18	8/25/95	T. Gorman	17				
112	FLOOR	H11	8/25/95	T. Gorman	30				
112	FLOOR	H12	8/25/95	T. Gorman	10				
112	FLOOR	H13	8/25/95	T. Gorman	22				
112	FLOOR	H14	8/25/95	T. Gorman	41				
112	FLOOR	H15	8/25/95	T. Gorman	35				
112	FLOOR	H16	8/25/95	T. Gorman	33				
112	FLOOR	H17	8/25/95	T. Gorman	29				
112	FLOOR	H18	8/25/95	T. Gorman	49				
112	FLOOR	I11	8/25/95	T. Gorman	21				
112	FLOOR	I12	8/25/95	T. Gorman	43				
112	FLOOR	I13	8/25/95	T. Gorman	24	0	0	0	0
112	FLOOR	I14	8/25/95	T. Gorman	32				
112	FLOOR	I15	8/25/95	T. Gorman	64	0	0	0.135	0
112	FLOOR	I16	8/25/95	T. Gorman	42				
112	FLOOR	I17	8/25/95	T. Gorman	27	0	0	0	0
112	FLOOR	I18	8/25/95	T. Gorman	19				
112	FLOOR	J11	8/25/95	T. Gorman	40				
112	FLOOR	J12	8/25/95	T. Gorman	17				
112	FLOOR	J13	8/25/95	T. Gorman	18				
112	FLOOR	J14	8/25/95	T. Gorman	23				
112	FLOOR	J15	8/25/95	T. Gorman	35				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
112	FLOOR	J16	8/25/95	T. Gorman	48				
112	FLOOR	J17	8/25/95	T. Gorman	41				
112	FLOOR	J18	8/25/95	T. Gorman	48				
112	FLOOR	K11	8/25/95	T. Gorman	32				
112	FLOOR	K12	8/25/95	T. Gorman	44				
112	FLOOR	K13	8/25/95	T. Gorman	53				
112	FLOOR	K14	8/25/95	T. Gorman	46				
112	FLOOR	K15	8/25/95	T. Gorman	32				
112	FLOOR	K16	8/25/95	T. Gorman	33				
112	FLOOR	K17	8/25/95	T. Gorman	48				
112	FLOOR	K18	8/25/95	T. Gorman	39				
112	NORTH WALL	017B	8/25/95	T. Gorman	45				
112	NORTH WALL	017T	8/25/95	T. Gorman	93				
112	NORTH WALL	018B	8/25/95	T. Gorman	67				
112	NORTH WALL	018T	8/25/95	T. Gorman	43				
112	SOUTH WALL	019B	8/25/95	T. Gorman	233				
112	SOUTH WALL	019T	8/25/95	T. Gorman	101				
112	SOUTH WALL	020B	8/25/95	T. Gorman	117				
112	SOUTH WALL	020T	8/25/95	T. Gorman	26				
112	WEST WALL	017B	8/25/95	T. Gorman	99				
112	WEST WALL	017T	8/25/95	T. Gorman	210				
112	WEST WALL	018B	8/25/95	T. Gorman	322				
112	WEST WALL	018T	8/25/95	T. Gorman	939				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
114	CEILING	024	8/23/95	T. Gorman	14				
114	CEILING	025	8/23/95	T. Gorman	9				
114	CEILING	026	8/23/95	T. Gorman	6				
114	CEILING	027	8/23/95	T. Gorman	17				
114	DRAIN	K23	8/23/95	T. Gorman	188				
114	DUCT	025	8/23/95	T. Gorman	12				
114	DUCT	026	8/23/95	T. Gorman	24				
114	EAST WALL	025B	8/23/95	T. Gorman	14				
114	EAST WALL	025T	8/23/95	T. Gorman	20				
114	EAST WALL	027B	8/23/95	T. Gorman	7				
114	EAST WALL	027T	8/23/95	T. Gorman	19				
114	FLOOR	F23	8/23/95	T. Gorman	87				
114	FLOOR	F24	8/23/95	T. Gorman	36				
114	FLOOR	F25	8/23/95	T. Gorman	33				
114	FLOOR	G23	8/23/95	T. Gorman	33				
114	FLOOR	G24	8/23/95	T. Gorman	111	0	0	0	0
114	FLOOR	G25	8/23/95	T. Gorman	24				
114	FLOOR	H23	8/23/95	T. Gorman	34				
114	FLOOR	H24	8/23/95	T. Gorman	32				
114	FLOOR	H25	8/23/95	T. Gorman	13				
114	FLOOR	I23	8/23/95	T. Gorman	31				
114	FLOOR	I24	8/23/95	T. Gorman	66	0	0	1.3	0
114	FLOOR	I25	8/23/95	T. Gorman	48				
114	FLOOR	J23	8/23/95	T. Gorman	96				
114	FLOOR	J24	8/23/95	T. Gorman	45				
114	FLOOR	J25	8/23/95	T. Gorman	43				
114	FLOOR	K23	8/23/95	T. Gorman	79				
114	FLOOR	K24	8/23/95	T. Gorman	33				
114	FLOOR	K25	8/23/95	T. Gorman	30				
114	NORTH WALL	024B	8/23/95	T. Gorman	34				
114	NORTH WALL	024T	8/23/95	T. Gorman	48				
114	NORTH WALL	025B	8/23/95	T. Gorman	14				
114	NORTH WALL	025T	8/23/95	T. Gorman	38				
114	SOUTH WALL	026B	8/23/95	T. Gorman	54				
114	SOUTH WALL	026T	8/23/95	T. Gorman	39				
114	SOUTH WALL	027B	8/23/95	T. Gorman	19				
114	SOUTH WALL	027T	8/23/95	T. Gorman	13				
114	WEST WALL	024B	8/23/95	T. Gorman	33				
114	WEST WALL	024T	8/23/95	T. Gorman	7				

Comments:

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
114	WEST WALL	026B	8/23/95	T. Gorman	14				
114	WEST WALL	026T	8/23/95	T. Gorman	17				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115	CEILING	102	9/21/95	T. Gorman	7				
115	CEILING	103	9/21/95	T. Gorman	27				
115	CEILING	104	9/21/95	T. Gorman	23				
115	CEILING	105	9/21/95	T. Gorman	29				
115	CEILING	106	9/21/95	T. Gorman	12				
115	CEILING	107	9/21/95	T. Gorman	52				
115	CEILING	108	9/21/95	T. Gorman	19				
115	CEILING	109	9/21/95	T. Gorman	13				
115	DRAIN	T25	9/21/95	T. Gorman	150				
115	DUCT	103	9/21/95	T. Gorman	122				
115	DUCT	105	9/21/95	T. Gorman	152				
115	DUCT	108	9/21/95	T. Gorman	103				
115	DUCT 1	104	9/21/95	T. Gorman	140				
115	DUCT 1	109	9/21/95	T. Gorman	719				
115	DUCT 2	104	9/21/95	T. Gorman	137				
115	DUCT 2	109	9/21/95	T. Gorman	22				
115	EAST WALL	105B	9/21/95	T. Gorman	30				
115	EAST WALL	105T	9/21/95	T. Gorman	67				
115	EAST WALL	109B	9/21/95	T. Gorman	78				
115	EAST WALL	109T	9/21/95	T. Gorman	506				
115	FLOOR	H22	9/21/95	T. Gorman	24				
115	FLOOR	H23	9/21/95	T. Gorman	48				
115	FLOOR	H24	9/21/95	T. Gorman	99				
115	FLOOR	H25	9/21/95	T. Gorman	69				
115	FLOOR	H26	9/21/95	T. Gorman	359				
115	FLOOR	H27	9/21/95	T. Gorman	0				
115	FLOOR	H28	9/21/95	T. Gorman	0				
115	FLOOR	H29	9/21/95	T. Gorman	0				
115	FLOOR	H30	9/21/95	T. Gorman	44				
115	FLOOR	H31	9/21/95	T. Gorman	0				
115	FLOOR	H32	9/21/95	T. Gorman	50				
115	FLOOR	H33	9/21/95	T. Gorman	33				
115	FLOOR	H34	9/21/95	T. Gorman	68				
115	FLOOR	O22	9/21/95	T. Gorman	36				
115	FLOOR	O23	9/21/95	T. Gorman	122				
115	FLOOR	O24	9/21/95	T. Gorman	98				
115	FLOOR	O25	9/21/95	T. Gorman	106				
115	FLOOR	O26	9/21/95	T. Gorman	62				
115	FLOOR	O27	9/21/95	T. Gorman	149				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115	FLOOR	Q28	9/21/95	T. Gorman	54				
115	FLOOR	Q29	9/21/95	T. Gorman	63				
115	FLOOR	Q30	9/21/95	T. Gorman	40				
115	FLOOR	Q31	9/21/95	T. Gorman	69				
115	FLOOR	Q32	9/21/95	T. Gorman	50				
115	FLOOR	Q33	9/21/95	T. Gorman	44				
115	FLOOR	Q34	9/21/95	T. Gorman	66				
115	FLOOR	P22	9/21/95	T. Gorman	130				
115	FLOOR	P23	9/21/95	T. Gorman	83				
115	FLOOR	P24	9/21/95	T. Gorman	82				
115	FLOOR	P25	9/21/95	T. Gorman	160	0	0.389	1.39	0
115	FLOOR	P26	9/21/95	T. Gorman	45				
115	FLOOR	P27	9/21/95	T. Gorman	91				
115	FLOOR	P28	9/21/95	T. Gorman	48				
115	FLOOR	P29	9/21/95	T. Gorman	107				
115	FLOOR	P30	9/21/95	T. Gorman	65	0	0.0353	0	0
115	FLOOR	P31	9/21/95	T. Gorman	67				
115	FLOOR	P32	9/21/95	T. Gorman	66				
115	FLOOR	P33	9/21/95	T. Gorman	71				
115	FLOOR	P34	9/21/95	T. Gorman	67				
115	FLOOR	Q22	9/21/95	T. Gorman	227				
115	FLOOR	Q23	9/21/95	T. Gorman	137				
115	FLOOR	Q24	9/21/95	T. Gorman	70				
115	FLOOR	Q25	9/21/95	T. Gorman	66				
115	FLOOR	Q26	9/21/95	T. Gorman	47				
115	FLOOR	Q27	9/21/95	T. Gorman	55				
115	FLOOR	Q28	9/21/95	T. Gorman	101				
115	FLOOR	Q29	9/21/95	T. Gorman	119				
115	FLOOR	Q30	9/21/95	T. Gorman	94				
115	FLOOR	Q31	9/21/95	T. Gorman	128				
115	FLOOR	Q32	9/21/95	T. Gorman	110				
115	FLOOR	Q33	9/21/95	T. Gorman	127				
115	FLOOR	Q34	9/21/95	T. Gorman	47				
115	FLOOR	R18	9/21/95	T. Gorman	75				
115	FLOOR	R19	9/21/95	T. Gorman	59				
115	FLOOR	R20	9/21/95	T. Gorman	823				
115	FLOOR	R21	9/21/95	T. Gorman	114				
115	FLOOR	R22	9/21/95	T. Gorman	108				
115	FLOOR	R23	9/21/95	T. Gorman	79				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115	FLOOR	R24	9/21/95	T. Gorman	67				
115	FLOOR	R25	9/21/95	T. Gorman	80				
115	FLOOR	R26	9/21/95	T. Gorman	53				
115	FLOOR	R27	9/21/95	T. Gorman	55				
115	FLOOR	R28	9/21/95	T. Gorman	20				
115	FLOOR	R29	9/21/95	T. Gorman	111				
115	FLOOR	R30	9/21/95	T. Gorman	94				
115	FLOOR	R31	9/21/95	T. Gorman	50				
115	FLOOR	R32	9/21/95	T. Gorman	94				
115	FLOOR	R33	9/21/95	T. Gorman	97				
115	FLOOR	R34	9/21/95	T. Gorman	56				
115	FLOOR	S18	9/21/95	T. Gorman	61				
115	FLOOR	S19	9/21/95	T. Gorman	70				
115	FLOOR	S20	9/21/95	T. Gorman	76				
115	FLOOR	S21	9/21/95	T. Gorman	84				
115	FLOOR	S22	9/21/95	T. Gorman	118				
115	FLOOR	S23	9/21/95	T. Gorman	110				
115	FLOOR	S24	9/21/95	T. Gorman	78				
115	FLOOR	S25	9/21/95	T. Gorman	90	0	0.0353	0.812	0
115	FLOOR	S26	9/21/95	T. Gorman	79				
115	FLOOR	S27	9/21/95	T. Gorman	79				
115	FLOOR	S28	9/21/95	T. Gorman	409				
115	FLOOR	S29	9/21/95	T. Gorman	85				
115	FLOOR	S30	9/21/95	T. Gorman	87	0	0.0353	1.39	0
115	FLOOR	S31	9/21/95	T. Gorman	67				
115	FLOOR	S32	9/21/95	T. Gorman	42				
115	FLOOR	S33	9/21/95	T. Gorman	149				
115	FLOOR	S34	9/21/95	T. Gorman	89				
115	FLOOR	T18	9/21/95	T. Gorman	104				
115	FLOOR	T19	9/21/95	T. Gorman	69				
115	FLOOR	T20	9/21/95	T. Gorman	115				
115	FLOOR	T21	9/21/95	T. Gorman	110				
115	FLOOR	T22	9/21/95	T. Gorman	60				
115	FLOOR	T23	9/21/95	T. Gorman	133				
115	FLOOR	T24	9/21/95	T. Gorman	105				
115	FLOOR	T25	9/21/95	T. Gorman	85				
115	FLOOR	T26	9/21/95	T. Gorman	51				
115	FLOOR	T27	9/21/95	T. Gorman	66				
115	FLOOR	T28	9/21/95	T. Gorman	155				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115	FLOOR	T29	9/21/95	T. Gorman	61				
115	FLOOR	T30	9/21/95	T. Gorman	36				
115	FLOOR	T31	9/21/95	T. Gorman	80				
115	FLOOR	T32	9/21/95	T. Gorman	93				
115	FLOOR	T33	9/21/95	T. Gorman	249				
115	FLOOR	T34	9/21/95	T. Gorman	70				
115	FLOOR	U22	9/21/95	T. Gorman	93				
115	FLOOR	U23	9/21/95	T. Gorman	76				
115	FLOOR	U24	9/21/95	T. Gorman	23				
115	FLOOR	U25	9/21/95	T. Gorman	64				
115	FLOOR	U26	9/21/95	T. Gorman	63				
115	FLOOR	U27	9/21/95	T. Gorman	70				
115	FLOOR	U28	9/21/95	T. Gorman	87				
115	FLOOR	U29	9/21/95	T. Gorman	91				
115	FLOOR	U30	9/21/95	T. Gorman	101				
115	FLOOR	U31	9/21/95	T. Gorman	7				
115	FLOOR	U32	9/21/95	T. Gorman	81				
115	FLOOR	U33	9/21/95	T. Gorman	60				
115	FLOOR	U34	9/21/95	T. Gorman	260				
115	FLOOR	V26	9/21/95	T. Gorman	59				
115	FLOOR	V27	9/21/95	T. Gorman	78				
115	FLOOR	V28	9/21/95	T. Gorman	172				
115	FLOOR	V29	9/21/95	T. Gorman	196				
115	FLOOR	V30	9/21/95	T. Gorman	94				
115	FLOOR	V31	9/21/95	T. Gorman	96				
115	FLOOR	V32	9/21/95	T. Gorman	126				
115	FLOOR	V33	9/21/95	T. Gorman	91				
115	FLOOR	V34	9/21/95	T. Gorman	71				
115	FLOOR	W26	9/21/95	T. Gorman	88				
115	FLOOR	W27	9/21/95	T. Gorman	116				
115	FLOOR	W28	9/21/95	T. Gorman	250				
115	FLOOR	W29	9/21/95	T. Gorman	161				
115	FLOOR	W30	9/21/95	T. Gorman	162	0	0.0353	0	0
115	FLOOR	W31	9/21/95	T. Gorman	110				
115	FLOOR	W32	9/21/95	T. Gorman	89				
115	FLOOR	W33	9/21/95	T. Gorman	59				
115	FLOOR	W34	9/21/95	T. Gorman	69				
115	FLOOR	X26	9/21/95	T. Gorman	93				
115	FLOOR	X27	9/21/95	T. Gorman	83				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115	FLOOR	X28	9/21/95	T. Gorman	225				
115	FLOOR	X29	9/21/95	T. Gorman	806				
115	FLOOR	X30	9/21/95	T. Gorman	341				
115	FLOOR	X31	9/21/95	T. Gorman	128				
115	FLOOR	X32	9/21/95	T. Gorman	149				
115	FLOOR	X33	9/21/95	T. Gorman	65				
115	FLOOR	X34	9/21/95	T. Gorman	48				
115	NORTH WALL	102B	9/21/95	T. Gorman	29				
115	NORTH WALL	102T	9/21/95	T. Gorman	350				
115	NORTH WALL	103B	9/21/95	T. Gorman	140				
115	NORTH WALL	103T	9/21/95	T. Gorman	146				
115	NORTH WALL	104B	9/21/95	T. Gorman	34				
115	NORTH WALL	104T	9/21/95	T. Gorman	40				
115	NORTH WALL	105B	9/21/95	T. Gorman	47				
115	NORTH WALL	105T	9/21/95	T. Gorman	59				
115	SOUTH WALL	106B	9/21/95	T. Gorman	125				
115	SOUTH WALL	106T	9/21/95	T. Gorman	48				
115	SOUTH WALL	107B	9/21/95	T. Gorman	36				
115	SOUTH WALL	107T	9/21/95	T. Gorman	24				
115	SOUTH WALL	108B	9/21/95	T. Gorman	56				
115	SOUTH WALL	108T	9/21/95	T. Gorman	76				
115	SOUTH WALL	109B	9/21/95	T. Gorman	15				
115	SOUTH WALL	109T	9/21/95	T. Gorman	76				
115	WEST WALL	102B	9/21/95	T. Gorman	27				
115	WEST WALL	102T	9/21/95	T. Gorman	34				
115	WEST WALL	106B	9/21/95	T. Gorman	40				
115	WEST WALL	106T	9/21/95	T. Gorman	33				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115A	CEILING	016	9/25/95	T. Gorman	24				
115A	CEILING	017	9/25/95	T. Gorman	17				
115A	CEILING	018	9/25/95	T. Gorman	44				
115A	CEILING	019	9/25/95	T. Gorman	20				
115A	DRAIN	R14	9/25/95	T. Gorman	241				
115A	DUCT	016	9/25/95	T. Gorman	63				
115A	DUCT	019	9/25/95	T. Gorman	17				
115A	EAST WALL	087B	9/25/95	T. Gorman	14				
115A	EAST WALL	087T	9/25/95	T. Gorman	7				
115A	EAST WALL	089B	9/25/95	T. Gorman	14				
115A	EAST WALL	089T	9/25/95	T. Gorman	14				
115A	FLOOR	N11	9/25/95	T. Gorman	247				
115A	FLOOR	N12	9/25/95	T. Gorman	182				
115A	FLOOR	N13	9/25/95	T. Gorman	270				
115A	FLOOR	N14	9/25/95	T. Gorman	284				
115A	FLOOR	N15	9/25/95	T. Gorman	63				
115A	FLOOR	N16	9/25/95	T. Gorman	39				
115A	FLOOR	N17	9/25/95	T. Gorman	74				
115A	FLOOR	N18	9/25/95	T. Gorman	78				
115A	FLOOR	O11	9/25/95	T. Gorman	372				
115A	FLOOR	O12	9/25/95	T. Gorman	529				
115A	FLOOR	O13	9/25/95	T. Gorman	187				
115A	FLOOR	O14	9/25/95	T. Gorman	303				
115A	FLOOR	O15	9/25/95	T. Gorman	240				
115A	FLOOR	O16	9/25/95	T. Gorman	406				
115A	FLOOR	O17	9/25/95	T. Gorman	224				
115A	FLOOR	O18	9/25/95	T. Gorman	108				
115A	FLOOR	P11	9/25/95	T. Gorman	94				
115A	FLOOR	P12	9/25/95	T. Gorman	649				
115A	FLOOR	P13	9/25/95	T. Gorman	342	0	0.565	2.55	0
115A	FLOOR	P14	9/25/95	T. Gorman	870				
115A	FLOOR	P15	9/25/95	T. Gorman	528				
115A	FLOOR	P16	9/25/95	T. Gorman	564				
115A	FLOOR	P17	9/25/95	T. Gorman	170				
115A	FLOOR	P18	9/25/95	T. Gorman	285				
115A	FLOOR	Q11	9/25/95	T. Gorman	49				
115A	FLOOR	Q12	9/25/95	T. Gorman	230				
115A	FLOOR	Q13	9/25/95	T. Gorman	591				
115A	FLOOR	Q14	9/25/95	T. Gorman	522				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115A	FLOOR	Q15	9/25/95	T. Gorman	369				
115A	FLOOR	Q16	9/25/95	T. Gorman	238	0	0	0.522	0
115A	FLOOR	Q17	9/25/95	T. Gorman	265				
115A	FLOOR	Q18	9/25/95	T. Gorman	154				
115A	FLOOR	R11	9/25/95	T. Gorman	135				
115A	FLOOR	R12	9/25/95	T. Gorman	252				
115A	FLOOR	R13	9/25/95	T. Gorman	435				
115A	FLOOR	R14	9/25/95	T. Gorman	366				
115A	FLOOR	R15	9/25/95	T. Gorman	712				
115A	FLOOR	R16	9/25/95	T. Gorman	168				
115A	FLOOR	R17	9/25/95	T. Gorman	117				
115A	FLOOR	R18	9/25/95	T. Gorman	83				
115A	FLOOR	S11	9/25/95	T. Gorman	122				
115A	FLOOR	S12	9/25/95	T. Gorman	108				
115A	FLOOR	S13	9/25/95	T. Gorman	164				
115A	FLOOR	S14	9/25/95	T. Gorman	184				
115A	FLOOR	S15	9/25/95	T. Gorman	62				
115A	FLOOR	S16	9/25/95	T. Gorman	144				
115A	FLOOR	S17	9/25/95	T. Gorman	114				
115A	FLOOR	S18	9/25/95	T. Gorman	195				
115A	FLOOR	T11	9/25/95	T. Gorman	135				
115A	FLOOR	T12	9/25/95	T. Gorman	148				
115A	FLOOR	T13	9/25/95	T. Gorman	211				
115A	FLOOR	T14	9/25/95	T. Gorman	113				
115A	FLOOR	T15	9/25/95	T. Gorman	61				
115A	FLOOR	T16	9/25/95	T. Gorman	64				
115A	FLOOR	T17	9/25/95	T. Gorman	124				
115A	FLOOR	T18	9/25/95	T. Gorman	112				
115A	FLOOR	U11	9/25/95	T. Gorman	102				
115A	FLOOR	U12	9/25/95	T. Gorman	90				
115A	FLOOR	U13	9/25/95	T. Gorman	111	0	0.389	1.97	0
115A	FLOOR	U14	9/25/95	T. Gorman	49				
115A	FLOOR	U15	9/25/95	T. Gorman	44				
115A	FLOOR	U16	9/25/95	T. Gorman	77				
115A	FLOOR	U17	9/25/95	T. Gorman	76				
115A	FLOOR	U18	9/25/95	T. Gorman	64				
115A	FLOOR	V11	9/25/95	T. Gorman	144				
115A	FLOOR	V12	9/25/95	T. Gorman	175				
115A	FLOOR	V13	9/25/95	T. Gorman	67				

Comments:

IRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115A	FLOOR	V14	9/25/95	T. Gorman	56				
115A	FLOOR	V15	9/25/95	T. Gorman	40				
115A	FLOOR	V16	9/25/95	T. Gorman	64	0	0.389	0.812	0
115A	FLOOR	V17	9/25/95	T. Gorman	81				
115A	FLOOR	V18	9/25/95	T. Gorman	82				
115A	FLOOR	W11	9/25/95	T. Gorman	80				
115A	FLOOR	W12	9/25/95	T. Gorman	495				
115A	FLOOR	W13	9/25/95	T. Gorman	62				
115A	FLOOR	W14	9/25/95	T. Gorman	53				
115A	FLOOR	W15	9/25/95	T. Gorman	71				
115A	FLOOR	W16	9/25/95	T. Gorman	48				
115A	FLOOR	W17	9/25/95	T. Gorman	255				
115A	FLOOR	W18	9/25/95	T. Gorman	126				
115A	FLOOR	X11	9/25/95	T. Gorman	135				
115A	FLOOR	X12	9/25/95	T. Gorman	96				
115A	FLOOR	X13	9/25/95	T. Gorman	43				
115A	FLOOR	X14	9/25/95	T. Gorman	134				
115A	FLOOR	X15	9/25/95	T. Gorman	67				
115A	FLOOR	X16	9/25/95	T. Gorman	163				
115A	FLOOR	X17	9/25/95	T. Gorman	78				
115A	FLOOR	X18	9/25/95	T. Gorman	193				
115A	NORTH WALL	086B	9/25/95	T. Gorman	30				
115A	NORTH WALL	086T	9/25/95	T. Gorman	32				
115A	NORTH WALL	087B	9/25/95	T. Gorman	7				
115A	NORTH WALL	087T	9/25/95	T. Gorman	33				
115A	SOUTH WALL	088B	9/25/95	T. Gorman	17				
115A	SOUTH WALL	088T	9/25/95	T. Gorman	13				
115A	SOUTH WALL	089B	9/25/95	T. Gorman	32				
115A	SOUTH WALL	089T	9/25/95	T. Gorman	39				
115A	WEST WALL	086B	9/25/95	T. Gorman	14				
115A	WEST WALL	086T	9/25/95	T. Gorman	4				
115A	WEST WALL	088B	9/25/95	T. Gorman	0				
115A	WEST WALL	088T	9/25/95	T. Gorman	6				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115B	CEILING	090	9/13/95	T. Garcia	0				
115B	CEILING	091	9/13/95	T. Garcia	0				
115B	CEILING	092	9/13/95	T. Garcia	0				
115B	CEILING	093	9/13/95	T. Garcia	0				
115B	DUCT	091	9/13/95	T. Garcia	19				
115B	EAST WALL	091B	9/13/95	T. Garcia	26				
115B	EAST WALL	091T	9/13/95	T. Garcia	0				
115B	EAST WALL	093B	9/13/95	T. Garcia	77				
115B	EAST WALL	093T	9/13/95	T. Garcia	0				
115B	FLOOR	H18	9/13/95	T. Garcia	42				
115B	FLOOR	H19	9/13/95	T. Garcia	59				
115B	FLOOR	H20	9/13/95	T. Garcia	98				
115B	FLOOR	H21	9/13/95	T. Garcia	66				
115B	FLOOR	H22	9/13/95	T. Garcia	46				
115B	FLOOR	O18	9/13/95	T. Garcia	42				
115B	FLOOR	O19	9/13/95	T. Garcia	99	0	0.212	0	0
115B	FLOOR	O20	9/13/95	T. Garcia	66				
115B	FLOOR	O21	9/13/95	T. Garcia	49				
115B	FLOOR	O22	9/13/95	T. Garcia	35				
115B	FLOOR	P18	9/13/95	T. Garcia	0				
115B	FLOOR	P19	9/13/95	T. Garcia	24				
115B	FLOOR	P20	9/13/95	T. Garcia	46				
115B	FLOOR	P21	9/13/95	T. Garcia	80	0	0.389	1.68	0
115B	FLOOR	P22	9/13/95	T. Garcia	653				
115B	FLOOR	Q18	9/13/95	T. Garcia	35				
115B	FLOOR	Q19	9/13/95	T. Garcia	47				
115B	FLOOR	Q20	9/13/95	T. Garcia	25				
115B	FLOOR	Q21	9/13/95	T. Garcia	122				
115B	FLOOR	Q22	9/13/95	T. Garcia	78				
115B	FLOOR	R18	9/13/95	T. Garcia	29				
115B	FLOOR	R19	9/13/95	T. Garcia	42				
115B	FLOOR	R20	9/13/95	T. Garcia	72				
115B	FLOOR	R21	9/13/95	T. Garcia	48				
115B	FLOOR	R22	9/13/95	T. Garcia	121				
115B	NORTH WALL	090B	9/13/95	T. Garcia	0				
115B	NORTH WALL	090T	9/13/95	T. Garcia	0				
115B	NORTH WALL	091B	9/13/95	T. Garcia	0				
115B	NORTH WALL	091T	9/13/95	T. Garcia	0				
115B	SOUTH WALL	092B	9/13/95	T. Garcia	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115B	SOUTH WALL	097T	9/13/95	T. Garcia	0				
115B	SOUTH WALL	091B	9/13/95	T. Garcia	0				
115B	SOUTH WALL	091T	9/13/95	T. Garcia	0				
115B	WEST WALL	090B	9/13/95	T. Garcia	55				
115B	WEST WALL	090T	9/13/95	T. Garcia	0				
115B	WEST WALL	092B	9/13/95	T. Garcia	0				
115B	WEST WALL	092T	9/13/95	T. Garcia	0				

Comments:

TRL Radiological Characterization Survey

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TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115C	CEILING	098	9/14/95	T. Garcia	2				
115C	CEILING	099	9/14/95	T. Garcia	11				
115C	CEILING	100	9/14/95	T. Garcia	0				
115C	CEILING	101	9/14/95	T. Garcia	3				
115C	DRAIN	X25	9/14/95	T. Garcia	19				
115C	DUCT	098	9/14/95	T. Garcia	392				
115C	DUCT	101	9/14/95	T. Garcia	157				
115C	EAST WALL	099B	9/14/95	T. Garcia	101				
115C	EAST WALL	099T	9/14/95	T. Garcia	17				
115C	EAST WALL	101B	9/14/95	T. Garcia	13				
115C	EAST WALL	101T	9/14/95	T. Garcia	6				
115C	FLOOR	U23	9/14/95	T. Garcia	158				
115C	FLOOR	U24	9/14/95	T. Garcia	82				
115C	FLOOR	U25	9/14/95	T. Garcia	124				
115C	FLOOR	U26	9/14/95	T. Garcia	161				
115C	FLOOR	V23	9/14/95	T. Garcia	170				
115C	FLOOR	V24	9/14/95	T. Garcia	177	0	2.16	9.8	0
115C	FLOOR	V25	9/14/95	T. Garcia	151				
115C	FLOOR	V26	9/14/95	T. Garcia	57				
115C	FLOOR	W23	9/14/95	T. Garcia	221				
115C	FLOOR	W24	9/14/95	T. Garcia	242				
115C	FLOOR	W25	9/14/95	T. Garcia	303	0	0.0353	0	0
115C	FLOOR	W26	9/14/95	T. Garcia	103				
115C	FLOOR	X23	9/14/95	T. Garcia	101				
115C	FLOOR	X24	9/14/95	T. Garcia	7				
115C	FLOOR	X25	9/14/95	T. Garcia	0				
115C	FLOOR	X26	9/14/95	T. Garcia	667				
115C	NORTH WALL	098B	9/14/95	T. Garcia	0				
115C	NORTH WALL	098T	9/14/95	T. Garcia	101				
115C	NORTH WALL	099B	9/14/95	T. Garcia	103				
115C	NORTH WALL	099T	9/14/95	T. Garcia	9				
115C	SOUTH WALL	100B	9/14/95	T. Garcia	41				
115C	SOUTH WALL	100T	9/14/95	T. Garcia	41				
115C	SOUTH WALL	101B	9/14/95	T. Garcia	334				
115C	SOUTH WALL	101T	9/14/95	T. Garcia	147				
115C	WEST WALL	098B	9/14/95	T. Garcia	17				
115C	WEST WALL	098T	9/14/95	T. Garcia	101				
115C	WEST WALL	100B	9/14/95	T. Garcia	6				
115C	WEST WALL	100T	9/14/95	T. Garcia	13				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115D	CEILING	094	9/14/95	T. Garcia	0				
115D	CEILING	095	9/14/95	T. Garcia	5				
115D	CEILING	096	9/14/95	T. Garcia	0				
115D	CEILING	097	9/14/95	T. Garcia	4				
115D	DUCT	097	9/14/95	T. Garcia	12				
115D	EAST WALL	095B	9/14/95	T. Garcia	37				
115D	EAST WALL	095T	9/14/95	T. Garcia	0				
115D	EAST WALL	097B	9/14/95	T. Garcia	67				
115D	EAST WALL	097T	9/14/95	T. Garcia	19				
115D	FLOOR	T18	9/14/95	T. Garcia	106				
115D	FLOOR	T19	9/14/95	T. Garcia	103				
115D	FLOOR	T20	9/14/95	T. Garcia	118				
115D	FLOOR	T21	9/14/95	T. Garcia	106				
115D	FLOOR	T22	9/14/95	T. Garcia	29				
115D	FLOOR	T23	9/14/95	T. Garcia	90				
115D	FLOOR	U18	9/14/95	T. Garcia	84				
115D	FLOOR	U19	9/14/95	T. Garcia	132				
115D	FLOOR	U20	9/14/95	T. Garcia	147				
115D	FLOOR	U21	9/14/95	T. Garcia	11				
115D	FLOOR	U22	9/14/95	T. Garcia	66				
115D	FLOOR	U23	9/14/95	T. Garcia	63				
115D	FLOOR	V18	9/14/95	T. Garcia	146				
115D	FLOOR	V19	9/14/95	T. Garcia	104				
115D	FLOOR	V20	9/14/95	T. Garcia	80	0	0	1.1	0
115D	FLOOR	V21	9/14/95	T. Garcia	86				
115D	FLOOR	V22	9/14/95	T. Garcia	112				
115D	FLOOR	V23	9/14/95	T. Garcia	86				
115D	FLOOR	W18	9/14/95	T. Garcia	125				
115D	FLOOR	W19	9/14/95	T. Garcia	127				
115D	FLOOR	W20	9/14/95	T. Garcia	63				
115D	FLOOR	W21	9/14/95	T. Garcia	91				
115D	FLOOR	W22	9/14/95	T. Garcia	142	0	0	0	0
115D	FLOOR	W23	9/14/95	T. Garcia	131				
115D	FLOOR	X18	9/14/95	T. Garcia	122				
115D	FLOOR	X19	9/14/95	T. Garcia	90				
115D	FLOOR	X20	9/14/95	T. Garcia	82				
115D	FLOOR	X21	9/14/95	T. Garcia	80				
115D	FLOOR	X22	9/14/95	T. Garcia	20				
115D	FLOOR	X23	9/14/95	T. Garcia	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
115D	NORTH WALL	094B	9/14/95	T. Garcia	7				
115D	NORTH WALL	094T	9/14/95	T. Garcia	14				
115D	NORTH WALL	095B	9/14/95	T. Garcia	165				
115D	NORTH WALL	095T	9/14/95	T. Garcia	43				
115D	SOUTH WALL	096B	9/14/95	T. Garcia	27				
115D	SOUTH WALL	096T	9/14/95	T. Garcia	122				
115D	SOUTH WALL	097B	9/14/95	T. Garcia	13				
115D	SOUTH WALL	097T	9/14/95	T. Garcia	0				
115D	WEST WALL	094B	9/14/95	T. Garcia	37				
115D	WEST WALL	094T	9/14/95	T. Garcia	19				
115D	WEST WALL	096B	9/14/95	T. Garcia	67				
115D	WEST WALL	096T	9/14/95	T. Garcia	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
116	CEILING	028	8/18/95	T. Gorman	14				
116	CEILING	029	8/18/95	T. Gorman	15				
116	CEILING	030	8/18/95	T. Gorman	13				
116	CEILING	031	8/18/95	T. Gorman	0				
116	DRAIN	F30	8/18/95	T. Gardia	0				
116	DUCT	029	8/18/95	T. Gorman	10				
116	EAST WALL	029B	8/18/95	T. Gorman	15				
116	EAST WALL	029T	8/18/95	T. Gorman	12				
116	EAST WALL	031B	8/18/95	T. Gorman	48				
116	EAST WALL	031T	8/18/95	T. Gorman	15				
116	FLOOR	A26	8/18/95	T. Gorman	26				
116	FLOOR	A27	8/18/95	T. Gorman	13				
116	FLOOR	A28	8/18/95	T. Gorman	3				
116	FLOOR	A29	8/18/95	T. Gorman	0				
116	FLOOR	A30	8/18/95	T. Gorman	80				
116	FLOOR	B26	8/18/95	T. Gorman	44				
116	FLOOR	B27	8/18/95	T. Gorman	79				
116	FLOOR	B28	8/18/95	T. Gorman	54				
116	FLOOR	B29	8/18/95	T. Gorman	75				
116	FLOOR	B30	8/18/95	T. Gorman	23				
116	FLOOR	C26	8/18/95	T. Gorman	77				
116	FLOOR	C27	8/18/95	T. Gorman	60	0	0.0522	1.12	0
116	FLOOR	C28	8/18/95	T. Gorman	38				
116	FLOOR	C29	8/18/95	T. Gorman	63	0	0.0226	0.588	0
116	FLOOR	C30	8/18/95	T. Gorman	61				
116	FLOOR	D26	8/18/95	T. Gorman	43				
116	FLOOR	D27	8/18/95	T. Gorman	64				
116	FLOOR	D28	8/18/95	T. Gorman	40				
116	FLOOR	D29	8/18/95	T. Gorman	22				
116	FLOOR	D30	8/18/95	T. Gorman	25				
116	FLOOR	E26	8/18/95	T. Gorman	63				
116	FLOOR	E27	8/18/95	T. Gorman	142				
116	FLOOR	E28	8/18/95	T. Gorman	99				
116	FLOOR	E29	8/18/95	T. Gorman	108				
116	FLOOR	E30	8/18/95	T. Gorman	79				
116	FLOOR	F26	8/18/95	T. Gorman	62				
116	FLOOR	F27	8/18/95	T. Gorman	48				
116	FLOOR	F28	8/18/95	T. Gorman	56				
116	FLOOR	F29	8/18/95	T. Gorman	38				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
116	FLOOR	F30	8/18/95	T. Gorman	44				
116	FLOOR	G28	8/18/95	T. Gorman	61				
116	FLOOR	G27	8/18/95	T. Gorman	83				
116	FLOOR	G28	8/18/95	T. Gorman	45				
116	FLOOR	G29	8/18/95	T. Gorman	57				
116	FLOOR	G30	8/18/95	T. Gorman	79				
116	FLOOR	H28	8/18/95	T. Gorman	57				
116	FLOOR	H27	8/18/95	T. Gorman	22	0	0.226	0	0
116	FLOOR	H28	8/18/95	T. Gorman	48				
116	FLOOR	H29	8/18/95	T. Gorman	153	0	0.575	2.73	0
116	FLOOR	H30	8/18/95	T. Gorman	172				
116	FLOOR	I26	8/18/95	T. Gorman	41				
116	FLOOR	I27	8/18/95	T. Gorman	37				
116	FLOOR	I28	8/18/95	T. Gorman	28				
116	FLOOR	I29	8/18/95	T. Gorman	46				
116	FLOOR	I30	8/18/95	T. Gorman	362				
116	FLOOR	J26	8/18/95	T. Gorman	21				
116	FLOOR	J27	8/18/95	T. Gorman	38				
116	FLOOR	J28	8/18/95	T. Gorman	71				
116	FLOOR	J29	8/18/95	T. Gorman	58				
116	FLOOR	J30	8/18/95	T. Gorman	40				
116	FLOOR	K26	8/18/95	T. Gorman	54				
116	FLOOR	K27	8/18/95	T. Gorman	53				
116	FLOOR	K28	8/18/95	T. Gorman	50				
116	FLOOR	K29	8/18/95	T. Gorman	38				
116	FLOOR	K30	8/18/95	T. Gorman	27				
116	NORTH WALL	028B	8/18/95	T. Gorman	109				
116	NORTH WALL	028T	8/18/95	T. Gorman	52				
116	NORTH WALL	029B	8/18/95	T. Gorman	22				
116	NORTH WALL	029T	8/18/95	T. Gorman	23				
116	SOUTH WALL	030B	8/18/95	T. Gorman	28				
116	SOUTH WALL	030T	8/18/95	T. Gorman	4				
116	SOUTH WALL	031B	8/18/95	T. Gorman	15				
116	SOUTH WALL	031T	8/18/95	T. Gorman	48				
116	SUBFLOOR	A26	8/18/95	T. Garcia	0				
116	SUBFLOOR	A27	8/18/95	T. Garcia	0				
116	SUBFLOOR	A28	8/18/95	T. Garcia	0				
116	SUBFLOOR	A29	8/18/95	T. Garcia	0				
116	SUBFLOOR	A30	8/18/95	T. Garcia	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
118	SUBFLOOR	B26	8/18/95	T. Garcia	0				
118	SUBFLOOR	B27	8/18/95	T. Garcia	0				
118	SUBFLOOR	B28	8/18/95	T. Garcia	0				
118	SUBFLOOR	B29	8/18/95	T. Garcia	0				
118	SUBFLOOR	B30	8/18/95	T. Garcia	0				
118	SUBFLOOR	C26	8/18/95	T. Garcia	0				
118	SUBFLOOR	C27	8/18/95	T. Garcia	0	0	0.575	0	0
118	SUBFLOOR	C28	8/18/95	T. Garcia	0				
118	SUBFLOOR	C29	8/18/95	T. Garcia	2	0	4.58	32.7	0
118	SUBFLOOR	C30	8/18/95	T. Garcia	9				
118	SUBFLOOR	D26	8/18/95	T. Garcia	0				
118	SUBFLOOR	D27	8/18/95	T. Garcia	1				
118	SUBFLOOR	D28	8/18/95	T. Garcia	0				
118	SUBFLOOR	D29	8/18/95	T. Garcia	0				
118	SUBFLOOR	D30	8/18/95	T. Garcia	0				
118	SUBFLOOR	E26	8/18/95	T. Garcia	0				
118	SUBFLOOR	E27	8/18/95	T. Garcia	0				
118	SUBFLOOR	E28	8/18/95	T. Garcia	0				
118	SUBFLOOR	E29	8/18/95	T. Garcia	0				
118	SUBFLOOR	E30	8/18/95	T. Garcia	0				
118	SUBFLOOR	F26	8/18/95	T. Garcia	0				
118	SUBFLOOR	F27	8/18/95	T. Garcia	8				
118	SUBFLOOR	F28	8/18/95	T. Garcia	0				
118	SUBFLOOR	F29	8/18/95	T. Garcia	0				
118	SUBFLOOR	F30	8/18/95	T. Garcia	0				
118	SUBFLOOR	G26	8/18/95	T. Garcia	0				
118	SUBFLOOR	G27	8/18/95	T. Garcia	0	0	0	0	0
118	SUBFLOOR	G28	8/18/95	T. Garcia	0				
118	SUBFLOOR	G29	8/18/95	T. Garcia	0	0	0	0.0535	0
118	SUBFLOOR	G30	8/18/95	T. Garcia	0				
118	SUBFLOOR	H26	8/18/95	T. Garcia	0				
118	SUBFLOOR	H27	8/18/95	T. Garcia	0				
118	SUBFLOOR	H28	8/18/95	T. Garcia	0				
118	SUBFLOOR	H29	8/18/95	T. Garcia	14				
118	SUBFLOOR	H30	8/18/95	T. Garcia	2				
118	SUBFLOOR	I26	8/18/95	T. Garcia	0				
118	SUBFLOOR	I27	8/18/95	T. Garcia	3				
118	SUBFLOOR	I28	8/18/95	T. Garcia	126				
118	SUBFLOOR	I29	8/18/95	T. Garcia	63				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
118	SUBFLOOR	J20	8/18/95	T. Garcia	4				
118	SUBFLOOR	J26	8/18/95	T. Garcia	5				
118	SUBFLOOR	J27	8/18/95	T. Garcia	0				
118	SUBFLOOR	J28	8/18/95	T. Garcia	17				
118	SUBFLOOR	J29	8/18/95	T. Garcia	0				
118	SUBFLOOR	J30	8/18/95	T. Garcia	2				
118	SUBFLOOR	K26	8/18/95	T. Garcia	0				
118	SUBFLOOR	K27	8/18/95	T. Garcia	0				
118	SUBFLOOR	K28	8/18/95	T. Garcia	0				
118	SUBFLOOR	K29	8/18/95	T. Garcia	14				
118	SUBFLOOR	K30	8/18/95	T. Garcia	2				
118	WEST WALL	028B	8/18/95	T. Gorman	22				
118	WEST WALL	028T	8/18/95	T. Gorman	27				
118	WEST WALL	030B	8/18/95	T. Gorman	23				
118	WEST WALL	030T	8/18/95	T. Gorman	52				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
119	CEILING	119	9/8/95	T. Garcia	146				
119	CEILING	111	9/8/95	T. Garcia	42				
119	CEILING	112	9/8/95	T. Garcia	50				
119	CEILING	113	9/8/95	T. Garcia	55				
119	DRAIN	T38	9/9/95	T. Garcia	86				
119	DUCT	111	9/9/95	T. Garcia	881				
119	DUCT	113	9/9/95	T. Garcia	652				
119	DUCT 1	110	9/9/95	T. Garcia	212				
119	DUCT 2	110	9/9/95	T. Garcia	128				
119	EAST WALL	111B	9/8/95	T. Garcia	112				
119	EAST WALL	111T	9/8/95	T. Garcia	90				
119	EAST WALL	113B	9/8/95	T. Garcia	151				
119	EAST WALL	113T	9/8/95	T. Garcia	180				
119	FLOOR	N34	9/8/95	T. Garcia	14				
119	FLOOR	N35	9/8/95	T. Garcia	33				
119	FLOOR	N36	9/8/95	T. Garcia	33				
119	FLOOR	N37	9/8/95	T. Garcia	20				
119	FLOOR	N38	9/8/95	T. Garcia	26				
119	FLOOR	N39	9/8/95	T. Garcia	39				
119	FLOOR	N40	9/8/95	T. Garcia	26				
119	FLOOR	N41	9/8/95	T. Garcia	17				
119	FLOOR	N42	9/8/95	T. Garcia	35				
119	FLOOR	O34	9/8/95	T. Garcia	38				
119	FLOOR	O35	9/8/95	T. Garcia	46				
119	FLOOR	O36	9/8/95	T. Garcia	41				
119	FLOOR	O37	9/8/95	T. Garcia	38				
119	FLOOR	O38	9/8/95	T. Garcia	34				
119	FLOOR	O39	9/8/95	T. Garcia	25				
119	FLOOR	O40	9/8/95	T. Garcia	39				
119	FLOOR	O41	9/8/95	T. Garcia	60				
119	FLOOR	O42	9/8/95	T. Garcia	35				
119	FLOOR	P34	9/8/95	T. Garcia	45				
119	FLOOR	P35	9/8/95	T. Garcia	44				
119	FLOOR	P36	9/8/95	T. Garcia	38				
119	FLOOR	P37	9/8/95	T. Garcia	105				
119	FLOOR	P38	9/8/95	T. Garcia	36				
119	FLOOR	P39	9/8/95	T. Garcia	41				
119	FLOOR	P40	9/8/95	T. Garcia	35				
119	FLOOR	P41	9/8/95	T. Garcia	34				

Comments:

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe*	T2 Direct*	Alpha Wipe	Beta Wipe	Beta Direct
119	FLOOR	P42	9/8/95	T. Garda	34				
119	FLOOR	Q34	9/8/95	T. Garda	42				
119	FLOOR	Q35	9/8/95	T. Garda					
119	FLOOR	Q36	9/8/95	T. Garda	43	0	0	0	0
119	FLOOR	Q37	9/8/95	T. Garda	40				
119	FLOOR	Q38	9/8/95	T. Garda	48				
119	FLOOR	Q39	9/8/95	T. Garda	48				
119	FLOOR	Q40	9/8/95	T. Garda	48	0	0	0	0
119	FLOOR	Q41	9/8/95	T. Garda	63				
119	FLOOR	Q42	9/8/95	T. Garda	38				
119	FLOOR	R24	9/8/95	T. Garda	219				
119	FLOOR	R25	9/8/95	T. Garda	54				
119	FLOOR	R26	9/8/95	T. Garda	58				
119	FLOOR	R27	9/8/95	T. Garda	64				
119	FLOOR	R28	9/8/95	T. Garda	67				
119	FLOOR	R29	9/8/95	T. Garda	41				
119	FLOOR	R40	9/8/95	T. Garda	51				
119	FLOOR	R41	9/8/95	T. Garda	50				
119	FLOOR	R42	9/8/95	T. Garda	53				
119	FLOOR	S24	9/8/95	T. Garda	53				
119	FLOOR	S25	9/8/95	T. Garda	54				
119	FLOOR	S26	9/8/95	T. Garda	64				
119	FLOOR	S27	9/8/95	T. Garda	54				
119	FLOOR	S28	9/8/95	T. Garda	72				
119	FLOOR	S29	9/8/95	T. Garda	59				
119	FLOOR	S40	9/8/95	T. Garda	48				
119	FLOOR	S41	9/8/95	T. Garda	53				
119	FLOOR	S42	9/8/95	T. Garda	40				
119	FLOOR	T24	9/8/95	T. Garda	51				
119	FLOOR	T25	9/8/95	T. Garda	59				
119	FLOOR	T26	9/8/95	T. Garda	61				
119	FLOOR	T27	9/8/95	T. Garda	62				
119	FLOOR	T28	9/8/95	T. Garda	51				
119	FLOOR	T29	9/8/95	T. Garda	57				
119	FLOOR	T40	9/8/95	T. Garda	34				
119	FLOOR	T41	9/8/95	T. Garda	49				
119	FLOOR	T42	9/8/95	T. Garda	41				
119	FLOOR	U24	9/8/95	T. Garda	75				
119	FLOOR	U25	9/8/95	T. Garda	51				
Comments:									
TRL Radiological Characterization Survey									

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
119	FLOOR	U36	9/8/95	T. Garcia	61				
119	FLOOR	U37	9/8/95	T. Garcia	43				
119	FLOOR	U38	9/8/95	T. Garcia	51				
119	FLOOR	U39	9/8/95	T. Garcia	58				
119	FLOOR	U40	9/8/95	T. Garcia	58				
119	FLOOR	U41	9/8/95	T. Garcia	60				
119	FLOOR	U42	9/8/95	T. Garcia	67				
119	FLOOR	V34	9/8/95	T. Garcia	73				
119	FLOOR	V35	9/8/95	T. Garcia	59				
119	FLOOR	V36	9/8/95	T. Garcia	56	0	0.565	0.522	0
119	FLOOR	V37	9/8/95	T. Garcia	63				
119	FLOOR	V38	9/8/95	T. Garcia	47				
119	FLOOR	V39	9/8/95	T. Garcia	69				
119	FLOOR	V40	9/8/95	T. Garcia	55	0	0.0353	0.812	0
119	FLOOR	V41	9/8/95	T. Garcia	47				
119	FLOOR	V42	9/8/95	T. Garcia	55				
119	FLOOR	W34	9/8/95	T. Garcia	119				
119	FLOOR	W35	9/8/95	T. Garcia	62				
119	FLOOR	W36	9/8/95	T. Garcia	70				
119	FLOOR	W37	9/8/95	T. Garcia	71				
119	FLOOR	W38	9/8/95	T. Garcia	56				
119	FLOOR	W39	9/8/95	T. Garcia	49				
119	FLOOR	W40	9/8/95	T. Garcia	55				
119	FLOOR	W41	9/8/95	T. Garcia	60				
119	FLOOR	W42	9/8/95	T. Garcia	63				
119	FLOOR	X34	9/8/95	T. Garcia	83				
119	FLOOR	X35	9/8/95	T. Garcia	69				
119	FLOOR	X36	9/8/95	T. Garcia	87				
119	FLOOR	X37	9/8/95	T. Garcia	94				
119	FLOOR	X38	9/8/95	T. Garcia	55				
119	FLOOR	X39	9/8/95	T. Garcia	70				
119	FLOOR	X40	9/8/95	T. Garcia	52				
119	FLOOR	X41	9/8/95	T. Garcia	72				
119	FLOOR	X42	9/8/95	T. Garcia	67				
119	NORTH WALL	110B	9/8/95	T. Garcia	41				
119	NORTH WALL	110T	9/8/95	T. Garcia	65				
119	NORTH WALL	111B	9/8/95	T. Garcia	121				
119	NORTH WALL	111T	9/8/95	T. Garcia	91				
119	SOUTH WALL	112B	9/8/95	T. Garcia	72				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
119	SOUTH WALL	112T	9/8/95	T. Garcia	68				
119	SOUTH WALL	113B	9/8/95	T. Garcia	72				
119	SOUTH WALL	113T	9/8/95	T. Garcia	62				
119	WEST WALL	110B	9/8/95	T. Garcia	56				
119	WEST WALL	110T	9/8/95	T. Garcia	81				
119	WEST WALL	112B	9/8/95	T. Garcia	76				
119	WEST WALL	112T	9/8/95	T. Gorman	74				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	CEILING	032	8/16/95	T. Gorman	70				
120	CEILING	033	8/16/95	T. Gorman	86				
120	CEILING	034	8/16/95	T. Gorman	70				
120	CEILING	035	8/16/95	T. Gorman	86				
120	CEILING	036	8/16/95	T. Gorman	75				
120	CEILING	037	8/16/95	T. Gorman	100				
120	CEILING	038	8/16/95	T. Gorman	75				
120	CEILING	039	8/16/95	T. Gorman	100				
120	DRAIN	E34	8/17/95	T. Gorman	143				
120	DRAIN	E44	8/17/95	T. Gorman	164				
120	DUCT	032	8/17/95	T. Gorman	390				
120	DUCT	033	8/17/95	T. Gorman	390				
120	DUCT	035	8/17/95	T. Gorman	219				
120	DUCT	038	8/17/95	T. Gorman	266				
120	DUCT	039	8/17/95	T. Gorman	311				
120	DUCT 1	037	8/17/95	T. Gorman	195				
120	DUCT 2	037	8/17/95	T. Gorman	248				
120	EAST WALL	035B	8/16/95	T. Gorman	0				
120	EAST WALL	035T	8/16/95	T. Gorman	99				
120	EAST WALL	039B	8/16/95	T. Gorman	0				
120	EAST WALL	039T	8/16/95	T. Gorman	87				
120	FLOOR	A30	8/16/95	T. Gorman	47				
120	FLOOR	A31	8/16/95	T. Gorman	70				
120	FLOOR	A32	8/16/95	T. Gorman	50				
120	FLOOR	A33	8/16/95	T. Gorman	72				
120	FLOOR	A34	8/16/95	T. Gorman	41				
120	FLOOR	A35	8/16/95	T. Gorman	56				
120	FLOOR	A36	8/16/95	T. Gorman	96				
120	FLOOR	A37	8/16/95	T. Gorman	63				
120	FLOOR	A38	8/16/95	T. Gorman	43				
120	FLOOR	A39	8/16/95	T. Gorman	56				
120	FLOOR	A40	8/16/95	T. Gorman	79				
120	FLOOR	A41	8/16/95	T. Gorman	58				
120	FLOOR	A42	8/16/95	T. Gorman	63				
120	FLOOR	A43	8/16/95	T. Gorman	63				
120	FLOOR	A44	8/16/95	T. Gorman	53				
120	FLOOR	A45	8/16/95	T. Gorman	70				
120	FLOOR	A46	8/16/95	T. Gorman	56				
120	FLOOR	A47	8/16/95	T. Gorman	61				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	FLOOR	B30	8/16/95	T. Gorman	58				
120	FLOOR	B31	8/16/95	T. Gorman	52				
120	FLOOR	B32	8/16/95	T. Gorman	61				
120	FLOOR	B33	8/16/95	T. Gorman	51				
120	FLOOR	B34	8/16/95	T. Gorman	78				
120	FLOOR	B35	8/16/95	T. Gorman	80				
120	FLOOR	B36	8/16/95	T. Gorman	63				
120	FLOOR	B37	8/16/95	T. Gorman	67				
120	FLOOR	B38	8/16/95	T. Gorman	53				
120	FLOOR	B39	8/16/95	T. Gorman	58				
120	FLOOR	B40	8/16/95	T. Gorman	58				
120	FLOOR	B41	8/16/95	T. Gorman	75				
120	FLOOR	B42	8/16/95	T. Gorman	79				
120	FLOOR	B43	8/16/95	T. Gorman	57				
120	FLOOR	B44	8/16/95	T. Gorman	101				
120	FLOOR	B45	8/16/95	T. Gorman	90				
120	FLOOR	B46	8/16/95	T. Gorman	89				
120	FLOOR	B47	8/16/95	T. Gorman	66				
120	FLOOR	C30	8/16/95	T. Gorman	80				
120	FLOOR	C31	8/16/95	T. Gorman	62				
120	FLOOR	C32	8/16/95	T. Gorman	49				
120	FLOOR	C33	8/16/95	T. Gorman	66				
120	FLOOR	C34	8/16/95	T. Gorman	56	0	0	0.0535	0
120	FLOOR	C35	8/16/95	T. Gorman	69				
120	FLOOR	C36	8/16/95	T. Gorman	77				
120	FLOOR	C37	8/16/95	T. Gorman	75				
120	FLOOR	C38	8/16/95	T. Gorman	58				
120	FLOOR	C39	8/16/95	T. Gorman	80				
120	FLOOR	C40	8/16/95	T. Gorman	92				
120	FLOOR	C41	8/16/95	T. Gorman	76				
120	FLOOR	C42	8/16/95	T. Gorman	83	0	3.36	10.8	0
120	FLOOR	C43	8/16/95	T. Gorman	140				
120	FLOOR	C44	8/16/95	T. Gorman	111				
120	FLOOR	C45	8/16/95	T. Gorman	79				
120	FLOOR	C46	8/16/95	T. Gorman	84				
120	FLOOR	C47	8/16/95	T. Gorman	115				
120	FLOOR	D30	8/16/95	T. Gorman	93				
120	FLOOR	D31	8/16/95	T. Gorman	70				
120	FLOOR	D32	8/16/95	T. Gorman	95				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	FLOOR	D33	8/16/95	T. Gorman	104				
120	FLOOR	D34	8/16/95	T. Gorman	82				
120	FLOOR	D35	8/16/95	T. Gorman	69				
120	FLOOR	D36	8/16/95	T. Gorman	73				
120	FLOOR	D37	8/16/95	T. Gorman	71				
120	FLOOR	D38	8/16/95	T. Gorman	94				
120	FLOOR	D39	8/16/95	T. Gorman	68				
120	FLOOR	D40	8/16/95	T. Gorman	69				
120	FLOOR	D41	8/16/95	T. Gorman	86				
120	FLOOR	D42	8/16/95	T. Gorman	69				
120	FLOOR	D43	8/16/95	T. Gorman	134				
120	FLOOR	D44	8/16/95	T. Gorman	96				
120	FLOOR	D45	8/16/95	T. Gorman	80				
120	FLOOR	D46	8/16/95	T. Gorman	92				
120	FLOOR	D47	8/16/95	T. Gorman	104				
120	FLOOR	E30	8/16/95	T. Gorman	70				
120	FLOOR	E31	8/16/95	T. Gorman	90				
120	FLOOR	E32	8/16/95	T. Gorman	74				
120	FLOOR	E33	8/16/95	T. Gorman	93				
120	FLOOR	E34	8/16/95	T. Gorman	93				
120	FLOOR	E35	8/16/95	T. Gorman	92				
120	FLOOR	E36	8/16/95	T. Gorman	73				
120	FLOOR	E37	8/16/95	T. Gorman	66				
120	FLOOR	E38	8/16/95	T. Gorman	94				
120	FLOOR	E39	8/16/95	T. Gorman	87				
120	FLOOR	E40	8/16/95	T. Gorman	76				
120	FLOOR	E41	8/16/95	T. Gorman	144				
120	FLOOR	E42	8/16/95	T. Gorman	185				
120	FLOOR	E43	8/16/95	T. Gorman	112				
120	FLOOR	E44	8/16/95	T. Gorman	107				
120	FLOOR	E45	8/16/95	T. Gorman	76				
120	FLOOR	E46	8/16/95	T. Gorman	51				
120	FLOOR	E47	8/16/95	T. Gorman	92				
120	FLOOR	F30	8/16/95	T. Gorman	91				
120	FLOOR	F31	8/16/95	T. Gorman	104				
120	FLOOR	F32	8/16/95	T. Gorman	64				
120	FLOOR	F33	8/16/95	T. Gorman	75				
120	FLOOR	F34	8/16/95	T. Gorman	21				
120	FLOOR	F35	8/16/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	FLOOR	F36	8/16/95	T. Gorman	0				
120	FLOOR	F37	8/16/95	T. Gorman	0				
120	FLOOR	F38	8/16/95	T. Gorman	96				
120	FLOOR	F39	8/16/95	T. Gorman	105				
120	FLOOR	F40	8/16/95	T. Gorman	128				
120	FLOOR	F41	8/16/95	T. Gorman	94				
120	FLOOR	F42	8/16/95	T. Gorman	13				
120	FLOOR	F43	8/16/95	T. Gorman	0				
120	FLOOR	F44	8/16/95	T. Gorman	0				
120	FLOOR	F45	8/16/95	T. Gorman	0				
120	FLOOR	F46	8/16/95	T. Gorman	0				
120	FLOOR	F47	8/16/95	T. Gorman	0				
120	FLOOR	G30	8/16/95	T. Gorman	0				
120	FLOOR	G31	8/16/95	T. Gorman	0				
120	FLOOR	G32	8/16/95	T. Gorman	0				
120	FLOOR	G33	8/16/95	T. Gorman	0				
120	FLOOR	G34	8/16/95	T. Gorman	0	0	0	1.66	0
120	FLOOR	G35	8/16/95	T. Gorman	0				
120	FLOOR	G36	8/16/95	T. Gorman	0				
120	FLOOR	G37	8/16/95	T. Gorman	0				
120	FLOOR	G38	8/16/95	T. Gorman	0				
120	FLOOR	G39	8/16/95	T. Gorman	0				
120	FLOOR	G40	8/16/95	T. Gorman	0				
120	FLOOR	G41	8/16/95	T. Gorman	0				
120	FLOOR	G42	8/16/95	T. Gorman	0	0	0.226	0	0
120	FLOOR	G43	8/16/95	T. Gorman	0				
120	FLOOR	G44	8/16/95	T. Gorman	0				
120	FLOOR	G45	8/16/95	T. Gorman	0				
120	FLOOR	G46	8/16/95	T. Gorman	0				
120	FLOOR	G47	8/16/95	T. Gorman	0				
120	FLOOR	H30	8/16/95	T. Gorman	0				
120	FLOOR	H31	8/16/95	T. Gorman	0				
120	FLOOR	H32	8/16/95	T. Gorman	0				
120	FLOOR	H33	8/16/95	T. Gorman	0				
120	FLOOR	H34	8/16/95	T. Gorman	0				
120	FLOOR	H35	8/16/95	T. Gorman	3				
120	FLOOR	H36	8/16/95	T. Gorman	0				
120	FLOOR	H37	8/16/95	T. Gorman	0				
120	FLOOR	H38	8/16/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	FLOOR	H39	8/16/95	T. Gorman	0				
120	FLOOR	H40	8/16/95	T. Gorman	0				
120	FLOOR	H41	8/16/95	T. Gorman	0				
120	FLOOR	H42	8/16/95	T. Gorman	0				
120	FLOOR	H43	8/16/95	T. Gorman	0				
120	FLOOR	H44	8/16/95	T. Gorman	0				
120	FLOOR	H45	8/16/95	T. Gorman	0				
120	FLOOR	H46	8/16/95	T. Gorman	0				
120	FLOOR	H47	8/16/95	T. Gorman	0				
120	FLOOR	I30	8/16/95	T. Gorman	0				
120	FLOOR	I31	8/16/95	T. Gorman	0				
120	FLOOR	I32	8/16/95	T. Gorman	0				
120	FLOOR	I33	8/16/95	T. Gorman	50				
120	FLOOR	I34	8/16/95	T. Gorman	0				
120	FLOOR	I35	8/16/95	T. Gorman	0				
120	FLOOR	I36	8/16/95	T. Gorman	0				
120	FLOOR	I37	8/16/95	T. Gorman	0				
120	FLOOR	I38	8/16/95	T. Gorman	0				
120	FLOOR	I39	8/16/95	T. Gorman	0				
120	FLOOR	I40	8/16/95	T. Gorman	0				
120	FLOOR	I41	8/16/95	T. Gorman	0				
120	FLOOR	I42	8/16/95	T. Gorman	1				
120	FLOOR	I43	8/16/95	T. Gorman	0				
120	FLOOR	I44	8/16/95	T. Gorman	0				
120	FLOOR	I45	8/16/95	T. Gorman	0				
120	FLOOR	I46	8/16/95	T. Gorman	0				
120	FLOOR	I47	8/16/95	T. Gorman	0				
120	FLOOR	J30	8/16/95	T. Gorman	0				
120	FLOOR	J31	8/16/95	T. Gorman	0				
120	FLOOR	J32	8/16/95	T. Gorman	0				
120	FLOOR	J33	8/16/95	T. Gorman	0				
120	FLOOR	J34	8/16/95	T. Gorman	0				
120	FLOOR	J35	8/16/95	T. Gorman	0				
120	FLOOR	J36	8/16/95	T. Gorman	0				
120	FLOOR	J37	8/16/95	T. Gorman	0				
120	FLOOR	J38	8/16/95	T. Gorman	0				
120	FLOOR	J39	8/16/95	T. Gorman	0				
120	FLOOR	J40	8/16/95	T. Gorman	0				
120	FLOOR	J41	8/16/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	FLOOR	J42	8/16/95	T. Gorman	0				
120	FLOOR	J43	8/16/95	T. Gorman	0				
120	FLOOR	J44	8/16/95	T. Gorman	0				
120	FLOOR	J45	8/16/95	T. Gorman	0				
120	FLOOR	J46	8/16/95	T. Gorman	0				
120	FLOOR	J47	8/16/95	T. Gorman	0				
120	FLOOR	K30	8/16/95	T. Gorman	0				
120	FLOOR	K31	8/16/95	T. Gorman	0				
120	FLOOR	K32	8/16/95	T. Gorman	0				
120	FLOOR	K33	8/16/95	T. Gorman	0				
120	FLOOR	K34	8/16/95	T. Gorman	0				
120	FLOOR	K35	8/16/95	T. Gorman	0				
120	FLOOR	K36	8/16/95	T. Gorman	0				
120	FLOOR	K37	8/16/95	T. Gorman	0				
120	FLOOR	K38	8/16/95	T. Gorman	0				
120	FLOOR	K39	8/16/95	T. Gorman	0				
120	FLOOR	K40	8/16/95	T. Gorman	0				
120	FLOOR	K41	8/16/95	T. Gorman	0				
120	FLOOR	K42	8/16/95	T. Gorman	0				
120	FLOOR	K43	8/16/95	T. Gorman	0				
120	FLOOR	K44	8/16/95	T. Gorman	0				
120	FLOOR	K45	8/16/95	T. Gorman	0				
120	FLOOR	K46	8/16/95	T. Gorman	0				
120	FLOOR	K47	8/16/95	T. Gorman	0				
120	NORTH WALL	032B	8/16/95	T. Gorman	0				
120	NORTH WALL	032T	8/16/95	T. Gorman	0				
120	NORTH WALL	033B	8/16/95	T. Gorman	85				
120	NORTH WALL	033T	8/16/95	T. Gorman	85				
120	NORTH WALL	034B	8/16/95	T. Gorman	0				
120	NORTH WALL	034T	8/16/95	T. Gorman	0				
120	NORTH WALL	035B	8/16/95	T. Gorman	89				
120	NORTH WALL	035T	8/16/95	T. Gorman	89				
120	SOUTH WALL	036B	8/16/95	T. Gorman	0				
120	SOUTH WALL	036T	8/16/95	T. Gorman	0				
120	SOUTH WALL	037B	8/16/95	T. Gorman	0				
120	SOUTH WALL	037T	8/16/95	T. Gorman	0				
120	SOUTH WALL	038B	8/16/95	T. Gorman	140				
120	SOUTH WALL	038T	8/16/95	T. Gorman	70				
120	SOUTH WALL	039B	8/16/95	T. Gorman	140				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
120	SOUTH WALL	039T	8/16/95	T. Gorman	70				
120	WEST WALL	032B	8/16/95	T. Gorman	0				
120	WEST WALL	032T	8/16/95	T. Gorman	90				
120	WEST WALL	036B	8/16/95	T. Gorman	0				
120	WEST WALL	036T	8/16/95	T. Gorman	144				

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Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
121	CEILING	114	8/15/95	T. Gorman	0				
121	CEILING	115	8/15/95	T. Gorman	0				
121	CEILING	116	8/15/95	T. Gorman	0				
121	CEILING	117	8/15/95	T. Gorman	0				
121	DRAIN	Q46	8/15/95	T. Gorman	125				
121	DUCT	114	8/15/95	T. Gorman	79				
121	DUCT	117	8/15/95	T. Gorman	57				
121	EAST WALL	115B	8/15/95	T. Gorman	0				
121	EAST WALL	115T	8/15/95	T. Gorman	0				
121	EAST WALL	117B	8/15/95	T. Gorman	0				
121	EAST WALL	117T	8/15/95	T. Gorman	0				
121	FLOOR	N43	8/15/95	T. Gorman	36				
121	FLOOR	N44	8/15/95	T. Gorman	23				
121	FLOOR	N45	8/15/95	T. Gorman	8				
121	FLOOR	N46	8/15/95	T. Gorman	14				
121	FLOOR	N47	8/15/95	T. Gorman	257				
121	FLOOR	N48	8/15/95	T. Gorman	127				
121	FLOOR	N49	8/15/95	T. Gorman	78				
121	FLOOR	O43	8/15/95	T. Gorman	42				
121	FLOOR	O44	8/15/95	T. Gorman	44				
121	FLOOR	O45	8/15/95	T. Gorman	60				
121	FLOOR	O46	8/15/95	T. Gorman	34				
121	FLOOR	O47	8/15/95	T. Gorman	38				
121	FLOOR	O48	8/15/95	T. Gorman	45				
121	FLOOR	O49	8/15/95	T. Gorman	55				
121	FLOOR	P43	8/15/95	T. Gorman	44				
121	FLOOR	P44	8/15/95	T. Gorman	19				
121	FLOOR	P45	8/15/95	T. Gorman	33				
121	FLOOR	P46	8/15/95	T. Gorman	48				
121	FLOOR	P47	8/15/95	T. Gorman	45				
121	FLOOR	P48	8/15/95	T. Gorman	34				
121	FLOOR	P49	8/15/95	T. Gorman	44				
121	FLOOR	Q43	8/15/95	T. Gorman	37				
121	FLOOR	Q44	8/15/95	T. Gorman	24	0	0.0522	0	0
121	FLOOR	Q45	8/15/95	T. Gorman	28				
121	FLOOR	Q46	8/15/95	T. Gorman	14				
121	FLOOR	Q47	8/15/95	T. Gorman	49	0	0	0	0
121	FLOOR	Q48	8/15/95	T. Gorman	47				
121	FLOOR	Q49	8/15/95	T. Gorman	47				

Comments:

TRL Character ion Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
121	FLOOR	R43	8/15/95	T. Gorman	71				
121	FLOOR	R44	8/15/95	T. Gorman	23				
121	FLOOR	R45	8/15/95	T. Gorman	16				
121	FLOOR	R46	8/15/95	T. Gorman	43				
121	FLOOR	R47	8/15/95	T. Gorman	69				
121	FLOOR	R48	8/15/95	T. Gorman	41				
121	FLOOR	R49	8/15/95	T. Gorman	47				
121	FLOOR	S43	8/15/95	T. Gorman	19				
121	FLOOR	S44	8/15/95	T. Gorman	10				
121	FLOOR	S45	8/15/95	T. Gorman	48				
121	FLOOR	S46	8/15/95	T. Gorman	66				
121	FLOOR	S47	8/15/95	T. Gorman	31				
121	FLOOR	S48	8/15/95	T. Gorman	36				
121	FLOOR	S49	8/15/95	T. Gorman	17				
121	FLOOR	T43	8/15/95	T. Gorman	13				
121	FLOOR	T44	8/15/95	T. Gorman	58				
121	FLOOR	T45	8/15/95	T. Gorman	76				
121	FLOOR	T46	8/15/95	T. Gorman	23				
121	FLOOR	T47	8/15/95	T. Gorman	22				
121	FLOOR	T48	8/15/95	T. Gorman	44				
121	FLOOR	T49	8/15/95	T. Gorman	32				
121	FLOOR	U43	8/15/95	T. Gorman	58				
121	FLOOR	U44	8/15/95	T. Gorman	43	0	4.93	41	0
121	FLOOR	U45	8/15/95	T. Gorman	11				
121	FLOOR	U46	8/15/95	T. Gorman	18				
121	FLOOR	U47	8/15/95	T. Gorman	38	0	0.0522	0.856	0
121	FLOOR	U48	8/15/95	T. Gorman	42				
121	FLOOR	U49	8/15/95	T. Gorman	23				
121	FLOOR	V43	8/15/95	T. Gorman	49				
121	FLOOR	V44	8/15/95	T. Gorman	23				
121	FLOOR	V45	8/15/95	T. Gorman	49				
121	FLOOR	V46	8/15/95	T. Gorman	23				
121	FLOOR	V47	8/15/95	T. Gorman	27				
121	FLOOR	V48	8/15/95	T. Gorman	71				
121	FLOOR	V49	8/15/95	T. Gorman	35				
121	FLOOR	W43	8/15/95	T. Gorman	35				
121	FLOOR	W44	8/15/95	T. Gorman	38				
121	FLOOR	W45	8/15/95	T. Gorman	30				
121	FLOOR	W46	8/15/95	T. Gorman	42				

Comments:

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
121	FLOOR	W47	8/15/95	T. Gorman	2				
121	FLOOR	W48	8/15/95	T. Gorman	1				
121	FLOOR	W49	8/15/95	T. Gorman	0				
121	FLOOR	X43	8/15/95	T. Gorman	0				
121	FLOOR	X44	8/15/95	T. Gorman	42				
121	FLOOR	X45	8/15/95	T. Gorman	45				
121	FLOOR	X46	8/15/95	T. Gorman	33				
121	FLOOR	X47	8/15/95	T. Gorman	23				
121	FLOOR	X48	8/15/95	T. Gorman	44				
121	FLOOR	X49	8/15/95	T. Gorman	36				
121	NORTH WALL	114B	8/15/95	T. Gorman	2				
121	NORTH WALL	114T	8/15/95	T. Gorman	0				
121	NORTH WALL	115B	8/15/95	T. Gorman	0				
121	NORTH WALL	115T	8/15/95	T. Gorman	0				
121	SOUTH WALL	116B	8/15/95	T. Gorman	0				
121	SOUTH WALL	116T	8/15/95	T. Gorman	2				
121	SOUTH WALL	117B	8/15/95	T. Gorman	0				
121	SOUTH WALL	117T	8/15/95	T. Gorman	0				
121	WEST WALL	114B	8/15/95	T. Gorman	0				
121	WEST WALL	114T	8/15/95	T. Gorman	0				
121	WEST WALL	116B	8/15/95	T. Gorman	0				
121	WEST WALL	116T	8/15/95	T. Gorman	3				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
122	CEILING	040	8/10/95	T. Gorman	0				
122	CEILING	041	8/10/95	T. Gorman	0				
122	CEILING	042	8/10/95	T. Gorman	0				
122	CEILING	043	8/10/95	T. Gorman	17				
122	DRAIN	41B	8/10/95	T. Gorman	34				
122	DRAIN	E51	8/10/95	T. Gorman	17				
122	DUCT	041	8/10/95	T. Gorman	139				
122	DUCT	042	8/10/95	T. Gorman	91				
122	DUCT 1	043	8/10/95	T. Gorman	232				
122	DUCT 2	043	8/10/95	T. Gorman	48				
122	EAST WALL	041B	8/10/95	T. Gorman	53				
122	EAST WALL	041T	8/10/95	T. Gorman	9				
122	EAST WALL	043B	8/10/95	T. Gorman	0				
122	EAST WALL	043T	8/10/95	T. Gorman	0				
122	FLOOR	A48	8/10/95	T. Gorman	19				
122	FLOOR	A49	8/10/95	T. Gorman	19				
122	FLOOR	A50	8/10/95	T. Gorman	23				
122	FLOOR	A51	8/10/95	T. Gorman	12				
122	FLOOR	A52	8/10/95	T. Gorman	16				
122	FLOOR	A53	8/10/95	T. Gorman	5				
122	FLOOR	B48	8/10/95	T. Gorman	6				
122	FLOOR	B49	8/10/95	T. Gorman	0				
122	FLOOR	B50	8/10/95	T. Gorman	27				
122	FLOOR	B51	8/10/95	T. Gorman	15				
122	FLOOR	B52	8/10/95	T. Gorman	9				
122	FLOOR	B53	8/10/95	T. Gorman	25				
122	FLOOR	C48	8/10/95	T. Gorman	15				
122	FLOOR	C49	8/10/95	T. Gorman	17	0	6.32	47.1	0
122	FLOOR	C50	8/10/95	T. Gorman	13				
122	FLOOR	C51	8/10/95	T. Gorman	10				
122	FLOOR	C52	8/10/95	T. Gorman	8	0	0	0.856	0
122	FLOOR	C53	8/10/95	T. Gorman	17				
122	FLOOR	D48	8/10/95	T. Gorman	7				
122	FLOOR	D49	8/10/95	T. Gorman	12				
122	FLOOR	D50	8/10/95	T. Gorman	16				
122	FLOOR	D51	8/10/95	T. Gorman	20				
122	FLOOR	D52	8/10/95	T. Gorman	21				
122	FLOOR	D53	8/10/95	T. Gorman	14				
122	FLOOR	E48	8/10/95	T. Gorman	17				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
122	FLOOR	E49	8/10/95	T. Gorman	17				
122	FLOOR	E50	8/10/95	T. Gorman	14				
122	FLOOR	E51	8/10/95	T. Gorman	10				
122	FLOOR	E52	8/10/95	T. Gorman	14				
122	FLOOR	E53	8/10/95	T. Gorman	7				
122	FLOOR	F48	8/10/95	T. Gorman	8				
122	FLOOR	F49	8/10/95	T. Gorman	18				
122	FLOOR	F50	8/10/95	T. Gorman	10				
122	FLOOR	F51	8/10/95	T. Gorman	20				
122	FLOOR	F52	8/10/95	T. Gorman	21				
122	FLOOR	F53	8/10/95	T. Gorman	23				
122	FLOOR	G48	8/10/95	T. Gorman	7				
122	FLOOR	G49	8/10/95	T. Gorman	10				
122	FLOOR	G50	8/10/95	T. Gorman	15				
122	FLOOR	G51	8/10/95	T. Gorman	15				
122	FLOOR	G52	8/10/95	T. Gorman	10				
122	FLOOR	G53	8/10/95	T. Gorman	13				
122	FLOOR	H48	8/10/95	T. Gorman	16				
122	FLOOR	H49	8/10/95	T. Gorman	17	0	0	0.588	0
122	FLOOR	H50	8/10/95	T. Gorman	24				
122	FLOOR	H51	8/10/95	T. Gorman	20				
122	FLOOR	H52	8/10/95	T. Gorman	11	0	0.226	0.588	0
122	FLOOR	H53	8/10/95	T. Gorman	17				
122	FLOOR	I48	8/10/95	T. Gorman	25				
122	FLOOR	I49	8/10/95	T. Gorman	30				
122	FLOOR	I50	8/10/95	T. Gorman	25				
122	FLOOR	I51	8/10/95	T. Gorman	44				
122	FLOOR	I52	8/10/95	T. Gorman	39				
122	FLOOR	I53	8/10/95	T. Gorman	13				
122	FLOOR	J48	8/10/95	T. Gorman	19				
122	FLOOR	J49	8/10/95	T. Gorman	24				
122	FLOOR	J50	8/10/95	T. Gorman	23				
122	FLOOR	J51	8/10/95	T. Gorman	18				
122	FLOOR	J52	8/10/95	T. Gorman	17				
122	FLOOR	J53	8/10/95	T. Gorman	27				
122	FLOOR	K48	8/10/95	T. Gorman	20				
122	FLOOR	K49	8/10/95	T. Gorman	21				
122	FLOOR	K50	8/10/95	T. Gorman	65				
122	FLOOR	K51	8/10/95	T. Gorman	25				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
122	FLOOR	K52	8/10/95	T. Gorman	19				
122	FLOOR	K53	8/10/95	T. Gorman	32				
122	NORTH WALL	040B	8/10/95	T. Gorman	0				
122	NORTH WALL	040T	8/10/95	T. Gorman	0				
122	NORTH WALL	041B	8/10/95	T. Gorman	0				
122	NORTH WALL	041T	8/10/95	T. Gorman	0				
122	SOUTH WALL	042B	8/10/95	T. Gorman	5				
122	SOUTH WALL	042T	8/10/95	T. Gorman	7				
122	SOUTH WALL	043B	8/10/95	T. Gorman	3				
122	SOUTH WALL	043T	8/10/95	T. Gorman	0				
122	WEST WALL	040B	8/10/95	T. Gorman	0				
122	WEST WALL	040T	8/10/95	T. Gorman	0				
122	WEST WALL	042B	8/10/95	T. Gorman	0				
122	WEST WALL	042T	8/10/95	T. Gorman	9				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	GrId	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
125	CEILING	118	8/14/95	T. Gorman	66				
125	CEILING	119	8/14/95	T. Gorman	20				
125	CEILING	120	8/14/95	T. Gorman	5				
125	CEILING	121	8/14/95	T. Gorman	157				
125	DRAIN	S53	8/13/95	T. Gorman	164				
125	DUCT	118	8/13/95	T. Gorman	303				
125	DUCT	119	8/13/95	T. Gorman	720				
125	DUCT	121	8/13/95	T. Gorman	147				
125	EAST WALL	119B	8/14/95	T. Gorman	75				
125	EAST WALL	119T	8/14/95	T. Gorman	56				
125	EAST WALL	121B	8/14/95	T. Gorman	91				
125	EAST WALL	121T	8/14/95	T. Gorman	63				
125	FLOOR	H49	8/14/95	T. Gorman	25				
125	FLOOR	H50	8/14/95	T. Gorman	77				
125	FLOOR	H51	8/14/95	T. Gorman	36				
125	FLOOR	H52	8/14/95	T. Gorman	55				
125	FLOOR	H53	8/14/95	T. Gorman	75				
125	FLOOR	H54	8/14/95	T. Gorman	29				
125	FLOOR	H55	8/14/95	T. Gorman	45				
125	FLOOR	H56	8/14/95	T. Gorman	40				
125	FLOOR	O49	8/14/95	T. Gorman	48				
125	FLOOR	O50	8/14/95	T. Gorman	35				
125	FLOOR	O51	8/14/95	T. Gorman	23				
125	FLOOR	O52	8/14/95	T. Gorman	19				
125	FLOOR	O53	8/14/95	T. Gorman	65				
125	FLOOR	O54	8/14/95	T. Gorman	24				
125	FLOOR	O55	8/14/95	T. Gorman	28				
125	FLOOR	O56	8/14/95	T. Gorman	50				
125	FLOOR	P49	8/14/95	T. Gorman	39				
125	FLOOR	P50	8/14/95	T. Gorman	67				
125	FLOOR	P51	8/14/95	T. Gorman	33				
125	FLOOR	P52	8/14/95	T. Gorman	72				
125	FLOOR	P53	8/14/95	T. Gorman	82				
125	FLOOR	P54	8/14/95	T. Gorman	71				
125	FLOOR	P55	8/14/95	T. Gorman	40				
125	FLOOR	P56	8/14/95	T. Gorman	51				
125	FLOOR	Q49	8/14/95	T. Gorman	84				
125	FLOOR	Q50	8/14/95	T. Gorman	42				
125	FLOOR	Q51	8/14/95	T. Gorman	17	0	0.226	1.39	0

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
125	FLOOR	Q52	8/14/95	T. Gorman	50				
125	FLOOR	Q53	8/14/95	T. Gorman	86				
125	FLOOR	Q54	8/14/95	T. Gorman	16	0	0.0522	1.39	0
125	FLOOR	Q55	8/14/95	T. Gorman	32				
125	FLOOR	Q56	8/14/95	T. Gorman	57				
125	FLOOR	R49	8/14/95	T. Gorman	73				
125	FLOOR	R50	8/14/95	T. Gorman	20				
125	FLOOR	R51	8/14/95	T. Gorman	30				
125	FLOOR	R52	8/14/95	T. Gorman	48				
125	FLOOR	R53	8/14/95	T. Gorman	68				
125	FLOOR	R54	8/14/95	T. Gorman	58				
125	FLOOR	R55	8/14/95	T. Gorman	288				
125	FLOOR	R56	8/14/95	T. Gorman	756				
125	FLOOR	S49	8/14/95	T. Gorman	46				
125	FLOOR	S50	8/14/95	T. Gorman	33				
125	FLOOR	S51	8/14/95	T. Gorman	66				
125	FLOOR	S52	8/14/95	T. Gorman	42				
125	FLOOR	S53	8/14/95	T. Gorman	56				
125	FLOOR	S54	8/14/95	T. Gorman	81				
125	FLOOR	S55	8/14/95	T. Gorman	61				
125	FLOOR	S56	8/14/95	T. Gorman	40				
125	FLOOR	T49	8/14/95	T. Gorman	18				
125	FLOOR	T50	8/14/95	T. Gorman	44				
125	FLOOR	T51	8/14/95	T. Gorman	31	0	0	0	0
125	FLOOR	T52	8/14/95	T. Gorman	68				
125	FLOOR	T53	8/14/95	T. Gorman	33				
125	FLOOR	T54	8/14/95	T. Gorman	46	0	0.0522	0	0
125	FLOOR	T55	8/14/95	T. Gorman	55				
125	FLOOR	T56	8/14/95	T. Gorman	50				
125	FLOOR	U49	8/14/95	T. Gorman	106				
125	FLOOR	U50	8/14/95	T. Gorman	66				
125	FLOOR	U51	8/14/95	T. Gorman	72				
125	FLOOR	U52	8/14/95	T. Gorman	37				
125	FLOOR	U53	8/14/95	T. Gorman	28				
125	FLOOR	U54	8/14/95	T. Gorman	34				
125	FLOOR	U55	8/14/95	T. Gorman	57				
125	FLOOR	U56	8/14/95	T. Gorman	59				
125	FLOOR	V49	8/14/95	T. Gorman	43				
125	FLOOR	V50	8/14/95	T. Gorman	29				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
125	FLOOR	V51	8/14/95	T. Gorman	45				
125	FLOOR	V52	8/14/95	T. Gorman	43				
125	FLOOR	V53	8/14/95	T. Gorman	52				
125	FLOOR	V54	8/14/95	T. Gorman	44				
125	FLOOR	V55	8/14/95	T. Gorman	59				
125	FLOOR	V58	8/14/95	T. Gorman	25				
125	FLOOR	W49	8/14/95	T. Gorman	45				
125	FLOOR	W50	8/14/95	T. Gorman	52				
125	FLOOR	W51	8/14/95	T. Gorman	32				
125	FLOOR	W52	8/14/95	T. Gorman	65				
125	FLOOR	W53	8/14/95	T. Gorman	79				
125	FLOOR	W54	8/14/95	T. Gorman	29				
125	FLOOR	W55	8/14/95	T. Gorman	47				
125	FLOOR	W58	8/14/95	T. Gorman	47				
125	FLOOR	X49	8/14/95	T. Gorman	50				
125	FLOOR	X50	8/14/95	T. Gorman	77				
125	FLOOR	X51	8/14/95	T. Gorman	38				
125	FLOOR	X52	8/14/95	T. Gorman	30				
125	FLOOR	X53	8/14/95	T. Gorman	45				
125	FLOOR	X54	8/14/95	T. Gorman	35				
125	FLOOR	X55	8/14/95	T. Gorman	63				
125	FLOOR	X58	8/14/95	T. Gorman	35				
125	NORTH WALL	118B	8/14/95	T. Gorman	73				
125	NORTH WALL	118T	8/14/95	T. Gorman	77				
125	NORTH WALL	119B	8/14/95	T. Gorman	61				
125	NORTH WALL	119T	8/14/95	T. Gorman	49				
125	SOUTH WALL	120B	8/14/95	T. Gorman	77				
125	SOUTH WALL	120T	8/14/95	T. Gorman	45				
125	SOUTH WALL	121B	8/14/95	T. Gorman	412				
125	SOUTH WALL	121T	8/14/95	T. Gorman	100				
125	WEST WALL	118B	8/14/95	T. Gorman	46				
125	WEST WALL	118T	8/14/95	T. Gorman	27				
125	WEST WALL	120B	8/14/95	T. Gorman	49				
125	WEST WALL	120T	8/14/95	T. Gorman	40				

Comments:

IRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
126	CEILING	044	8/16/95	T. Gorman	80				
126	CEILING	045	8/16/95	T. Gorman	81				
126	CEILING	046	8/16/95	T. Gorman	80				
126	CEILING	047	8/16/95	T. Gorman	81				
126	CEILING	048	8/16/95	T. Gorman	51				
126	CEILING	049	8/16/95	T. Gorman	78				
126	CEILING	050	8/16/95	T. Gorman	51				
126	CEILING	051	8/16/95	T. Gorman	78				
126	DRAIN	E60	8/15/95	T. Gorman	119				
126	DUCT	049	8/15/95	T. Gorman	309				
126	DUCT	050	8/15/95	T. Gorman	877				
126	DUCT 1	045	8/15/95	T. Gorman	87				
126	DUCT 1	046	8/15/95	T. Gorman	70				
126	DUCT 2	045	8/15/95	T. Gorman	161				
126	DUCT 2	046	8/15/95	T. Gorman	71				
126	EAST WALL	047B	8/16/95	T. Gorman	68				
126	EAST WALL	047T	8/16/95	T. Gorman	76				
126	EAST WALL	051B	8/16/95	T. Gorman	78				
126	EAST WALL	051T	8/16/95	T. Gorman	60				
126	FLOOR	A54	8/16/95	T. Gorman	791				
126	FLOOR	A55	8/16/95	T. Gorman	25				
126	FLOOR	A56	8/16/95	T. Gorman	25				
126	FLOOR	A57	8/16/95	T. Gorman	24				
126	FLOOR	A58	8/16/95	T. Gorman	19				
126	FLOOR	A59	8/16/95	T. Gorman	30				
126	FLOOR	A60	8/16/95	T. Gorman	386				
126	FLOOR	A61	8/16/95	T. Gorman	242				
126	FLOOR	A62	8/16/95	T. Gorman	28				
126	FLOOR	A63	8/16/95	T. Gorman	52				
126	FLOOR	A64	8/16/95	T. Gorman	36				
126	FLOOR	A65	8/16/95	T. Gorman	32				
126	FLOOR	A66	8/16/95	T. Gorman	27				
126	FLOOR	B54	8/16/95	T. Gorman	41				
126	FLOOR	B55	8/16/95	T. Gorman	57				
126	FLOOR	B56	8/16/95	T. Gorman	38				
126	FLOOR	B57	8/16/95	T. Gorman	49				
126	FLOOR	B58	8/16/95	T. Gorman	35				
126	FLOOR	B59	8/16/95	T. Gorman	38				
126	FLOOR	B60	8/16/95	T. Gorman	43				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
126	FLOOR	B61	8/16/95	T. Gorman	56				
126	FLOOR	B62	8/16/95	T. Gorman	50				
126	FLOOR	B63	8/16/95	T. Gorman	61				
126	FLOOR	B64	8/16/95	T. Gorman	62				
126	FLOOR	B65	8/16/95	T. Gorman	48				
126	FLOOR	B66	8/16/95	T. Gorman	38				
126	FLOOR	C54	8/16/95	T. Gorman	79				
126	FLOOR	C55	8/16/95	T. Gorman	31				
126	FLOOR	C56	8/16/95	T. Gorman	59				
126	FLOOR	C57	8/16/95	T. Gorman	50	0	0	3	0
126	FLOOR	C58	8/16/95	T. Gorman	48				
126	FLOOR	C59	8/16/95	T. Gorman	53				
126	FLOOR	C60	8/16/95	T. Gorman	52				
126	FLOOR	C61	8/16/95	T. Gorman	47				
126	FLOOR	C62	8/16/95	T. Gorman	82	0	0.4	2.46	0
126	FLOOR	C63	8/16/95	T. Gorman	63				
126	FLOOR	C64	8/16/95	T. Gorman	50				
126	FLOOR	C65	8/16/95	T. Gorman	47				
126	FLOOR	C66	8/16/95	T. Gorman	45				
126	FLOOR	D54	8/16/95	T. Gorman	54				
126	FLOOR	D55	8/16/95	T. Gorman	53				
126	FLOOR	D56	8/16/95	T. Gorman	55				
126	FLOOR	D57	8/16/95	T. Gorman	105				
126	FLOOR	D58	8/16/95	T. Gorman	61				
126	FLOOR	D59	8/16/95	T. Gorman	89				
126	FLOOR	D60	8/16/95	T. Gorman	57				
126	FLOOR	D61	8/16/95	T. Gorman	169				
126	FLOOR	D62	8/16/95	T. Gorman	140				
126	FLOOR	D63	8/16/95	T. Gorman	65				
126	FLOOR	D64	8/16/95	T. Gorman	50				
126	FLOOR	D65	8/16/95	T. Gorman	77				
126	FLOOR	D66	8/16/95	T. Gorman	62				
126	FLOOR	E54	8/16/95	T. Gorman	46				
126	FLOOR	E55	8/16/95	T. Gorman	58				
126	FLOOR	E56	8/16/95	T. Gorman	63				
126	FLOOR	E57	8/16/95	T. Gorman	55				
126	FLOOR	E58	8/16/95	T. Gorman	92				
126	FLOOR	E59	8/16/95	T. Gorman	91				
126	FLOOR	E60	8/16/95	T. Gorman	139				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
126	FLOOR	E61	8/16/95	T. Gorman	93				
126	FLOOR	E62	8/16/95	T. Gorman	57				
126	FLOOR	E63	8/16/95	T. Gorman	56				
126	FLOOR	E64	8/16/95	T. Gorman	64				
126	FLOOR	E65	8/16/95	T. Gorman	63				
126	FLOOR	E66	8/16/95	T. Gorman	60				
126	FLOOR	F54	8/16/95	T. Gorman	73				
126	FLOOR	F55	8/16/95	T. Gorman	79				
126	FLOOR	F56	8/16/95	T. Gorman	122				
126	FLOOR	F57	8/16/95	T. Gorman	64				
126	FLOOR	F58	8/16/95	T. Gorman	85				
126	FLOOR	F59	8/16/95	T. Gorman	68				
126	FLOOR	F60	8/16/95	T. Gorman	63				
126	FLOOR	F61	8/16/95	T. Gorman	43				
126	FLOOR	F62	8/16/95	T. Gorman	64				
126	FLOOR	F63	8/16/95	T. Gorman	72				
126	FLOOR	F64	8/16/95	T. Gorman	80				
126	FLOOR	F65	8/16/95	T. Gorman	73				
126	FLOOR	F66	8/16/95	T. Gorman	63				
126	FLOOR	G54	8/16/95	T. Gorman	102				
126	FLOOR	G55	8/16/95	T. Gorman	55				
126	FLOOR	G56	8/16/95	T. Gorman	72				
126	FLOOR	G57	8/16/95	T. Gorman	82				
126	FLOOR	G58	8/16/95	T. Gorman	118				
126	FLOOR	G59	8/16/95	T. Gorman	339				
126	FLOOR	G60	8/16/95	T. Gorman	59				
126	FLOOR	G61	8/16/95	T. Gorman	48				
126	FLOOR	G62	8/16/95	T. Gorman	57				
126	FLOOR	G63	8/16/95	T. Gorman	65				
126	FLOOR	G64	8/16/95	T. Gorman	83				
126	FLOOR	G65	8/16/95	T. Gorman	92				
126	FLOOR	G66	8/16/95	T. Gorman	83				
126	FLOOR	H54	8/16/95	T. Gorman	81				
126	FLOOR	H55	8/16/95	T. Gorman	102				
126	FLOOR	H56	8/16/95	T. Gorman	74				
126	FLOOR	H57	8/16/95	T. Gorman	88	0	0	0.0535	0
126	FLOOR	H58	8/16/95	T. Gorman	90				
126	FLOOR	H59	8/16/95	T. Gorman	73				
126	FLOOR	H60	8/16/95	T. Gorman	67				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
126	FLOOR	H81	8/16/95	T. Gorman	101				
126	FLOOR	H82	8/16/95	T. Gorman	105	0	0	1.66	0
126	FLOOR	H83	8/16/95	T. Gorman	141				
126	FLOOR	H84	8/16/95	T. Gorman	133				
126	FLOOR	H85	8/16/95	T. Gorman	51				
126	FLOOR	H86	8/16/95	T. Gorman	57				
126	FLOOR	I54	8/16/95	T. Gorman	132				
126	FLOOR	I55	8/16/95	T. Gorman	128				
126	FLOOR	I56	8/16/95	T. Gorman	84				
126	FLOOR	I57	8/16/95	T. Gorman	76				
126	FLOOR	I58	8/16/95	T. Gorman	82				
126	FLOOR	I59	8/16/95	T. Gorman	86				
126	FLOOR	I60	8/16/95	T. Gorman	88				
126	FLOOR	I61	8/16/95	T. Gorman	109				
126	FLOOR	I62	8/16/95	T. Gorman	116				
126	FLOOR	I63	8/16/95	T. Gorman	97				
126	FLOOR	I64	8/16/95	T. Gorman	130				
126	FLOOR	I65	8/16/95	T. Gorman	110				
126	FLOOR	I66	8/16/95	T. Gorman	90				
126	FLOOR	J54	8/16/95	T. Gorman	106				
126	FLOOR	J55	8/16/95	T. Gorman	43				
126	FLOOR	J56	8/16/95	T. Gorman	100				
126	FLOOR	J57	8/16/95	T. Gorman	96				
126	FLOOR	J58	8/16/95	T. Gorman	111				
126	FLOOR	J59	8/16/95	T. Gorman	71				
126	FLOOR	J60	8/16/95	T. Gorman	67				
126	FLOOR	J61	8/16/95	T. Gorman	66				
126	FLOOR	J62	8/16/95	T. Gorman	63				
126	FLOOR	J63	8/16/95	T. Gorman	68				
126	FLOOR	J64	8/16/95	T. Gorman	78				
126	FLOOR	J65	8/16/95	T. Gorman	63				
126	FLOOR	J66	8/16/95	T. Gorman	59				
126	FLOOR	K54	8/16/95	T. Gorman	78				
126	FLOOR	K55	8/16/95	T. Gorman	45				
126	FLOOR	K56	8/16/95	T. Gorman	87				
126	FLOOR	K57	8/16/95	T. Gorman	96				
126	FLOOR	K58	8/16/95	T. Gorman	76				
126	FLOOR	K59	8/16/95	T. Gorman	59				
126	FLOOR	K60	8/16/95	T. Gorman	87				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
126	FLOOR	K61	8/16/95	T. Gorman	68				
126	FLOOR	K62	8/16/95	T. Gorman	64				
126	FLOOR	K63	8/16/95	T. Gorman	64				
126	FLOOR	K64	8/16/95	T. Gorman	56				
126	FLOOR	K65	8/16/95	T. Gorman	89				
126	FLOOR	K66	8/16/95	T. Gorman	33				
126	NORTH WALL	044B	8/16/95	T. Gorman	66				
126	NORTH WALL	044T	8/16/95	T. Gorman	59				
126	NORTH WALL	045B	8/16/95	T. Gorman	59				
126	NORTH WALL	045T	8/16/95	T. Gorman	66				
126	NORTH WALL	046B	8/16/95	T. Gorman	63				
126	NORTH WALL	046T	8/16/95	T. Gorman	96				
126	NORTH WALL	047B	8/16/95	T. Gorman	63				
126	NORTH WALL	047T	8/16/95	T. Gorman	96				
126	SOUTH WALL	048B	8/16/95	T. Gorman	63				
126	SOUTH WALL	048T	8/16/95	T. Gorman	96				
126	SOUTH WALL	049B	8/16/95	T. Gorman	63				
126	SOUTH WALL	049T	8/16/95	T. Gorman	96				
126	SOUTH WALL	050B	8/16/95	T. Gorman	59				
126	SOUTH WALL	050T	8/16/95	T. Gorman	111				
126	SOUTH WALL	051B	8/16/95	T. Gorman	59				
126	SOUTH WALL	051T	8/16/95	T. Gorman	111				
126	WEST WALL	044B	8/16/95	T. Gorman	71				
126	WEST WALL	044T	8/16/95	T. Gorman	78				
126	WEST WALL	048B	8/16/95	T. Gorman	71				
126	WEST WALL	048T	8/16/95	T. Gorman	78				

Comments:

TRL Characterization Survey Data Sheet									
Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe*	T2 Direct*	Alpha Wipe	Beta Wipe	Beta Direct
127	CENRG	122	8/12/95	T. Gorman	0	0			
127	CENRG	123	8/12/95	T. Gorman	0	0			
127	CENRG	124	8/12/95	T. Gorman	0	0			
127	CENRG	125	8/12/95	T. Gorman	0	0			
127	DUCT	122	8/12/95	T. Gorman	0	0			
127	DUCT	124	8/12/95	T. Gorman	43	66			
127	EAST WALL	123B	8/12/95	T. Gorman	0	0			
127	EAST WALL	123T	8/12/95	T. Gorman	0	0			
127	EAST WALL	125B	8/12/95	T. Gorman	2	0			
127	EAST WALL	125T	8/12/95	T. Gorman	0	0			
127	FLOOR	N56	8/12/95	T. Gorman	0	0			
127	FLOOR	N57	8/12/95	T. Gorman	0	0			
127	FLOOR	N58	8/12/95	T. Gorman	0	0			
127	FLOOR	O56	8/12/95	T. Gorman	0	0			
127	FLOOR	O57	8/12/95	T. Gorman	0	0			
127	FLOOR	O58	8/12/95	T. Gorman	0	0			
127	FLOOR	P56	8/12/95	T. Gorman	0	0			
127	FLOOR	P57	8/12/95	T. Gorman	0	0			
127	FLOOR	P58	8/12/95	T. Gorman	0	0			
127	FLOOR	Q56	8/12/95	T. Gorman	0	0			
127	FLOOR	Q57	8/12/95	T. Gorman	0	0			
127	FLOOR	Q58	8/12/95	T. Gorman	0	0			
127	FLOOR	R56	8/12/95	T. Gorman	0	0			
127	FLOOR	R57	8/12/95	T. Gorman	0	0			
127	FLOOR	R58	8/12/95	T. Gorman	0	0			
127	FLOOR	S56	8/12/95	T. Gorman	30	0			
127	FLOOR	S57	8/12/95	T. Gorman	0	0			
127	FLOOR	S58	8/12/95	T. Gorman	0	0			
127	FLOOR	T56	8/12/95	T. Gorman	0	0		4.07	0
127	FLOOR	T57	8/12/95	T. Gorman	0	0			
127	FLOOR	T58	8/12/95	T. Gorman	0	0			
127	NORTH WALL	122B	8/12/95	T. Gorman	0	0			
127	NORTH WALL	122T	8/12/95	T. Gorman	0	0			
127	NORTH WALL	123B	8/12/95	T. Gorman	0	0			
127	NORTH WALL	123T	8/12/95	T. Gorman	20	0			
127	SOUTH WALL	124B	8/12/95	T. Gorman	0	0			
127	SOUTH WALL	124T	8/12/95	T. Gorman	0	0			
127	SOUTH WALL	125B	8/12/95	T. Gorman	0	0			
127	SOUTH WALL	125T	8/12/95	T. Gorman	0	0			

Comments:

TRL Radiological Characterization Survey

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
127	WEST WALL	122B	8/12/95	T. Gorman	2				
127	WEST WALL	122T	8/12/95	T. Gorman	11				
127	WEST WALL	124B	8/12/95	T. Gorman	0				
127	WEST WALL	124T	8/12/95	T. Gorman	34				

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TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
129	CEILING	126	8/11/95	T. Gorman	148				
129	CEILING	127	8/11/95	T. Gorman	195				
129	CEILING	128	8/11/95	T. Gorman	128				
129	CEILING	129	8/11/95	T. Gorman	143				
129	DRAIN	T62	8/12/95	T. Gorman	202				
129	DRAIN	X56	8/12/95	T. Gorman	946				
129	DUCT	129	8/12/95	T. Gorman	202				
129	DUCT 1	127	8/12/95	T. Gorman	192				
129	DUCT 1	128	8/12/95	T. Gorman	228				
129	DUCT 2	127	8/12/95	T. Gorman	230				
129	DUCT 2	128	8/12/95	T. Gorman	161				
129	DUCT 3	128	8/12/95	T. Gorman	232				
129	DUCT 4	128	8/12/95	T. Gorman	965				
129	EAST WALL	127B	8/11/95	T. Gorman	171				
129	EAST WALL	127T	8/11/95	T. Gorman	150				
129	EAST WALL	129B	8/11/95	T. Gorman	179				
129	EAST WALL	129T	8/11/95	T. Gorman	34				
129	FLOOR	N59	8/11/95	T. Gorman	7				
129	FLOOR	N60	8/11/95	T. Gorman	2				
129	FLOOR	N61	8/11/95	T. Gorman	3				
129	FLOOR	N62	8/11/95	T. Gorman	7				
129	FLOOR	N63	8/11/95	T. Gorman	23				
129	FLOOR	N64	8/11/95	T. Gorman	4				
129	FLOOR	N65	8/11/95	T. Gorman	3				
129	FLOOR	N66	8/11/95	T. Gorman	11				
129	FLOOR	O59	8/11/95	T. Gorman	8				
129	FLOOR	O60	8/11/95	T. Gorman	19				
129	FLOOR	O61	8/11/95	T. Gorman	10				
129	FLOOR	O62	8/11/95	T. Gorman	16				
129	FLOOR	O63	8/11/95	T. Gorman	14				
129	FLOOR	O64	8/11/95	T. Gorman	18				
129	FLOOR	O65	8/11/95	T. Gorman	12				
129	FLOOR	O66	8/11/95	T. Gorman	14				
129	FLOOR	P59	8/11/95	T. Gorman	9				
129	FLOOR	P60	8/11/95	T. Gorman	13				
129	FLOOR	P61	8/11/95	T. Gorman	9				
129	FLOOR	P62	8/11/95	T. Gorman	9				
129	FLOOR	P63	8/11/95	T. Gorman	9				
129	FLOOR	P64	8/11/95	T. Gorman	9				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
129	FLOOR	P85	8/11/95	T. Gorman	7				
129	FLOOR	P86	8/11/95	T. Gorman	12				
129	FLOOR	Q59	8/11/95	T. Gorman	8				
129	FLOOR	Q60	8/11/95	T. Gorman	21				
129	FLOOR	Q61	8/11/95	T. Gorman	16	0	0.0522	4.6	0
129	FLOOR	Q62	8/11/95	T. Gorman	7				
129	FLOOR	Q63	8/11/95	T. Gorman	4				
129	FLOOR	Q64	8/11/95	T. Gorman	7	0	0.575	3	0
129	FLOOR	Q65	8/11/95	T. Gorman	14				
129	FLOOR	Q66	8/11/95	T. Gorman	13				
129	FLOOR	R59	8/11/95	T. Gorman	12				
129	FLOOR	R60	8/11/95	T. Gorman	10				
129	FLOOR	R61	8/11/95	T. Gorman	8				
129	FLOOR	R62	8/11/95	T. Gorman	8				
129	FLOOR	R63	8/11/95	T. Gorman	5				
129	FLOOR	R64	8/11/95	T. Gorman	14				
129	FLOOR	R65	8/11/95	T. Gorman	9				
129	FLOOR	R66	8/11/95	T. Gorman	13				
129	FLOOR	S59	8/11/95	T. Gorman	6				
129	FLOOR	S60	8/11/95	T. Gorman	18				
129	FLOOR	S61	8/11/95	T. Gorman	11				
129	FLOOR	S62	8/11/95	T. Gorman	5				
129	FLOOR	S63	8/11/95	T. Gorman	7				
129	FLOOR	S64	8/11/95	T. Gorman	9				
129	FLOOR	S65	8/11/95	T. Gorman	8				
129	FLOOR	S66	8/11/95	T. Gorman	9				
129	FLOOR	T56	8/11/95	T. Gorman	6				
129	FLOOR	T57	8/11/95	T. Gorman	27				
129	FLOOR	T58	8/11/95	T. Gorman	9				
129	FLOOR	T59	8/11/95	T. Gorman	13				
129	FLOOR	T60	8/11/95	T. Gorman	5	0	0	1.93	0
129	FLOOR	T61	8/11/95	T. Gorman	4				
129	FLOOR	T62	8/11/95	T. Gorman	6				
129	FLOOR	T63	8/11/95	T. Gorman	20	0	0.4	0.321	0
129	FLOOR	T64	8/11/95	T. Gorman	11				
129	FLOOR	T65	8/11/95	T. Gorman	6				
129	FLOOR	T66	8/11/95	T. Gorman	21				
129	FLOOR	U56	8/11/95	T. Gorman	9				
129	FLOOR	U57	8/11/95	T. Gorman	20				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
129	FLOOR	U58	8/11/95	T. Gorman	12				
129	FLOOR	U59	8/11/95	T. Gorman	8				
129	FLOOR	U60	8/11/95	T. Gorman	14				
129	FLOOR	U61	8/11/95	T. Gorman	7				
129	FLOOR	U62	8/11/95	T. Gorman	7				
129	FLOOR	U63	8/11/95	T. Gorman	5				
129	FLOOR	U64	8/11/95	T. Gorman	10				
129	FLOOR	U65	8/11/95	T. Gorman	7				
129	FLOOR	U66	8/11/95	T. Gorman	19				
129	FLOOR	V56	8/11/95	T. Gorman	57				
129	FLOOR	V57	8/11/95	T. Gorman	17				
129	FLOOR	V58	8/11/95	T. Gorman	17				
129	FLOOR	V59	8/11/95	T. Gorman	14				
129	FLOOR	V60	8/11/95	T. Gorman	60				
129	FLOOR	V61	8/11/95	T. Gorman	20				
129	FLOOR	V62	8/11/95	T. Gorman	5				
129	FLOOR	V63	8/11/95	T. Gorman	12				
129	FLOOR	V64	8/11/95	T. Gorman	7				
129	FLOOR	V65	8/11/95	T. Gorman	14				
129	FLOOR	V66	8/11/95	T. Gorman	132				
129	FLOOR	W56	8/11/95	T. Gorman	149				
129	FLOOR	W57	8/11/95	T. Gorman	130				
129	FLOOR	W58	8/11/95	T. Gorman	127				
129	FLOOR	W59	8/11/95	T. Gorman	105				
129	FLOOR	W60	8/11/95	T. Gorman	123				
129	FLOOR	W61	8/11/95	T. Gorman	118				
129	FLOOR	W62	8/11/95	T. Gorman	230				
129	FLOOR	W63	8/11/95	T. Gorman	139				
129	FLOOR	W64	8/11/95	T. Gorman	192				
129	FLOOR	W65	8/11/95	T. Gorman	119				
129	FLOOR	W66	8/11/95	T. Gorman	391				
129	FLOOR	X56	8/11/95	T. Gorman	143				
129	FLOOR	X57	8/11/95	T. Gorman	176				
129	FLOOR	X58	8/11/95	T. Gorman	171				
129	FLOOR	X59	8/11/95	T. Gorman	127				
129	FLOOR	X60	8/11/95	T. Gorman	139				
129	FLOOR	X61	8/11/95	T. Gorman	153				
129	FLOOR	X62	8/11/95	T. Gorman	137				
129	FLOOR	X63	8/11/95	T. Gorman	165				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
129	FLOOR	X64	8/11/95	T. Gorman	196				
129	FLOOR	X63	8/11/95	T. Gorman	175				
129	FLOOR	X66	8/11/95	T. Gorman	152				
129	NORTH WALL	126B	8/11/95	T. Gorman	162				
129	NORTH WALL	126T	8/11/95	T. Gorman	152				
129	NORTH WALL	127B	8/11/95	T. Gorman	152				
129	NORTH WALL	127T	8/11/95	T. Gorman	162				
129	SOUTH WALL	128B	8/11/95	T. Gorman	152				
129	SOUTH WALL	128T	8/11/95	T. Gorman	158				
129	SOUTH WALL	129B	8/11/95	T. Gorman	134				
129	SOUTH WALL	129T	8/11/95	T. Gorman	208				
129	WEST WALL	126B	8/11/95	T. Gorman	158				
129	WEST WALL	126T	8/11/95	T. Gorman	178				
129	WEST WALL	128B	8/11/95	T. Gorman	169				
129	WEST WALL	128T	8/11/95	T. Gorman	195				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	CEILING	052	8/21/95	T. Garcia	43				
HALL	CEILING	053	8/21/95	T. Garcia	44				
HALL	CEILING	054	8/21/95	T. Garcia	36				
HALL	CEILING	055	8/21/95	T. Garcia	58				
HALL	CEILING	056	8/21/95	T. Garcia	33				
HALL	CEILING	057	8/21/95	T. Garcia	74				
HALL	CEILING	058	8/21/95	T. Garcia	44				
HALL	CEILING	059	8/21/95	T. Garcia	49				
HALL	CEILING	060	8/21/95	T. Garcia	30				
HALL	CEILING	061	8/21/95	T. Garcia	75				
HALL	CEILING	062	8/21/95	T. Garcia	19				
HALL	CEILING	063	8/21/95	T. Garcia	33				
HALL	CEILING	064	8/21/95	T. Garcia	52				
HALL	CEILING	065	8/21/95	T. Garcia	30				
HALL	CEILING	066	8/21/95	T. Garcia	26				
HALL	CEILING	067	8/21/95	T. Garcia	49				
HALL	CEILING	068	8/21/95	T. Garcia	69				
HALL	CEILING	069	8/21/95	T. Garcia	67				
HALL	CEILING	070	8/21/95	T. Garcia	55				
HALL	CEILING	071	8/21/95	T. Garcia	0				
HALL	CEILING	072	8/21/95	T. Garcia	2				
HALL	CEILING	073	8/21/95	T. Garcia	36				
HALL	CEILING	074	8/21/95	T. Garcia	131				
HALL	CEILING	075	8/21/95	T. Garcia	137				
HALL	CEILING	076	8/21/95	T. Garcia	134				
HALL	CEILING	077	8/21/95	T. Garcia	106				
HALL	CEILING	078	8/21/95	T. Garcia	122				
HALL	CEILING	079	8/21/95	T. Garcia	122				
HALL	CEILING	080	8/21/95	T. Garcia	121				
HALL	CEILING	081	8/21/95	T. Garcia	142				
HALL	CEILING	082	8/21/95	T. Garcia	121				
HALL	CEILING	083	8/21/95	T. Garcia	109				
HALL	CEILING	084	8/21/95	T. Garcia	88				
HALL	CEILING	085	8/21/95	T. Garcia	99				
HALL	EAST WALL	053B	8/21/95	T. Garcia	28				
HALL	EAST WALL	053T	8/21/95	T. Garcia	23				
HALL	EAST WALL	055B	8/21/95	T. Garcia	43				
HALL	EAST WALL	055T	8/21/95	T. Garcia	35				
HALL	EAST WALL	057B	8/21/95	T. Garcia	34				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	EAST WALL	057T	8/21/95	T. Garcia	44				
HALL	EAST WALL	059B	8/21/95	T. Garcia	56				
HALL	EAST WALL	059T	8/21/95	T. Garcia	33				
HALL	EAST WALL	062B	8/21/95	T. Garcia	23				
HALL	EAST WALL	062T	8/21/95	T. Garcia	55				
HALL	EAST WALL	065B	8/21/95	T. Garcia	67				
HALL	EAST WALL	065T	8/21/95	T. Garcia	45				
HALL	EAST WALL	067B	8/21/95	T. Garcia	26				
HALL	EAST WALL	067T	8/21/95	T. Garcia	44				
HALL	EAST WALL	069B	8/21/95	T. Garcia	65				
HALL	EAST WALL	069T	8/21/95	T. Garcia	36				
HALL	EAST WALL	071B	8/21/95	T. Garcia	21				
HALL	EAST WALL	071T	8/21/95	T. Garcia	35				
HALL	EAST WALL	073B	8/21/95	T. Garcia	48				
HALL	EAST WALL	073T	8/21/95	T. Garcia	39				
HALL	EAST WALL	079B	8/21/95	T. Garcia	39				
HALL	EAST WALL	079T	8/21/95	T. Garcia	138				
HALL	EAST WALL	085B	8/21/95	T. Garcia	88				
HALL	EAST WALL	085T	8/21/95	T. Garcia	130				
HALL	FLOOR	A19	8/21/95	T. Garcia	10				
HALL	FLOOR	A20	8/21/95	T. Garcia	1				
HALL	FLOOR	B19	8/21/95	T. Garcia	10				
HALL	FLOOR	B20	8/21/95	T. Garcia	9				
HALL	FLOOR	C19	8/21/95	T. Garcia	9				
HALL	FLOOR	C20	8/21/95	T. Garcia	22				
HALL	FLOOR	D19	8/21/95	T. Garcia	11				
HALL	FLOOR	D20	8/21/95	T. Garcia	29				
HALL	FLOOR	E19	8/21/95	T. Garcia	15	0	0	3.8	0
HALL	FLOOR	E20	8/21/95	T. Garcia	14				
HALL	FLOOR	F19	8/21/95	T. Garcia	21				
HALL	FLOOR	F20	8/21/95	T. Garcia	99				
HALL	FLOOR	G19	8/21/95	T. Garcia	11				
HALL	FLOOR	G20	8/21/95	T. Garcia	33				
HALL	FLOOR	H19	8/21/95	T. Garcia	34				
HALL	FLOOR	H20	8/21/95	T. Garcia	24				
HALL	FLOOR	I19	8/21/95	T. Garcia	29				
HALL	FLOOR	I20	8/21/95	T. Garcia	30				
HALL	FLOOR	J19	8/21/95	T. Garcia	33				
HALL	FLOOR	J20	8/21/95	T. Garcia	28				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	K01	8/21/95	T. Garcia	19				
HALL	FLOOR	K02	8/21/95	T. Garcia	23				
HALL	FLOOR	K03	8/21/95	T. Garcia	32				
HALL	FLOOR	K04	8/21/95	T. Garcia	27				
HALL	FLOOR	K05	8/21/95	T. Garcia	63				
HALL	FLOOR	K06	8/21/95	T. Garcia	60				
HALL	FLOOR	K07	8/21/95	T. Garcia	29				
HALL	FLOOR	K08	8/21/95	T. Garcia	28				
HALL	FLOOR	K09	8/21/95	T. Garcia	48				
HALL	FLOOR	K10	8/21/95	T. Garcia	45				
HALL	FLOOR	K11	8/21/95	T. Garcia	36				
HALL	FLOOR	K12	8/21/95	T. Garcia	40				
HALL	FLOOR	K13	8/21/95	T. Garcia	42				
HALL	FLOOR	K14	8/21/95	T. Garcia	27				
HALL	FLOOR	K15	8/21/95	T. Garcia	94				
HALL	FLOOR	K16	8/21/95	T. Garcia	22				
HALL	FLOOR	K17	8/21/95	T. Garcia	36				
HALL	FLOOR	K18	8/21/95	T. Garcia	22				
HALL	FLOOR	K19	8/21/95	T. Garcia	49				
HALL	FLOOR	K20	8/21/95	T. Garcia	44				
HALL	FLOOR	K21	8/21/95	T. Garcia	50				
HALL	FLOOR	K22	8/21/95	T. Garcia	26				
HALL	FLOOR	K23	8/21/95	T. Garcia	214				
HALL	FLOOR	K24	8/21/95	T. Garcia	41				
HALL	FLOOR	K25	8/21/95	T. Garcia	18				
HALL	FLOOR	K26	8/21/95	T. Garcia	34				
HALL	FLOOR	K27	8/21/95	T. Garcia	35				
HALL	FLOOR	K28	8/21/95	T. Garcia	28				
HALL	FLOOR	K29	8/21/95	T. Garcia	31				
HALL	FLOOR	K30	8/21/95	T. Garcia	39				
HALL	FLOOR	K31	8/21/95	T. Garcia	99				
HALL	FLOOR	K32	8/21/95	T. Garcia	32				
HALL	FLOOR	K33	8/21/95	T. Garcia	36				
HALL	FLOOR	K34	8/21/95	T. Garcia	15				
HALL	FLOOR	K35	8/21/95	T. Garcia	7				
HALL	FLOOR	K36	8/21/95	T. Garcia	16				
HALL	FLOOR	K37	8/21/95	T. Garcia	43				
HALL	FLOOR	K38	8/21/95	T. Garcia	22				
HALL	FLOOR	K39	8/21/95	T. Garcia	24				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	K40	8/21/95	T. Garcia	23				
HALL	FLOOR	K41	8/21/95	T. Garcia	14				
HALL	FLOOR	K42	8/21/95	T. Garcia	15				
HALL	FLOOR	K43	8/21/95	T. Garcia	17				
HALL	FLOOR	K44	8/21/95	T. Garcia	10				
HALL	FLOOR	K45	8/21/95	T. Garcia	44				
HALL	FLOOR	K46	8/21/95	T. Garcia	18				
HALL	FLOOR	K47	8/21/95	T. Garcia	15				
HALL	FLOOR	K48	8/21/95	T. Garcia	35				
HALL	FLOOR	K49	8/21/95	T. Garcia	17				
HALL	FLOOR	K50	8/21/95	T. Garcia	59				
HALL	FLOOR	K51	8/21/95	T. Garcia	23				
HALL	FLOOR	K52	8/21/95	T. Garcia	45				
HALL	FLOOR	K53	8/21/95	T. Garcia	48				
HALL	FLOOR	K54	8/21/95	T. Garcia	23				
HALL	FLOOR	K55	8/21/95	T. Garcia	14				
HALL	FLOOR	K56	8/21/95	T. Garcia	27				
HALL	FLOOR	K57	8/21/95	T. Garcia	62				
HALL	FLOOR	K58	8/21/95	T. Garcia	52				
HALL	FLOOR	K59	8/21/95	T. Garcia	39				
HALL	FLOOR	K60	8/21/95	T. Garcia	30				
HALL	FLOOR	K61	8/21/95	T. Garcia	26				
HALL	FLOOR	K62	8/21/95	T. Garcia	34				
HALL	FLOOR	K63	8/21/95	T. Garcia	42				
HALL	FLOOR	K64	8/21/95	T. Garcia	20				
HALL	FLOOR	K65	8/21/95	T. Garcia	17				
HALL	FLOOR	K66	8/21/95	T. Garcia	93				
HALL	FLOOR	L01	8/21/95	T. Garcia	35				
HALL	FLOOR	L02	8/21/95	T. Garcia	36				
HALL	FLOOR	L03	8/21/95	T. Garcia	42				
HALL	FLOOR	L04	8/21/95	T. Garcia	35				
HALL	FLOOR	L05	8/21/95	T. Garcia	63				
HALL	FLOOR	L06	8/21/95	T. Garcia	34				
HALL	FLOOR	L07	8/21/95	T. Garcia	13				
HALL	FLOOR	L08	8/21/95	T. Garcia	28				
HALL	FLOOR	L09	8/21/95	T. Garcia	25				
HALL	FLOOR	L10	8/21/95	T. Garcia	44				
HALL	FLOOR	L11	8/21/95	T. Garcia	46				
HALL	FLOOR	L12	8/21/95	T. Garcia	26				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	L13	8/21/95	T. Garcia	35				
HALL	FLOOR	L14	8/21/95	T. Garcia	26				
HALL	FLOOR	L15	8/21/95	T. Garcia	31	0	0.0522	0.321	0
HALL	FLOOR	L16	8/21/95	T. Garcia	36				
HALL	FLOOR	L17	8/21/95	T. Garcia	26				
HALL	FLOOR	L18	8/21/95	T. Garcia	28				
HALL	FLOOR	L19	8/21/95	T. Garcia	29				
HALL	FLOOR	L20	8/21/95	T. Garcia	16				
HALL	FLOOR	L21	8/21/95	T. Garcia	19				
HALL	FLOOR	L22	8/21/95	T. Garcia	37				
HALL	FLOOR	L23	8/21/95	T. Garcia	33				
HALL	FLOOR	L24	8/21/95	T. Garcia	36				
HALL	FLOOR	L25	8/21/95	T. Garcia	27				
HALL	FLOOR	L26	8/21/95	T. Garcia	16	0	0.4	0.0535	0
HALL	FLOOR	L27	8/21/95	T. Garcia	18				
HALL	FLOOR	L28	8/21/95	T. Garcia	27				
HALL	FLOOR	L29	8/21/95	T. Garcia	36				
HALL	FLOOR	L30	8/21/95	T. Garcia	27				
HALL	FLOOR	L31	8/21/95	T. Garcia	44				
HALL	FLOOR	L32	8/21/95	T. Garcia	48				
HALL	FLOOR	L33	8/21/95	T. Garcia	52	0	0	0.588	0
HALL	FLOOR	L34	8/21/95	T. Garcia	54				
HALL	FLOOR	L35	8/21/95	T. Garcia	26				
HALL	FLOOR	L36	8/21/95	T. Garcia	33				
HALL	FLOOR	L37	8/21/95	T. Garcia	21				
HALL	FLOOR	L38	8/21/95	T. Garcia	25				
HALL	FLOOR	L39	8/21/95	T. Garcia	27				
HALL	FLOOR	L40	8/21/95	T. Garcia	47				
HALL	FLOOR	L41	8/21/95	T. Garcia	45				
HALL	FLOOR	L42	8/21/95	T. Garcia	88				
HALL	FLOOR	L43	8/21/95	T. Garcia	45				
HALL	FLOOR	L44	8/21/95	T. Garcia	22				
HALL	FLOOR	L45	8/21/95	T. Garcia	36	0	0.0522	0.588	0
HALL	FLOOR	L46	8/21/95	T. Garcia	44				
HALL	FLOOR	L47	8/21/95	T. Garcia	37				
HALL	FLOOR	L48	8/21/95	T. Garcia	48				
HALL	FLOOR	L49	8/21/95	T. Garcia	23				
HALL	FLOOR	L50	8/21/95	T. Garcia	25				
HALL	FLOOR	L51	8/21/95	T. Garcia	46				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	L52	8/21/95	T. Garcia	47				
HALL	FLOOR	L53	8/21/95	T. Garcia	55				
HALL	FLOOR	L54	8/21/95	T. Garcia	42				
HALL	FLOOR	L55	8/21/95	T. Garcia	41	0	0	1.12	0
HALL	FLOOR	L56	8/21/95	T. Garcia	47				
HALL	FLOOR	L57	8/21/95	T. Garcia	42				
HALL	FLOOR	L58	8/21/95	T. Garcia	45				
HALL	FLOOR	L59	8/21/95	T. Garcia	41				
HALL	FLOOR	L60	8/21/95	T. Garcia	35				
HALL	FLOOR	L61	8/21/95	T. Garcia	38				
HALL	FLOOR	L62	8/21/95	T. Garcia	562				
HALL	FLOOR	L63	8/21/95	T. Garcia	53				
HALL	FLOOR	L64	8/21/95	T. Garcia	56				
HALL	FLOOR	L65	8/21/95	T. Garcia	55				
HALL	FLOOR	L66	8/21/95	T. Garcia	57				
HALL	FLOOR	M01	8/21/95	T. Garcia	41				
HALL	FLOOR	M02	8/21/95	T. Garcia	33				
HALL	FLOOR	M03	8/21/95	T. Garcia	32	0	0	0.588	0
HALL	FLOOR	M04	8/21/95	T. Garcia	31				
HALL	FLOOR	M05	8/21/95	T. Garcia	24				
HALL	FLOOR	M06	8/21/95	T. Garcia	27				
HALL	FLOOR	M07	8/21/95	T. Garcia	36				
HALL	FLOOR	M08	8/21/95	T. Garcia	55				
HALL	FLOOR	M09	8/21/95	T. Garcia	58	0	0.575	0.321	0
HALL	FLOOR	M10	8/21/95	T. Garcia	43				
HALL	FLOOR	M11	8/21/95	T. Garcia	46				
HALL	FLOOR	M12	8/21/95	T. Garcia	33				
HALL	FLOOR	M13	8/21/95	T. Garcia	47				
HALL	FLOOR	M14	8/21/95	T. Garcia	28				
HALL	FLOOR	M15	8/21/95	T. Garcia	38				
HALL	FLOOR	M16	8/21/95	T. Garcia	37				
HALL	FLOOR	M17	8/21/95	T. Garcia	55				
HALL	FLOOR	M18	8/21/95	T. Garcia	73				
HALL	FLOOR	M19	8/21/95	T. Garcia	67				
HALL	FLOOR	M20	8/21/95	T. Garcia	33				
HALL	FLOOR	M21	8/21/95	T. Garcia	44				
HALL	FLOOR	M22	8/21/95	T. Garcia	32				
HALL	FLOOR	M23	8/21/95	T. Garcia	33				
HALL	FLOOR	M24	8/21/95	T. Garcia	43				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	M25	8/21/95	T. Garcia	54				
HALL	FLOOR	M26	8/21/95	T. Garcia	34				
HALL	FLOOR	M27	8/21/95	T. Garcia	33				
HALL	FLOOR	M28	8/21/95	T. Garcia	54				
HALL	FLOOR	M29	8/21/95	T. Garcia	46				
HALL	FLOOR	M30	8/21/95	T. Garcia	48				
HALL	FLOOR	M31	8/21/95	T. Garcia	36				
HALL	FLOOR	M32	8/21/95	T. Garcia	38				
HALL	FLOOR	M33	8/21/95	T. Garcia	42				
HALL	FLOOR	M34	8/21/95	T. Garcia	31				
HALL	FLOOR	M35	8/21/95	T. Garcia	55				
HALL	FLOOR	M36	8/21/95	T. Garcia	44				
HALL	FLOOR	M37	8/21/95	T. Garcia	66				
HALL	FLOOR	M38	8/21/95	T. Garcia	43				
HALL	FLOOR	M39	8/21/95	T. Garcia	51				
HALL	FLOOR	M40	8/21/95	T. Garcia	53				
HALL	FLOOR	M41	8/21/95	T. Garcia	42				
HALL	FLOOR	M42	8/21/95	T. Garcia	43				
HALL	FLOOR	M43	8/21/95	T. Garcia	24				
HALL	FLOOR	M44	8/21/95	T. Garcia	26				
HALL	FLOOR	M45	8/21/95	T. Garcia	42				
HALL	FLOOR	M46	8/21/95	T. Garcia	24				
HALL	FLOOR	M47	8/21/95	T. Garcia	28				
HALL	FLOOR	M48	8/21/95	T. Garcia	42				
HALL	FLOOR	M49	8/21/95	T. Garcia	114				
HALL	FLOOR	M50	8/21/95	T. Garcia	138				
HALL	FLOOR	M51	8/21/95	T. Garcia	146				
HALL	FLOOR	M52	8/21/95	T. Garcia	134				
HALL	FLOOR	M53	8/21/95	T. Garcia	135				
HALL	FLOOR	M54	8/21/95	T. Garcia	186				
HALL	FLOOR	M55	8/21/95	T. Garcia	176				
HALL	FLOOR	M56	8/21/95	T. Garcia	166				
HALL	FLOOR	M57	8/21/95	T. Garcia	167				
HALL	FLOOR	M58	8/21/95	T. Garcia	145				
HALL	FLOOR	M59	8/21/95	T. Garcia	167				
HALL	FLOOR	M60	8/21/95	T. Garcia	134				
HALL	FLOOR	M61	8/21/95	T. Garcia	156				
HALL	FLOOR	M62	8/21/95	T. Garcia	157				
HALL	FLOOR	M63	8/21/95	T. Garcia	123				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	M64	8/21/95	T. Garcia	124				
HALL	FLOOR	M65	8/21/95	T. Garcia	126				
HALL	FLOOR	M66	8/21/95	T. Garcia	145				
HALL	FLOOR	N01	8/21/95	T. Garcia	44				
HALL	FLOOR	N02	8/21/95	T. Garcia	67				
HALL	FLOOR	N03	8/21/95	T. Garcia	43				
HALL	FLOOR	N04	8/21/95	T. Garcia	45				
HALL	FLOOR	N05	8/21/95	T. Garcia	32				
HALL	FLOOR	N06	8/21/95	T. Garcia	23				
HALL	FLOOR	N07	8/21/95	T. Garcia	14				
HALL	FLOOR	N08	8/21/95	T. Garcia	15				
HALL	FLOOR	N09	8/21/95	T. Garcia	43				
HALL	FLOOR	N10	8/21/95	T. Garcia	34				
HALL	FLOOR	N11	8/21/95	T. Garcia	43				
HALL	FLOOR	N12	8/21/95	T. Garcia	23				
HALL	FLOOR	N13	8/21/95	T. Garcia	45				
HALL	FLOOR	N14	8/21/95	T. Garcia	65				
HALL	FLOOR	N15	8/21/95	T. Garcia	33				
HALL	FLOOR	N16	8/21/95	T. Garcia	23				
HALL	FLOOR	N17	8/21/95	T. Garcia	15				
HALL	FLOOR	N18	8/21/95	T. Garcia	26				
HALL	FLOOR	N19	8/21/95	T. Garcia	24				
HALL	FLOOR	N20	8/21/95	T. Garcia	17				
HALL	FLOOR	N21	8/21/95	T. Garcia	14				
HALL	FLOOR	N22	8/21/95	T. Garcia	13				
HALL	FLOOR	N23	8/21/95	T. Garcia	32				
HALL	FLOOR	N24	8/21/95	T. Garcia	34				
HALL	FLOOR	N25	8/21/95	T. Garcia	32				
HALL	FLOOR	N26	8/21/95	T. Garcia	44				
HALL	FLOOR	N27	8/21/95	T. Garcia	23				
HALL	FLOOR	N28	8/21/95	T. Garcia	15				
HALL	FLOOR	N29	8/21/95	T. Garcia	34				
HALL	FLOOR	N30	8/21/95	T. Garcia	31				
HALL	FLOOR	N31	8/21/95	T. Garcia	32				
HALL	FLOOR	N32	8/21/95	T. Garcia	37				
HALL	FLOOR	N33	8/21/95	T. Garcia	112				
HALL	FLOOR	N34	8/21/95	T. Garcia	132				
HALL	FLOOR	N35	8/21/95	T. Garcia	51				
HALL	FLOOR	N36	8/21/95	T. Garcia	112				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	FLOOR	N37	8/21/95	T. Garcia	134				
HALL	FLOOR	N38	8/21/95	T. Garcia	147				
HALL	FLOOR	N39	8/21/95	T. Garcia	144				
HALL	FLOOR	N40	8/21/95	T. Garcia	165				
HALL	FLOOR	N41	8/21/95	T. Garcia	134				
HALL	FLOOR	N42	8/21/95	T. Garcia	189				
HALL	FLOOR	N43	8/21/95	T. Garcia	156				
HALL	FLOOR	N44	8/21/95	T. Garcia	136				
HALL	FLOOR	N45	8/21/95	T. Garcia	151				
HALL	FLOOR	N46	8/21/95	T. Garcia	114				
HALL	FLOOR	N47	8/21/95	T. Garcia	135				
HALL	FLOOR	N48	8/21/95	T. Garcia	136				
HALL	FLOOR	N49	8/21/95	T. Garcia	186				
HALL	FLOOR	N50	8/21/95	T. Garcia	147				
HALL	FLOOR	N51	8/21/95	T. Garcia	160				
HALL	FLOOR	N52	8/21/95	T. Garcia	167				
HALL	FLOOR	N53	8/21/95	T. Garcia	147				
HALL	FLOOR	N54	8/21/95	T. Garcia	144				
HALL	FLOOR	N55	8/21/95	T. Garcia	161				
HALL	FLOOR	N56	8/21/95	T. Garcia	162				
HALL	FLOOR	N57	8/21/95	T. Garcia	178				
HALL	FLOOR	N58	8/21/95	T. Garcia	135				
HALL	FLOOR	N59	8/21/95	T. Garcia	146				
HALL	FLOOR	N60	8/21/95	T. Garcia	118				
HALL	FLOOR	N61	8/21/95	T. Garcia	180				
HALL	FLOOR	N62	8/21/95	T. Garcia	157				
HALL	FLOOR	N63	8/21/95	T. Garcia	123				
HALL	FLOOR	N64	8/21/95	T. Garcia	145				
HALL	FLOOR	N65	8/21/95	T. Garcia	144				
HALL	FLOOR	N66	8/21/95	T. Garcia	165				
HALL	NORTH WALL	052B	8/21/95	T. Garcia	54				
HALL	NORTH WALL	052T	8/21/95	T. Garcia	23				
HALL	NORTH WALL	053B	8/21/95	T. Garcia	60				
HALL	NORTH WALL	053T	8/21/95	T. Garcia	44				
HALL	NORTH WALL	058B	8/21/95	T. Garcia	87				
HALL	NORTH WALL	058T	8/21/95	T. Garcia	23				
HALL	NORTH WALL	057B	8/21/95	T. Garcia	45				
HALL	NORTH WALL	057T	8/21/95	T. Garcia	62				
HALL	NORTH WALL	060B	8/21/95	T. Garcia	34				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	NORTH WALL	060T	8/21/95	T. Garcia	21				
HALL	NORTH WALL	061B	8/21/95	T. Garcia	23				
HALL	NORTH WALL	061T	8/21/95	T. Garcia	33				
HALL	NORTH WALL	062B	8/21/95	T. Garcia	54				
HALL	NORTH WALL	062T	8/21/95	T. Garcia	65				
HALL	NORTH WALL	066B	8/21/95	T. Garcia	68				
HALL	NORTH WALL	066T	8/21/95	T. Garcia	57				
HALL	NORTH WALL	067B	8/21/95	T. Garcia	53				
HALL	NORTH WALL	067T	8/21/95	T. Garcia	34				
HALL	NORTH WALL	070B	8/21/95	T. Garcia	57				
HALL	NORTH WALL	070T	8/21/95	T. Garcia	35				
HALL	NORTH WALL	071B	8/21/95	T. Garcia	21				
HALL	NORTH WALL	071T	8/21/95	T. Garcia	22				
HALL	NORTH WALL	074B	8/21/95	T. Garcia	23				
HALL	NORTH WALL	074T	8/21/95	T. Garcia	54				
HALL	NORTH WALL	075B	8/21/95	T. Garcia	34				
HALL	NORTH WALL	075T	8/21/95	T. Garcia	44				
HALL	NORTH WALL	076B	8/21/95	T. Garcia	112				
HALL	NORTH WALL	076T	8/21/95	T. Garcia	130				
HALL	NORTH WALL	077B	8/21/95	T. Garcia	134				
HALL	NORTH WALL	077T	8/21/95	T. Garcia	106				
HALL	NORTH WALL	078B	8/21/95	T. Garcia	122				
HALL	NORTH WALL	078T	8/21/95	T. Garcia	134				
HALL	NORTH WALL	079B	8/21/95	T. Garcia	142				
HALL	NORTH WALL	079T	8/21/95	T. Garcia	23				
HALL	SOUTH WALL	054B	8/21/95	T. Garcia	24				
HALL	SOUTH WALL	054T	8/21/95	T. Garcia	16				
HALL	SOUTH WALL	055B	8/21/95	T. Garcia	16				
HALL	SOUTH WALL	055T	8/21/95	T. Garcia	33				
HALL	SOUTH WALL	058B	8/21/95	T. Garcia	43				
HALL	SOUTH WALL	058T	8/21/95	T. Garcia	44				
HALL	SOUTH WALL	059B	8/21/95	T. Garcia	23				
HALL	SOUTH WALL	059T	8/21/95	T. Garcia	16				
HALL	SOUTH WALL	063B	8/21/95	T. Garcia	37				
HALL	SOUTH WALL	063T	8/21/95	T. Garcia	42				
HALL	SOUTH WALL	064B	8/21/95	T. Garcia	46				
HALL	SOUTH WALL	064T	8/21/95	T. Garcia	90				
HALL	SOUTH WALL	065B	8/21/95	T. Garcia	87				
HALL	SOUTH WALL	065T	8/21/95	T. Garcia	66				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	SOUTH WALL	068B	8/21/95	T. Garcia	73				
HALL	SOUTH WALL	068T	8/21/95	T. Garcia	64				
HALL	SOUTH WALL	069B	8/21/95	T. Garcia	88				
HALL	SOUTH WALL	069T	8/21/95	T. Garcia	28				
HALL	SOUTH WALL	072B	8/21/95	T. Garcia	55				
HALL	SOUTH WALL	072T	8/21/95	T. Garcia	64				
HALL	SOUTH WALL	073B	8/21/95	T. Garcia	7				
HALL	SOUTH WALL	073T	8/21/95	T. Garcia	43				
HALL	SOUTH WALL	080B	8/21/95	T. Garcia	121				
HALL	SOUTH WALL	080T	8/21/95	T. Garcia	134				
HALL	SOUTH WALL	081B	8/21/95	T. Garcia	154				
HALL	SOUTH WALL	081T	8/21/95	T. Garcia	123				
HALL	SOUTH WALL	082B	8/21/95	T. Garcia	133				
HALL	SOUTH WALL	082T	8/21/95	T. Garcia	167				
HALL	SOUTH WALL	083B	8/21/95	T. Garcia	188				
HALL	SOUTH WALL	083T	8/21/95	T. Garcia	748				
HALL	SOUTH WALL	084B	8/21/95	T. Garcia	226				
HALL	SOUTH WALL	084T	8/21/95	T. Garcia	145				
HALL	SOUTH WALL	085B	8/21/95	T. Garcia	140				
HALL	SOUTH WALL	085T	8/21/95	T. Garcia	132				
HALL	WEST WALL	052B	8/21/95	T. Garcia	15				
HALL	WEST WALL	052T	8/21/95	T. Garcia	25				
HALL	WEST WALL	054B	8/21/95	T. Garcia	34				
HALL	WEST WALL	054T	8/21/95	T. Garcia	28				
HALL	WEST WALL	056B	8/21/95	T. Garcia	44				
HALL	WEST WALL	056T	8/21/95	T. Garcia	18				
HALL	WEST WALL	058B	8/21/95	T. Garcia	33				
HALL	WEST WALL	058T	8/21/95	T. Garcia	27				
HALL	WEST WALL	060B	8/21/95	T. Garcia	30				
HALL	WEST WALL	060T	8/21/95	T. Garcia	0				
HALL	WEST WALL	063B	8/21/95	T. Garcia	56				
HALL	WEST WALL	063T	8/21/95	T. Garcia	90				
HALL	WEST WALL	066B	8/21/95	T. Garcia	133				
HALL	WEST WALL	066T	8/21/95	T. Garcia	52				
HALL	WEST WALL	068B	8/21/95	T. Garcia	28				
HALL	WEST WALL	068T	8/21/95	T. Garcia	56				
HALL	WEST WALL	070B	8/21/95	T. Garcia	64				
HALL	WEST WALL	070T	8/21/95	T. Garcia	40				
HALL	WEST WALL	072B	8/21/95	T. Garcia	89				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
HALL	WEST WALL	072T	8/21/95	T. Garcia	94				
HALL	WEST WALL	074B	8/21/95	T. Garcia	145				
HALL	WEST WALL	074T	8/21/95	T. Garcia	83				
HALL	WEST WALL	080B	8/21/95	T. Garcia	137				
HALL	WEST WALL	080T	8/21/95	T. Garcia	88				
JAN	CEILING	023	8/23/95	T. Gorman	102				
JAN	DRAIN	K22	8/23/95	T. Gorman	14				
JAN	EAST WALL	021B	8/23/95	T. Gorman	3				
JAN	EAST WALL	023T	8/23/95	T. Gorman	12				
JAN	FLOOR	I21	8/23/95	T. Gorman	159				
JAN	FLOOR	I22	8/23/95	T. Gorman	98				
JAN	FLOOR	J21	8/23/95	T. Gorman	78	0	0.0522	1.12	0
JAN	FLOOR	J22	8/23/95	T. Gorman	50				
JAN	FLOOR	K22	8/23/95	T. Gorman	48				
JAN	NORTH WALL	021B	8/23/95	T. Gorman	201				
JAN	NORTH WALL	023T	8/23/95	T. Gorman	250				
JAN	SOUTH WALL	021B	8/23/95	T. Gorman	129				
JAN	SOUTH WALL	023T	8/23/95	T. Gorman	65				
JAN	WEST WALL	021B	8/23/95	T. Gorman	246				
JAN	WEST WALL	023T	8/23/95	T. Gorman	3				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
MEN	CEILING	021	8/23/95	T. Gorman	0				
MEN	DRAIN	C22	8/24/95	T. Gorman	12				
MEN	DRAIN	C23	8/24/95	T. Gorman	87				
MEN	DRAIN	C24	8/24/95	T. Gorman	8				
MEN	DRAIN	E21	8/24/95	T. Gorman	14				
MEN	EAST WALL	021B	8/23/95	T. Gorman	5				
MEN	EAST WALL	021T	8/23/95	T. Gorman	13				
MEN	FLOOR	A21	8/23/95	T. Gorman	16				
MEN	FLOOR	A22	8/23/95	T. Gorman	0				
MEN	FLOOR	A23	8/23/95	T. Gorman	0				
MEN	FLOOR	A24	8/23/95	T. Gorman	18				
MEN	FLOOR	A25	8/23/95	T. Gorman	9				
MEN	FLOOR	B21	8/23/95	T. Gorman	4				
MEN	FLOOR	B22	8/23/95	T. Gorman	6				
MEN	FLOOR	B23	8/23/95	T. Gorman	22	0	0	0	0
MEN	FLOOR	B24	8/23/95	T. Gorman	11				
MEN	FLOOR	B25	8/23/95	T. Gorman					
MEN	FLOOR	C21	8/23/95	T. Gorman	0				
MEN	FLOOR	C22	8/23/95	T. Gorman	10				
MEN	FLOOR	C23	8/23/95	T. Gorman	4				
MEN	FLOOR	C24	8/23/95	T. Gorman	4				
MEN	FLOOR	C25	8/23/95	T. Gorman	0				
MEN	FLOOR	D21	8/23/95	T. Gorman	13				
MEN	FLOOR	D22	8/23/95	T. Gorman	0				
MEN	FLOOR	D23	8/23/95	T. Gorman	10				
MEN	FLOOR	D24	8/23/95	T. Gorman	1				
MEN	FLOOR	D25	8/23/95	T. Gorman	0				
MEN	FLOOR	E21	8/23/95	T. Gorman	75				
MEN	NORTH WALL	021B	8/23/95	T. Gorman	3				
MEN	NORTH WALL	021T	8/23/95	T. Gorman	22				
MEN	SOUTH WALL	021B	8/23/95	T. Gorman	34				
MEN	SOUTH WALL	021T	8/23/95	T. Gorman	17				
MEN	WEST WALL	021B	8/23/95	T. Gorman	13				
MEN	WEST WALL	021T	8/23/95	T. Gorman	0				

Comments:

TRL Characterization Survey Data Sheet

Room	Location	Grid	Date of Analysis	Surveyor	T2 Wipe* dpm/100 sq cm	T2 Direct* dpm/100 sq cm	Alpha Wipe dpm/100 sq cm	Beta Wipe dpm/100 sq cm	Beta Direct dpm/100 sq cm
WOMEN	CEILING	022	8/23/95	T. Gorman	15				
WOMEN	DRAIN	024	8/23/95	T. Gorman	0				
WOMEN	DRAIN	E22	8/23/95	T. Gorman	0				
WOMEN	DRAIN	E25	8/23/95	T. Gorman	6				
WOMEN	EAST WALL	022B	8/23/95	T. Gorman	0				
WOMEN	EAST WALL	022T	8/23/95	T. Gorman	0				
WOMEN	FLOOR	D21	8/23/95	T. Gorman	20				
WOMEN	FLOOR	D22	8/23/95	T. Gorman	20				
WOMEN	FLOOR	D23	8/23/95	T. Gorman	30				
WOMEN	FLOOR	D24	8/23/95	T. Gorman	23				
WOMEN	FLOOR	D25	8/23/95	T. Gorman	21				
WOMEN	FLOOR	E21	8/23/95	T. Gorman	36				
WOMEN	FLOOR	E22	8/23/95	T. Gorman	27				
WOMEN	FLOOR	E23	8/23/95	T. Gorman	20				
WOMEN	FLOOR	E24	8/23/95	T. Gorman	17				
WOMEN	FLOOR	E25	8/23/95	T. Gorman	0				
WOMEN	FLOOR	F21	8/23/95	T. Gorman	12				
WOMEN	FLOOR	F22	8/23/95	T. Gorman	0	0	0.0522	1.12	0
WOMEN	FLOOR	F23	8/23/95	T. Gorman	0				
WOMEN	FLOOR	F24	8/23/95	T. Gorman	16				
WOMEN	FLOOR	F25	8/23/95	T. Gorman	8				
WOMEN	FLOOR	G21	8/23/95	T. Gorman	7				
WOMEN	FLOOR	G22	8/23/95	T. Gorman	21				
WOMEN	FLOOR	H21	8/23/95	T. Gorman	244				
WOMEN	FLOOR	H22	8/23/95	T. Gorman	969				
WOMEN	NORTH WALL	022B	8/23/95	T. Gorman	3				
WOMEN	NORTH WALL	022T	8/23/95	T. Gorman	0				
WOMEN	SOUTH WALL	022B	8/23/95	T. Gorman	0				
WOMEN	SOUTH WALL	022T	8/23/95	T. Gorman	0				
WOMEN	WEST WALL	022B	8/23/95	T. Gorman	7				
WOMEN	WEST WALL	022T	8/23/95	T. Gorman	0				

Comments:

APPENDIX A
TRL CHARACTERIZATION SURVEY DATA PART 2

RADIATION AND CONTAMINATION SURVEY FORM

Date: 8-10-95 Surveyor Name: T.B. GARCIA Reviewed by: [Signature]
 Time: 13⁰⁰-15⁰⁰ Signature: [Signature] Location: BLDG 968

SWP/SOP OP# HP-21 Purpose: CHARACTERIZATION SURVEY

All gamma readings throughout bldg. 968 equal to background of 5 μ R/hr except as noted below and indicated on maps attached:

-ab 102 walls 1-3 μ R/hr above background.

mens Rm Floor 1-4 μ R/hr above background.
 Ceramic Floor Tile 1"x1"

nomens Rm Floor 1-3 μ R/hr above background.
 Ceramic Floor Tile 1"x1"

Background established outside the bldg. 968 Complex.

#	dpm/100cm ² dpm/swipe μ CI/h mCi/h	Comments
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument Ludlum Model 19 Serial No. 23045 Date Last Calibrated: 12/6/94

Background 5 μ R/hr $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.:

Instrument Serial No. Date Last Calibrated:

Background $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.:

Remarks:

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Isotopic Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipboard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accident Survey
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Form HP-01

Page of

Figure V.39. Bldg. 968 Floor Grid Map

ROOM 102 FLOOR

Figure V.41. Room 102 Floor, Ceiling, Walls Grid Map

Figure V.64. Men's Room Floor, Ceiling, Walls Grid Map

ROOM WOMEN CEILING

ROOM WOMEN FLOOR

Figure V.65. Women's Room Floor, Ceiling, Walls Grid Map

PAGE 1

PROPERTY #/SERIAL #: R107564

Place probe directly over check source.

Initial Source Check						
Date	Batt Chk	Range	Reading	Reading + 20%	Reading - 20%	Name
12/6/94	CK	X 10	2000 uR/Hr	2400 uR/Hr	1600 uR/Hr	

189

RADIATION AND CONTAMINATION SURVEY FORM

Date: 9/28/95

Surveyor Name: T. GORMAN

Reviewed by: [Signature]

Time: 1400

Signature: [Signature]

Location: 9671

SWP/SOP/OP# Purpose: CHARACTERIZATION

POINT	dpm/100cm ²	²³⁸ FRISK CCPM	³ H FRISK CCPS
A	.9190	0	0
B	0	0	0
C	0	0	0
D	0	0	0
E	.0353	0	0

MDA = 1.01 BKGD = 55 BKGD = 24

SEE ATTACHED MAP

X - DENOTES CARPETED AREAS SCANNED BY DIRECT
FRISK USING LB 1210 B TRITIUM SURFACE SCANNER
AND TBM 28 # 00562 ²³⁸FRISKER
NO READINGS ABOVE BACKGROUND LEVELS NOTED

MICRO-R METER SCAN OF PASSAGEWAYS INDICATES
NO READINGS ABOVE BACKGROUND OF 5µR/hr

SWIPE COUNT TIME = 10 MIN

#	dpm/100cm ² dpm/swipe µCi/m ²	Comments
1	0	FLOOR
2	0	
3	0	
4	0	SINK
5	0	
6	0	
7	0	FLOOR
8	3	
9	0	
10	3	
11	19	SINK
12	0	FLOOR
13	16	
14	11	
15	12	
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 9/28/95

Background 15.8 α β γ ³H cpm mR/h mrem/h µCi/m³ Corr. Fact. or Eff.: 1

Instrument LB 1210B Serial No. 960 Date Last Calibrated: 12/7/94

Background 24 cps α β γ n ³H cpm mR/h mrem/h µCi/m³ Corr. Fact. or Eff.: 1

Remarks: TBM 28 # 00562, CAL 2/23/95, BKGD = 55 cpm
LB 51006, # 78354, CAL 6/22/95, BKGD = 0.09 cpm
LODLUM MODEL 19 # 23045, CAL 12/6/94, BKGD = 5µR/hr

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipport Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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LB5100-W Low Background Counting System -- Smear Analysis

Date: 10/2/95
 Counting Unit id: 1
 Data file name: C:\LBXL\UNIT1\SME1D055.XLD
 Batch Ended: 9/28/95 15:38
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainty level for MDA and flags: 95.00%
 High Voltage Setting: 1522.5

Application Revision: 3

Application Version: Standard

Alpha efficiency log file: U238AB

Alpha Efficiency: 56.61%

Alpha to Beta Crosstalk: 59.32%

Alpha Background (CPM): 0.08

Alpha Correction Factor: 1.000

Beta efficiency log file: SR90AB

Beta Efficiency: 34.48%

Beta into Alpha Crosstalk: 1.54%

Beta Background (CPM): 1.32

Beta Correction Factor: 1.000

Batch ID: Bldg 967 and 969

		Alpha Activity				Beta Activity				Count	Alpha	Beta	Completion	Gamma
Carrier		DPM	σ	flags	MDA	DPM	σ	flags	MDA	time (min)	CPM	CPM	Date - Time	DPM
967	A 1	9.19E-01	4.56E-01	<AL	1.01	5.22E-01	1.16E+00	<MDA	4.37	10.00	5.20E-01	1.80E-01	9/28/95 14:17	-38.16
	B 2	-1.41E-01	1.83E-01	<MDA	1.01	1.68E+00	1.30E+00	<MDA	4.37	10.00	-8.00E-02	5.80E-01	9/28/95 14:27	-38.66
	C 3	-1.41E-01	1.83E-01	<MDA	1.01	-2.09E+00	7.64E-01	<MDA	4.37	10.00	-8.00E-02	-7.20E-01	9/28/95 14:37	-39.36
	D 4	-1.41E-01	1.83E-01	<MDA	1.01	2.32E-01	1.12E+00	<MDA	4.37	10.00	-8.00E-02	8.00E-02	9/28/95 14:47	-42.76
	E 5	3.53E-02	1.81E-01	<MDA	1.01	-3.48E-01	1.04E+00	<MDA	4.37	10.00	2.00E-02	-1.20E-01	9/28/95 14:57	-41.36
969	A 6	3.53E-02	1.81E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	2.00E-02	-2.00E-02	9/28/95 15:07	-44.56
	B 7	-1.41E-01	1.83E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	-8.00E-02	-2.00E-02	9/28/95 15:18	-40.26
	C 8	-1.41E-01	1.83E-01	<MDA	1.01	1.97E+00	1.33E+00	<AL	4.37	10.00	-8.00E-02	6.80E-01	9/28/95 15:28	-33.47
	D 9	2.12E-01	2.55E-01	<MDA	1.01	-1.22E+00	9.13E-01	<MDA	4.37	10.00	1.20E-01	-4.20E-01	9/28/95 15:38	-41.06

ADIATION AND CONTAMINATION SURVEY FORM

9/28/95 Surveyor Name: T. GORMAN Reviewed by: *[Signature]*
 ne: 1500 Signature: *[Signature]* Location: 969

IP/SOP/OP# — Purpose: CHARACTERIZATION

POINT	α dpm/100cm ²	β FRISK ccpm	H^3 FRISK cps
A	0	0	0
B	0	0	0
C	0	0	0
D	0.0212	0	0
MDA = 1.01 BKGD = 55 BKGD = 24			

#	(dpm/100cm ²) dpm/wipe μ Ci/m ²	Comments
1	0	FLOOR
2	11	
3	8	
4	11	
5	11	
6	0	
7	7	
8	8	
9	13	
10	10	
11	14	
12	9	
13	14	
14	10	
15	9	
16	8	
17	11	
18	10	
19	12	
20	17	
21	22	
22	0	
23	6	
24	16	
25	15	
26	9	
27	14	
28	0	
29	10	
30	3	↓

EE ATTACHED MAP

CRO-R METER SCAN OF PASSAGEWAYS INDICATES
 READINGS ABOVE BACKGROUND OF 5 μ R/hr

WIPE COUNT TIME = 10 MIN

Instrument: PTC2550 Serial No. 104314 Date Last Calibrated: 9/28/95

Background: 17.2 α β γ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Instrument: LB 1210B Serial No. 960 Date Last Calibrated: 12/7/95

Background: 24 cps α β γ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Remarks: TBM 28 #0562, CAL 2/23/95, BKGD = 55 cpm

B51006 #78354, CAL 6/22/95, BKGD = 0.08 cpm

IDLUM MODEL 19 #23045, CAL 12/6/94, BKGD = 5 μ R/hr

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipboard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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LB5100-W Low Background Counting System -- Smear Analysis

Date: 10/2/95
 Counting Unit Id: 1
 Data file name: C:\LBXL\UNIT1\SME1D055.XLD
 Batch Ended: 9/28/95 15:38
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainty level for MDA and flags: 95.00%
 High Voltage Setting: 1522.5

Application Revision: 3
 Application Version: Standard

Alpha efficiency log file: U238AB
 Alpha Efficiency: 56.61%
 Alpha to Beta Crosstalk: 59.32%
 Alpha Background (CPM): 0.08
 Alpha Correction Factor: 1.000

Beta efficiency log file: SR90AB
 Beta Efficiency: 34.48%
 Beta into Alpha Crosstalk: 1.54%
 Beta Background (CPM): 1.32
 Beta Correction Factor: 1.000

Batch ID: Bldg 967 and 969

Carrier	Alpha Activity				Beta Activity				Count	Alpha	Beta	Completion	Gamma
	DPM	σ	flags	MDA	DPM	σ	flags	MDA	time (min)	CPM	CPM	Date - Time	DPM
967 { A 1 B 2 C 3 D 4 E 5	9.19E-01	4.66E-01	<AL	1.01	5.22E-01	1.16E+00	<MDA	4.37	10.00	5.20E-01	1.80E-01	9/28/95 14:17	-38.16
	-1.41E-01	1.83E-01	<MDA	1.01	1.68E+00	1.30E+00	<MDA	4.37	10.00	-8.00E-02	5.80E-01	9/28/95 14:27	-38.66
	-1.41E-01	1.83E-01	<MDA	1.01	-2.09E+00	7.64E-01	<MDA	4.37	10.00	-8.00E-02	-7.20E-01	9/28/95 14:37	-39.38
	-1.41E-01	1.83E-01	<MDA	1.01	2.32E-01	1.12E+00	<MDA	4.37	10.00	-8.00E-02	8.00E-02	9/28/95 14:47	-42.78
	3.53E-02	1.81E-01	<MDA	1.01	-3.48E-01	1.04E+00	<MDA	4.37	10.00	2.00E-02	-1.20E-01	9/28/95 14:57	-41.36
969 { A 6 B 7 C 8 D 9	3.53E-02	1.81E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	2.00E-02	-2.00E-02	9/28/95 15:07	-44.56
	-1.41E-01	1.83E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	-8.00E-02	-2.00E-02	9/28/95 15:18	-40.26
	-1.41E-01	1.83E-01	<MDA	1.01	1.97E+00	1.33E+00	<AL	4.37	10.00	-8.00E-02	6.80E-01	9/28/95 15:28	-33.47
	2.12E-01	2.55E-01	<MDA	1.01	-1.22E+00	9.13E-01	<MDA	4.37	10.00	1.20E-01	-4.20E-01	9/28/95 15:38	-41.06

RADIATION AND CONTAMINATION SURVEY FORM

Date: 9/21/95

Surveyor Name: T. Gorman

Reviewed by: [Signature]

Time: 0920

Signature: [Signature]

Location: 967/Equip. Rm.

SWP/SOP/OP# _____ Purpose: Final Characterization Survey

Point	Alpha (dpm/100cm ²)	B/G Frisk (ccpm)	Tritium Surface Scan (ccps)
A	0	0	0
B	.0353	0	0
C	0	0	0

Alpha MDA = 1.01

Beta/gamma frisk Background = 55 cpm

Tritium surface scan background = 24 cps

Ludlum model 19 #23045, Bkgd=.004 mr/hr, last cal 12/6/94

TBM28 #06562, Bkgd= 50 cpm, last cal 2/23/95

#	Units dpm/100cm ²	Comments
1	5	floor
2	13	floor
3	15	floor
4	14	floor
5	12	floor
6	18	floor
7	8	floor
8	12	floor
9	0	floor
10	16	floor
11	16	floor
12	11	floor
13	23	floor
14	20	floor
15	17	floor
16	10	floor
17	19	floor
18	15	floor
19	9	floor
20	36	toolbox
21	11	desk
22	17	desk
23	10	vent equipment
24	12	vent equipment
25	24	vent equipment
26	19	vent equipment
27	17	vent equipment
28	25	vent equipment
29	23	floor drain
30	23	floor drain

Instrument Serial No. PTC 25509 #104314 Date Last Calibrated: 9/27/95

Background 9 $\alpha \beta \gamma$ n H^2 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Instrument LB1210B Serial No. 960 Date Last Calibrated: 12/7/94

Background 24 cps $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Remarks: Micro R meter scan of walkways indicates no detectable meter increase above background

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Isolated Source Wipe Test	219.06 Residual Facility Survey	219.07 Stopwork Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerometer Survey
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LB5100-W Low Background Counting System -- Smear Analysis

Date: 9/28/95
 Counting Unit Id: 1
 Data file name: C:\LBX1\UNIT1\SME1D054.XLD
 Batch Ended: 9/27/95 19:17
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainty level for MDA and flags: 95.00%
 High Voltage Setting: 1522.5

Application Revision: 3
 Application Version: Standard

Alpha efficiency log file: U2549A
 Alpha Efficiency: 56.11%
 Alpha to Beta Crosstalk: 59.32%
 Alpha Background (CPM): 0.08
 Alpha Correction Factor: 1.000
 Beta efficiency log file: SR90AB
 Beta Efficiency: 34.48%
 Beta into Alpha Crosstalk: 1.54%
 Beta Background (CPM): 1.32
 Beta Correction Factor: 1.000

Batch ID: 967/968 Equip. Rooms

*EQUIPMENT
 ROOMS*

Carrier	Alpha Activity				Beta Activity				Count	Alpha	Beta	Completion	Gamma
	DPM	σ	flags	MDA	DPM	σ	flags	MDA	time (min)	CPM	CPM	Date - Time	DPM
11	-1.41E-01	1.83E-01	<MDA	1.01	1.10E+00	1.23E+00	<MDA	4.37	10.00	-8.00E-02	3.80E-01	9/27/95 18:16	-38.77
10	3.53E-02	1.81E-01	<MDA	1.01	-1.80E+00	8.16E-01	<MDA	4.37	10.00	2.00E-02	-8.20E-01	9/27/95 18:26	-38.27
9	-1.41E-01	1.83E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	-8.00E-02	-2.00E-02	9/27/95 18:36	-38.76
7	3.53E-02	1.81E-01	<MDA	1.01	-6.38E-01	1.00E+00	<MDA	4.37	10.00	2.00E-02	-2.20E-01	9/27/95 18:46	-40.36
5	3.53E-02	1.81E-01	<MDA	1.01	-9.28E-01	9.58E-01	<MDA	4.37	10.00	2.00E-02	-3.20E-01	9/27/95 18:56	-55.95
4	3.53E-02	1.81E-01	<MDA	1.01	5.22E-01	1.16E+00	<MDA	4.37	10.00	2.00E-02	1.80E-01	9/27/95 19:07	-47.16
3	2.12E-01	2.55E-01	<MDA	1.01	-9.28E-01	9.58E-01	<MDA	4.37	10.00	1.20E-01	-3.20E-01	9/27/95 19:17	-39.96

RADIATION AND CONTAMINATION SURVEY FORM

Date: 9/27/95 Surveyor Name: T. Gorman Reviewed by: PLS
 Time: 1330 Signature: T. Gorman Location: 968/Equip. Rm

SWP/SOP/OP# _____ Purpose: Final Characterization Survey

#	Units dpm/100cm ²	Comments
1	8	Floor
2	15	Floor
3	5	Floor
4	4	Floor
5	3	Floor
6	3	Floor
7	8	Floor
8	3	Floor
9	8	Floor
10	4	Floor
11	10	Floor
12	7	Floor
13	2	Floor
14	5	Floor
15	8	Floor
16	12	Floor
17	4	Floor
18	0	Floor
19	0	Floor
20	9	Floor
21	12	Floor
22	12	Floor
23	5	Desk
24	6	Desk
25	11	Desk
26	8	Drain
27	10	Drain
28	8	Drain
29	8	Drain
30	4	Vent/Fan

Point	Alpha (dpm/100cm ²)	B/G Frisk (ccpm)	Tritium Surface Scan (ccps)
1	.0353	0	0
2	.0353	0	0
3	.0353	0	0
4	.2120	0	0

Alpha MDA = 1.01

Beta/gamma frisk Background = 55 cpm

Tritium surface scan background = 24 cps

Scintillation model 19 #23045, Bkgd=.005 mr/hr, last cal 12/6/94

GM28 #06562, Bkgd= 50 cpm, last cal 2/23/95

Instrument Serial No. PTC 25509 #104314 Date Last Calibrated: 9/27/95

Background 10.3 $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Instrument LB1210B Serial No. 960 Date Last Calibrated: 12/7/94

Background 24 cps $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Remarks: Micro R meter scan of walkways indicates no detectable meter increase above background

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Excluded Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipboard Survey	220.02 Radioisotope Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerometer Survey
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Form HP-01

Page 1 of 2

LB5100-W Low Background Counting System -- Smear Analysis

Date: 9/28/95
 Counting Unit Id: 1
 Data file name: C:\LBXL\UNIT1\SME1D054.XLD
 Batch Ended: 9/27/95 19:17
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainty level for MDA and flags: 95.00%
 High Voltage Setting: 1522.5

Application Revision: 3

Application Version: Standard

Batch ID: 967/968 Equip. Rooms

Alpha efficiency log file: U23.m

Alpha Efficiency: 56.1%

Alpha to Beta Crosstalk: 59.32%

Alpha Background (CPM): 0.0%

Alpha Correction Factor: 1.000

Beta efficiency log file: SR90AB

Beta Efficiency: 34.48%

Beta into Alpha Crosstalk: 1.54%

Beta Background (CPM): 1.32

Beta Correction Factor: 1.000

EQUIPMENT
 ROOMS

967

968

Carrier	Alpha Activity				Beta Activity				Count	Alpha	Beta	Completion	Gamma
	DPM	σ	flags	MDA	DPM	σ	flags	MDA	time (min)	CPM	CPM	Date - Time	DPM
411	-1.41E-01	1.83E-01	<MDA	1.01	1.10E+00	1.23E+00	<MDA	4.37	10.00	-8.00E-02	3.80E-01	9/27/95 18:16	-38.77
10	3.53E-02	1.81E-01	<MDA	1.01	-1.80E+00	8.16E-01	<MDA	4.37	10.00	2.00E-02	-6.20E-01	9/27/95 18:26	-38.27
9	-1.41E-01	1.83E-01	<MDA	1.01	-5.80E-02	1.08E+00	<MDA	4.37	10.00	-8.00E-02	-2.00E-02	9/27/95 18:36	-38.76
7	3.53E-02	1.81E-01	<MDA	1.01	-6.38E-01	1.00E+00	<MDA	4.37	10.00	2.00E-02	-2.20E-01	9/27/95 18:46	-40.36
5	3.53E-02	1.81E-01	<MDA	1.01	-9.28E-01	9.58E-01	<MDA	4.37	10.00	2.00E-02	-3.20E-01	9/27/95 18:56	-36.96
4	3.53E-02	1.81E-01	<MDA	1.01	5.22E-01	1.16E+00	<MDA	4.37	10.00	2.00E-02	1.80E-01	9/27/95 19:07	-47.16
3	2.12E-01	2.55E-01	<MDA	1.01	-9.28E-01	9.58E-01	<MDA	4.37	10.00	1.20E-01	-3.20E-01	9/27/95 19:17	-33.96

Fac Code	217.02	217.03	219.01	219.03	219.04	219.06	219.07	220.02	220.06	220.07	220.08	220.09
Analyte	Waste W/Act	Analyte	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act	Waste W/Act
Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Survey

Instrument: PTC 2550 Serial No. 104314 Date Last Calibrated: 11/15/95

Background: 26 α β γ n (H^3 cpm mR/h mrem/h μ Ci/m³)

Background: _____ α β γ n (H^3 cpm mR/h mrem/h μ Ci/m³)

Instrument: _____ Serial No. _____ Date Last Calibrated: _____

Background: _____ α β γ n (H^3 cpm mR/h mrem/h μ Ci/m³)

Background: _____ α β γ n (H^3 cpm mR/h mrem/h μ Ci/m³)

Remarks: _____

30	
29	
28	
27	
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15	
14	
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12	
11	
10	
9	
8	
7	
6	
5	
4	
3	
2	
1	
#	Units dpm/100cm ²
	Comments

RADIATION AND CONTAMINATION SURVEY FORM

Date: 11/15/95 Time: 11:00

Surveyor Name: T. Gorman Signature: [Signature]

Reviewed by: [Signature] Location: 968/HSCS/Waste Tank Pit

SWP/SOP/OP# _____ Purpose: Routine / CHARACTERIZATION

Protocol #: 9

10 min - 1st Vial

User : TRL t

10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	26.00
Region B:	18.6 - 2000		0	5.0	12.10
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

C 2550 #104314

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	260.00	26.00	12.40	12.10	18.18		574.10	37	B
2	10.00	96.00	9.60	51.71	0.60	524.9	20	504.99	25	
3	10.00	0.00	0.00	0.00	0.00	0.00	0	527.86	20	
4	10.00	0.00	0.00	0.00	0.00	0.00	0	526.99	9	
5	10.00	0.00	0.00	0.00	0.00	0.00	0	533.24	7	
6	10.00	0.00	0.00	0.00	0.00	0.00	0	552.82	6	
7	10.00	0.00	0.00	0.00	0.00	0.00	0	538.35	6	
8	10.00	0.00	0.00	0.00	0.00	0.00	0	526.95	7	
9	10.00	0.00	0.00	0.00	0.00	0.00	0	554.66	7	
10	10.00	8.00	0.80	574.5	0.00	0.00	2	515.97	5	
11	10.00	112.00	11.20	44.89	0.00	0.00	24	502.81	5	
12	10.00	0.00	0.00	0.00	0.00	0.00	0	461.65	13	
13	10.00	0.00	0.00	0.00	0.00	0.00	0	504.37	9	
14	10.00	0.00	0.00	0.00	0.00	0.00	0	477.89	7	
15	10.00	123.00	12.30	41.23	0.00	0.00	26	497.94	5	
16	10.00	0.00	0.00	0.00	0.00	0.00	0	543.15	13	
17	10.00	0.00	0.00	0.00	0.00	0.00	0	545.87	13	
18	10.00	0.00	0.00	0.00	0.00	0.00	0	568.70	18	
19	10.00	319.00	31.90	18.16	0.00	0.00	65	561.36	62	
20	10.00	368.00	36.80	16.20	0.80	395.3	75	556.84	59	
21	10.00	159.00	15.90	32.78	0.00	0.00	33	552.75	56	
22	10.00	0.00	0.00	0.00	1.20	265.6	0	546.87	36	
23	10.00	0.00	0.00	0.00	0.70	450.8	0	484.15	30	
24	10.00	0.00	0.00	0.00	0.00	0.00	0	509.63	31	
25	10.00	0.00	0.00	0.00	0.00	0.00	0	549.29	24	
26	10.00	0.00	0.00	0.00	0.00	0.00	0	545.66	22	
27	10.00	0.00	0.00	0.00	0.00	0.00	0	537.29	34	

LB5100-Low Background Counting System -- Smear Analysis

Date: 11/20/95
 Counting Unit Id: 1
 Data file name: C:\LBXL\UNIT1\SME1G002.XLD
 Batch Ended: 11/17/95 16:50
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainty level for MDA and flags: 95.00%
 High Voltage Setting: 1492.5

Application Revision: 3
 Application Version: Standard

Batch ID: 968 LEX PIT

Carrier	Alpha Activity				Beta Activity				Count time (min)	Alpha CPM	Beta CPM	Completion Date - Time
	DPM	σ	flags	MDA	DPM	σ	flags	MDA				
25	0.458	0.51	<MDA	1.95	0.38	1.09	<MDA	4.20	10.00	0.130	0.13	11/17/95 16:20
26	0.458	0.51	<MDA	1.95	-1.09	0.86	<MDA	4.20	10.00	0.130	-0.37	11/17/95 16:30
27	0.458	0.51	<MDA	1.95	0.68	1.13	<MDA	4.20	10.00	0.130	0.23	11/17/95 16:40
28	1.162	0.73	<AL	1.95	0.38	1.09	<MDA	4.20	10.00	0.330	0.13	11/17/95 16:50

Alpha efficiency log file: U238AB

Alpha Efficiency: 28.39%

Alpha to Beta Crosstalk: 58.19%

Alpha Background (CPM): 0.07

Alpha Correction Factor: 1.000

Beta efficiency log file: SR90AB

Beta Efficiency: 33.94%

Beta into Alpha Crosstalk: 1.92%

Beta Background (CPM): 1.17

Beta Correction Factor: 1.000

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/10/95

Surveyor Name: T. GORMAN

Reviewed by: J. GAG

Time: 0740

Signature: T. Gorman

Location: 968 Evaporator

WP/SOP/OP#

Purpose: Characterization

#	dpm/100cm2 dpm/swipe μCi/l mCi/l	Comments
1	38	dry
2	9	
3	1	
4	18	
5	0	
6	4	
7	16	
8	2	
9	7	
10	7	
11	11	
12	7	
13	1	
14	12	
15	3	
16	14	
17	12	
18	7	
19	0	
20	6	
21	8	
22	8	
23	11	
24	0	
25	9	
26	343	wet
27	148	
28	19	
29	644	
30	14	

10 min. count

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 10/10/95

Background 6.7 α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Instrument Serial No. Date Last Calibrated:

Background α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Remarks:

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Existed Source Wipe Test	219.06 Remedial Facility Survey	219.07 Site Status Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/4/95

Surveyor Name: T. GORMAN

Reviewed by: P. GAGS

Time: 1400

Signature: TOM GORMAN

Location: 968 OUTSIDE AREAS

SWP/SOP/OP# Purpose: CHARACTERIZATION

POINT	α dpm/100 cm ²	⁶⁰ FRISK ccpm	³ H FRISK ccps
A	0	0	0
B	.4240	0	0
C	.4240	0	0
D	.0706	0	0
E	0	0	0
F	.0706	0	0
G	0	0	0
H	0	0	0
I	.0706	0	0
J	.7770	0	0
K	.0706	0	0
L	0	0	0
M	0	0	0
N	0	0	0
O	.0706	0	0
P	.4240	0	0

MDA = 2.01 α dpm/100 cm² BkGD = 55 α dpm/100 cm² BkGD = 24 α dpm/100 cm²

31 - 0
32 - 0
33 - 13
34 - 0
35 - 4

36 - 3
37 - 4
38 - 2
39 - 0
40 - 8

SEE ATTACHED MAP

#	dpm/100cm ² dpm/swipe μ Ci/m ²	Comments
1	11	
2	0	
3	0	
4	0	
5	3	
6	8	
7	4	
8	25	
9	72	
10	36	
11	0	
12	5	
13	0	
14	5	
15	21	
16	199	
17	43	
18	8	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
26	0	
27	49	
28	0	
29	22	
30	6	

Instrument PTC 255D Serial No. 104314 Date Last Calibrated: 10/4/95

Background 11.2 $\alpha \beta \gamma$ H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Instrument LB 1210 B Serial No. 960 Date Last Calibrated: 12/7/95

Background 24 cps $\alpha \beta \gamma$ H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: 1

Remarks: TBM 28 # 06562, CAL 2/23/95, BkGD = 5 cpm

LB 5100 W # 78354, CAL 6/22/95, BkGD =

LU DLUM MODEL 19 # 23045, CAL 12/6/94, BkGD = 5 μ R/hr

MICRO-R SCAN OF OUTSIDE AREAS INDICATE NO READINGS ABOVE BACKGROUND OF 5 μ R/hr

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Exotic Source Wipe Test	219.06 Exotic Facility Survey	219.07 Shipboard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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A STREET

04 Oct 95 11:03

Protocol #: 8

10 min - 1st vial

Page #1

User : TRL

Time: 10.00

Data Mode: DPH

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	11.20
Region B:	18.6 - 2000		0	5.0	10.90
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA A:25%	CPMB B:25%	DPM1	tSIE	LUM FLAG
WARNING: USER HAS MODIFIED COUNT CONDITIONS							
1	10.00	112.00	11.20 18.90	10.90 19.16		631.00	82 B
2	9.40	50.72	5.40 267.7	1.55 200.9	11	511.77	78
3	10.00	0.00	0.00 0.00	1.70 180.3	0	473.47	74
4	10.00	0.00	0.00 0.00	0.20 1483	0	533.97	66
5	10.00	0.00	0.00 0.00	0.00 0.00	0	499.06	75
6	10.00	14.00	1.40 749.7	1.70 180.3	3	508.24	59
7	10.00	38.00	3.80 277.6	0.40 745.0	8	550.17	58
8	10.00	19.00	1.90 561.1	1.30 233.8	4	521.61	60
9	10.00	113.00	11.30 101.2	1.60 191.2	25	470.17	60
10	10.00	343.00	34.30 33.01	1.40 217.6	72	517.40	43
11	10.00	172.00	17.20 62.01	0.40 745.0	36	525.17	46
12	10.00	0.00	0.00 0.00	1.70 180.3	0	443.02	73
13	10.00	25.00	2.50 411.0	1.70 180.3	5	468.63	54
14	10.00	0.00	0.00 0.00	2.00 154.3	0	494.02	61
15	10.00	23.00	2.30 458.7	1.10 275.1	5	528.99	59
16	10.00	101.00	10.10 108.6	0.00 0.00	21	521.73	58
17	10.00	931.00	93.10 12.88	1.80 170.7	199	501.37	23
18	10.00	200.00	20.00 54.52	3.80 84.21	43	489.06	46
19	10.00	38.00	3.80 252.5	0.00 0.00	8	479.42	40
20	10.00	0.00	0.00 0.00	1.10 275.1	0	491.24	44
21	10.00	0.00	0.00 0.00	0.40 745.0	0	495.24	40
22	10.00	0.00	0.00 0.00	0.00 0.00	0	481.40	36
23	10.00	0.00	0.00 0.00	1.90 162.1	0	422.57	33
24	10.00	0.00	0.00 0.00	1.50 203.5	0	442.18	31
25	10.00	0.00	0.00 0.00	1.30 233.8	0	476.20	35
26	10.00	0.00	0.00 0.00	2.50 124.7	0	489.86	26
27	10.00	0.00	0.00 0.00	0.00 0.00	0	508.08	40
28	10.00	205.00	20.50 47.59	2.40 129.6	49	406.74	23
29	10.00	0.00	0.00 0.00	1.00 302.0	0	454.73	33
30	10.00	103.00	10.30 92.00	1.10 275.1	22	497.03	26
31	10.00	27.00	2.70 346.4	1.70 180.3	6	461.26	33
32	10.00	0.00	0.00 0.00	0.00 0.00	0	457.15	39
33	10.00	0.00	0.00 0.00	3.90 82.21	0	452.29	39
34	10.00	61.00	6.10 152.6	2.70 115.9	13	492.29	25
35	10.00	0.00	0.00 0.00	0.70 428.6	0	461.50	35
36	10.00	18.00	1.80 519.3	1.50 203.5	4	503.98	34

4 Oct 95 17:56

Page #2

rotocol #: 8

10 min - 1st vial

User : TRL

#	TIME	A-CTS	CPMA A:2S%	CPMB B:2S%	DPM1	tsIE	LUM	FLAG
37	10.00	15.00	1.50 654.7	0.90 334.8	3	454.66	48	
38	10.00	19.00	1.90 515.4	3.50 90.89	4	477.93	44	
39	10.00	10.00	1.00 965.8	1.30 233.8	2	484.98	45	
40	10.00	0.00	0.00 0.00	0.30 991.1	0	478.59	44	
41	10.00	36.00	3.60 281.7	0.50 597.3	8	475.18	52	

LB5100-W Low Background Counting System -- Smear Analysis

Date: 10/19/95
 Counting Unit id: 1
 Data file name: C:\LBXL\UNIT1\SME1D000.XLD
 Batch Ended: 10/18/95 19:16
 Crosstalk Correction: Not Applied

Alpha activity action level (DPM): 10.00
 Beta activity action level (DPM): 100.00
 Certainly level for MDA and flags: 95.00%
 High Voltage Setting: 1492.5

Application Revision: 3
 Application Version: Standard

Alpha efficiency log file: U238AB
 Alpha Efficiency: 28.33%
 Alpha to Beta Crosstalk: 58.35%
 Alpha Background (CPM): 0.08
 Alpha Correction Factor: 1.000

Beta efficiency log file: SR90AB
 Beta Efficiency: 34.67%
 Beta into Alpha Crosstalk: 1.81%
 Beta Background (CPM): 1.12666667
 Beta Correction Factor: 1.000

Batch ID: 968 Outside

Carrier	Alpha Activity				Beta Activity				Count	Alpha	Beta	Completion	Gamma
	DPM	σ	flags	MDA	DPM	σ	flags	MDA	time (min)	CPM	CPM	Date - Time	DPM
1	-2.82E-01	3.60E-01	<MDA	2.01	-7.69E-02	9.73E-01	<MDA	4.02	10.00	-8.00E-02	-2.67E-02	10/18/95 16:43	-31.27
2	4.24E-01	5.07E-01	<MDA	2.01	2.12E-01	1.02E+00	<MDA	4.02	10.00	1.20E-01	7.33E-02	10/18/95 16:53	-40.16
3	4.24E-01	5.07E-01	<MDA	2.01	2.12E-01	1.02E+00	<MDA	4.02	10.00	1.20E-01	7.33E-02	10/18/95 17:03	-37.16
4	7.06E-02	3.58E-01	<MDA	2.01	1.08E+00	1.13E+00	<MDA	4.02	10.00	2.00E-02	3.73E-01	10/18/95 17:13	-41.86
5	-2.82E-01	3.60E-01	<MDA	2.01	1.08E+00	1.13E+00	<MDA	4.02	10.00	-8.00E-02	3.73E-01	10/18/95 17:24	-39.66
6	7.06E-02	3.58E-01	<MDA	2.01	-3.65E-01	9.30E-01	<MDA	4.02	10.00	2.00E-02	-1.27E-01	10/18/95 17:34	-41.86
7	-2.82E-01	3.60E-01	<MDA	2.01	-3.65E-01	9.30E-01	<MDA	4.02	10.00	-8.00E-02	-1.27E-01	10/18/95 17:44	-36.36
8	-2.82E-01	3.60E-01	<MDA	2.01	1.06E+00	1.13E+00	<MDA	4.02	10.00	-8.00E-02	3.73E-01	10/18/95 17:54	-34.17
9	7.06E-02	3.58E-01	<MDA	2.01	2.23E+00	1.27E+00	<AL	4.02	10.00	2.00E-02	7.73E-01	10/18/95 18:04	-41.96
10	7.77E-01	6.25E-01	<AL	2.01	1.37E+00	1.17E+00	<MDA	4.02	10.00	2.20E-01	4.73E-01	10/18/95 18:15	-34.56
11	7.06E-02	3.58E-01	<MDA	2.01	2.23E+00	1.27E+00	<AL	4.02	10.00	2.00E-02	7.73E-01	10/18/95 18:25	-44.96
12	-2.82E-01	3.60E-01	<MDA	2.01	-9.42E-01	8.36E-01	<MDA	4.02	10.00	-8.00E-02	-3.27E-01	10/18/95 18:35	-40.36
13	-2.82E-01	3.60E-01	<MDA	2.01	-6.54E-01	8.84E-01	<MDA	4.02	10.00	-8.00E-02	-2.27E-01	10/18/95 18:45	-42.66
14	-2.82E-01	3.60E-01	<MDA	2.01	1.65E+00	1.20E+00	<AL	4.02	10.00	-8.00E-02	5.73E-01	10/18/95 18:55	-42.86
15	7.06E-02	3.58E-01	<MDA	2.01	-3.65E-01	9.30E-01	<MDA	4.02	10.00	2.00E-02	-1.27E-01	10/18/95 19:06	-42.86
16	4.24E-01	5.07E-01	<MDA	2.01	1.65E+00	1.20E+00	<AL	4.02	10.00	1.20E-01	5.73E-01	10/18/95 19:16	-35.66

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/11/95 Surveyor Name: T. GORMAN Reviewed by: J. GAGG
 Time: 1130 Signature: Tom Gorman Location: 9084 Hellway East
 IWP/SOP/OP# — Purpose: Post tile removal

#	dpm/100cm ² dpm/swipe μCi/l mCi/l	Comments
1	—	BACKGROUND
2		
3		Results
4		
5		
6		Attached
7		
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Instrument PTC2550 Serial No. 104314 Date Last Calibrated: 10/11/95
 Background 4.2 α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: —
 Instrument — Serial No. — Date Last Calibrated: —
 Background — α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: —
 Remarks: —

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.05 Radioactive Facility Survey	219.07 Shipboard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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Hall East

11 Oct 95 17:28

Page #1

Protocol #:10

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	6.20
Region B:	18.6 - 2000		0	5.0	9.80
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA A:25%	CPMB B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	62.00	6.20 25.40	9.80 20.20		577.32	67	B
2	10.00	16.00	1.60 440.7	1.90 154.3	3	549.94	60	
3	10.00	55.00	5.50 121.0	0.80 357.1	11	540.75	50	
4	10.00	12.00	1.20 447.5	0.20 1407	2	538.77	32	
5	10.00	38.00	3.80 142.7	0.00 0.00	8	529.89	29	
6	10.00	40.00	4.00 134.4	1.50 193.7	8	541.24	25	
7	10.00	130.00	13.00 43.27	1.80 162.5	27	533.36	17	
8	10.00	48.00	4.80 113.0	0.00 0.00	10	537.97	26	
9	10.00	31.00	3.10 180.4	1.40 207.0	6	531.69	33	
10	10.00	36.00	3.60 156.1	1.90 154.3	7	535.23	32	
11	10.00	35.00	3.50 158.6	1.70 171.7	7	524.28	31	

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/11/95 Surveyor Name: T. GORMAN Reviewed by: Placid
 Time: 1045 Signature: Tom Gorman Location: 968/125-129
 SWP/SOP/OP#: Purpose: Post tile removal

Room 129

18	17	16	4	2
			5	3
14	15		6	7
				8
13	12	11	10	9

#1 - BACKGROUND

#	Units dpm/100cm ²	Comments
1	- BACKGROUND	
2		
3		
4	Results	
5		
6	Attached	
7		
8		
9		
10		
11		
12		
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14		
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Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 10/11/95
 Background 15 a b g n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.:
 Instrument Serial No. Date Last Calibrated:
 Background a b g n H³ cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.:
 Remarks:

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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129

11 Oct 95 11:30

Page #1

Protocol #: 8

10 min - 1st vial

User : TRL I

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	15.00
Region B:	18.6 - 2000		0	5.0	12.00
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	150.00	15.00	16.33	12.00	18.26		591.81	84	B
2	10.00	0.00	0.00	0.00	0.00	0.00	0	558.29	79	
3	10.00	0.00	0.00	0.00	0.00	0.00	0	565.78	89	
4	10.00	5.00	0.50	2667	0.00	0.00	1	573.28	68	
5	10.00	0.00	0.00	0.00	0.00	0.00	0	562.73	66	
6	10.00	0.00	0.00	0.00	0.30	1039	0	544.67	63	
7	10.00	0.00	0.00	0.00	0.00	0.00	0	560.46	63	
8	10.00	0.00	0.00	0.00	0.00	0.00	0	549.08	75	
9	10.00	0.00	0.00	0.00	0.00	0.00	0	564.24	74	
10	10.00	0.00	0.00	0.00	0.30	1039	0	563.56	63	
11	10.00	0.00	0.00	0.00	0.00	0.00	0	550.90	64	
12	10.00	0.00	0.00	0.00	0.00	0.00	0	556.59	72	
13	10.00	30.00	3.00	427.7	0.60	522.8	6	554.86	59	
14	10.00	0.00	0.00	0.00	0.00	0.00	0	554.62	79	
15	10.00	0.00	0.00	0.00	0.00	0.00	0	561.72	63	
16	10.00	0.00	0.00	0.00	0.00	0.00	0	560.14	64	
17	10.00	0.00	0.00	0.00	0.00	0.00	0	571.21	65	
18	10.00	0.00	0.00	0.00	0.00	0.00	0	544.05	68	

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/11/95 Surveyor Name: T. GORMAN Reviewed by: [Signature]
 Time: 1100 Signature: [Signature] Location: 968/125
 SWP/SOP/OP# Purpose: Post tile removal

Room 125, Permeation Lab

6	5	4	3	2
7	8	9	10	11
14	15	14	13	12
17	18	19	20	21

#	Units dpm/100cm ²	Comments
1	— BACKGROUND —	
2		
3		
4	Results	
5		
6		
7	Attached	
8		
9		
10		
11		
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Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 10/11/95
 Background 10 a b g n H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.:
 Instrument Serial No. Date Last Calibrated:
 Background a b g n H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.:
 Remarks:

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radiac Facility Survey	219.07 Shipment Survey	220.02 Radography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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11 Oct 95 19:35

125

Page #1

Protocol #:11

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	10.00
Region B:	18.6 - 2000		0	5.0	11.20
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	100.00	10.00	20.00	11.20	18.90		569.22	63	B
2	10.00	0.00	0.00	0.00	0.00	0.00	0	543.93	69	
3	10.00	0.00	0.00	0.00	0.80	380.8	0	552.05	60	
4	10.00	12.00	1.20	505.8	2.50	126.2	2	541.71	33	
5	10.00	0.00	0.00	0.00	0.00	0.00	0	558.93	42	
6	10.00	8.00	0.80	736.1	0.10	3000	2	543.23	32	
7	10.00	0.00	0.00	0.00	0.60	505.5	0	548.18	29	
8	10.00	0.00	0.00	0.00	0.00	0.00	0	549.56	39	
9	10.00	1.00	0.10	6060	0.00	0.00	0	562.08	38	
10	10.00	14.00	1.40	416.7	0.00	0.00	3	546.66	30	
11	10.00	5.00	0.50	1189	0.00	0.00	1	553.40	34	
12	10.00	12.00	1.20	489.6	0.00	0.00	2	563.76	31	
13	10.00	5.00	0.50	1181	1.10	278.7	1	565.12	32	
14	10.00	0.00	0.00	0.00	0.00	0.00	0	562.10	41	
15	10.00	0.00	0.00	0.00	0.00	0.00	0	570.26	40	
16	10.00	11.00	1.10	533.2	0.40	755.0	2	543.68	30	
17	10.00	0.00	0.00	0.00	0.00	0.00	0	556.49	39	
18	10.00	38.00	3.80	162.0	0.00	*****	8	569.93	33	
19	10.00	0.00	0.00	0.00	0.00	0.00	0	544.07	76	
20	10.00	27.00	2.70	295.6	0.00	0.00	6	539.15	62	
21	10.00	1.00	0.10	7217	0.00	0.00	0	550.91	58	

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/11/95 Surveyor Name: T. GORMAN Reviewed by: [Signature]
Time: 1115 Signature: [Signature] Location: 968/122
SWP/SOP/OP# — Purpose: Post tile removal

Lab 122

2	3	4	5
9	8	7	6
10	11	12	13

#	Units dpm/100cm ²	Comments
1	—	BACKGROUND —
2		
3		
4		Results
5		
6		
7		Attached
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Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 10/11/95

Background 13.4 $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: —

Instrument — Serial No. — Date Last Calibrated: —

Background — $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: —

Remarks: —

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Isolated Source Wipe Test	219.06 Radiation Facility Survey	219.07 Equipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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122

11 Oct 95 14:59

Page #1

Protocol #: 9

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.0 - 18.6		0	5.0	13.40
Region B:	18.6 - 2000		0	5.0	10.00
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA	A:2S%	CPMB	B:2S%	DPM1	tSIE	LUM	FLAG
1	10.00	134.00	13.40	17.28	10.00	20.00		578.07	54	B
2	10.00	0.00	0.00	0.00	1.50	195.5	0	557.51	54	
3	10.00	0.00	0.00	0.00	2.00	148.3	0	560.74	58	
4	10.00	2.00	0.20	2956	0.50	572.7	0	561.85	34	
5	10.00	0.00	0.00	0.00	0.10	2835	0	558.79	34	
6	10.00	0.00	0.00	0.00	0.80	360.6	0	568.04	32	
7	10.00	0.00	0.00	0.00	2.20	135.5	0	564.64	46	
8	10.00	0.00	0.00	0.00	1.30	224.5	0	568.83	49	
9	10.00	0.00	0.00	0.00	0.00	0.00	0	572.05	31	
10	10.00	0.00	0.00	0.00	0.20	1421	0	553.87	46	
11	10.00	0.00	0.00	0.00	2.30	129.9	0	559.14	41	
12	10.00	0.00	0.00	0.00	2.10	141.6	0	550.18	36	
13	10.00	0.00	0.00	0.00	2.00	148.3	0	565.82	38	

RADIATION AND CONTAMINATION SURVEY FORM

Date: 10/24/95 Surveyor Name: T. B. GARCIA Reviewed by: Tom Herman
 Time: AM-PM Signature: TB Garcia Location: 968
 WP/SOP/OP# _____ Purpose: Post-Jile Removal Survey

See attached Map and Data

#	dpm/100cm ² dpm/swipe μCi/l mCi/l	Comments
1		See attached
2		
3		
4		
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Instrument: 2550 Serial No. _____ Date Last Calibrated: 10/24/95
 Background: 16.7 α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: _____
 Instrument: _____ Serial No. _____ Date Last Calibrated: _____
 Background: _____ α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: _____
 Remarks: Post-Jile Removal Survey

File Code:	217.02 Waste Water Analysis	217.03 Leachate Waste Analysis	219.01 Leachate Surveys	219.03 Property Release Survey	219.04 Soil Source Wipe Test	219.06 Residue Facility Survey	219.07 Equipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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24 Oct 95 09:18

Page #1

Protocol #: 9

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.0 - 18.6		0	5.0	16.70
Region B:	18.6 - 2000		0	5.0	11.90
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA	A:2S%	CPMB	B:2S%	DPM1	tSIE	LUM	FLAG
1	10.00	167.00	16.70	15.48	11.90	18.33		567.38	85	B
2	5.93	1.97	0.33	6636	1.08	338.9	1	541.07	83	
3	6.93	0.00	0.00	0.00	0.00	0.00	0	552.86	84	
4	5.31	15.32	2.89	828.2	0.34	1096	6	547.74	83	
5	10.00	0.00	0.00	0.00	0.00	*****	0	545.94	69	
6	10.00	7.00	0.70	1952	0.00	0.00	1	551.95	62	
7	10.00	0.00	0.00	0.00	0.00	*****	0	532.28	70	
8	10.00	0.00	0.00	0.00	0.00	0.00	0	529.66	77	
9	10.00	0.00	0.00	0.00	0.10	3092	0	529.97	66	
10	10.00	0.00	0.00	0.00	0.00	0.00	0	550.73	72	
11	10.00	0.00	0.00	0.00	0.40	777.8	0	553.20	70	
12	10.00	0.00	0.00	0.00	0.70	447.2	0	550.06	75	
13	10.00	0.00	0.00	0.00	0.00	0.00	0	554.63	64	
14	10.00	1.00	0.10	13693	0.30	1035	0	533.82	63	
15	10.00	9.00	0.90	1471	0.20	1549	2	546.02	56	
16	10.00	0.00	0.00	0.00	0.00	*****	0	530.55	70	
17	10.00	50.00	5.00	275.0	0.60	520.7	10	527.34	59	
18	10.00	0.00	0.00	0.00	0.00	0.00	0	484.54	64	

20	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0 537.07	14
21	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0 524.47	40
22	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0 530.43	17
23	10.00	0.00	0.00	0.00	1.10	286.9		0 507.02	11
24	10.00	0.00	0.00	0.00	0.80	392.1		0 512.07	14
5	10.00	0.00	0.00	0.00	0.00	0.00		0 517.41	15
6	10.00	0.00	0.00	0.00	0.00	0.00		0 542.95	14
27	10.00	68.00	6.80	176.4	0.00	0.00		14 518.92	8
28	10.00	0.00	0.00	0.00	0.00	0.00		0 538.02	13
29	10.00	0.00	0.00	0.00	0.00	0.00		0 508.86	20
30	10.00	0.00	0.00	0.00	0.00	0.00		0 523.45	14
31	10.00	0.00	0.00	0.00	0.00	0.00		0 511.61	17
32	10.00	0.00	0.00	0.00	0.00	0.00		0 524.48	14
33	10.00	350.00	35.00	35.69	0.00	0.00		74 511.73	6
34	10.00	0.00	0.00	0.00	0.00	0.00		0 543.59	14
35	10.00	0.00	0.00	0.00	0.00	0.00		0 513.51	16
36	10.00	0.00	0.00	0.00	0.00	0.00		0 523.59	19
37	10.00	0.00	0.00	0.00	0.00	0.00		0 515.12	64
38	10.00	0.00	0.00	0.00	0.00	0.00		0 560.72	61

Oct 95 16:23

Page #2

Protocol #: 9

10 min - 1st vial

User : TRL

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DFM1	tSIE	LUM	FLAG
39	10.00	0.00	0.00	0.00	0.10	3092	0	531.86	49	
40	10.00	0.00	0.00	0.00	0.00	0.00	0	540.95	48	
41	10.00	0.00	0.00	0.00	0.00	****	0	543.46	33	
42	10.00	0.00	0.00	0.00	1.40	226.8	0	553.94	27	
	10.00	0.00	0.00	0.00	0.00	0.00	0	540.26	37	
	10.00	0.00	0.00	0.00	0.00	****	0	527.86	34	
45	10.00	0.00	0.00	0.00	0.00	0.00	0	542.34	38	
46	10.00	0.00	0.00	0.00	0.00	0.00	0	548.54	38	
47	10.00	0.00	0.00	0.00	1.10	286.9	0	533.93	24	
48	10.00	0.00	0.00	0.00	0.00	0.00	0	507.16	16	
49	10.00	0.00	0.00	0.00	0.00	0.00	0	522.17	11	
50	10.00	0.00	0.00	0.00	0.00	0.00	0	523.83	10	
51	10.00	0.00	0.00	0.00	0.00	0.00	0	520.22	14	
52	10.00	0.00	0.00	0.00	0.00	0.00	0	540.68	9	
53	10.00	0.00	0.00	0.00	0.00	0.00	0	526.72	13	
54	10.00	0.00	0.00	0.00	0.00	****	0	522.96	8	
55	10.00	0.00	0.00	0.00	0.00	0.00	0	528.04	9	
56	10.00	0.00	0.00	0.00	2.20	146.6	0	517.37	11	
57	10.00	0.00	0.00	0.00	0.00	0.00	0	543.84	13	
58	10.00	0.00	0.00	0.00	0.50	623.5	0	557.77	9	
59	10.00	0.00	0.00	0.00	0.00	0.00	0	527.45	14	
60	10.00	0.00	0.00	0.00	0.00	0.00	0	545.53	11	
1	10.00	0.00	0.00	0.00	0.00	0.00	0	543.88	17	
2	10.00	0.00	0.00	0.00	0.50	623.5	0	539.59	15	
3	10.00	0.00	0.00	0.00	0.00	0.00	0	545.08	11	
4	10.00	0.00	0.00	0.00	0.00	0.00	0	527.34	13	
5	10.00	0.00	0.00	0.00	0.00	0.00	0	534.32	18	
6	10.00	0.00	0.00	0.00	0.00	0.00	0	541.24	18	
7	10.00	0.00	0.00	0.00	0.00	0.00	0	527.18	12	
8	10.00	0.00	0.00	0.00	0.00	0.00	0	535.10	13	
9	10.00	0.00	0.00	0.00	0.00	0.00	0	549.43	12	
0	10.00	0.00	0.00	0.00	0.00	0.00	0	546.50	17	
	10.00	0.00	0.00	0.00	0.00	0.00	0	541.20	14	
	10.00	0.00	0.00	0.00	0.00	0.00	0	543.05	13	
3	10.00	0.00	0.00	0.00	0.00	0.00	0	532.26	15	
4	10.00	0.00	0.00	0.00	0.60	520.7	0	554.79	17	

77	10.00	0.00	0.00	0.00	0.50	623.5	0	531.21	13
78	10.00	0.00	0.00	0.00	0.00	0.00	0	539.86	26
79	10.00	0.00	0.00	0.00	0.00	0.00	0	544.84	26
80	10.00	0.00	0.00	0.00	0.00	0.00	0	539.41	16
81	10.00	0.00	0.00	0.00	0.90	349.2	0	553.38	12
82	10.00	0.00	0.00	0.00	0.00	0.00	0	547.45	17
83	10.00	30.00	3.00	400.7	0.20	1549	6	517.76	15
84	10.00	0.00	0.00	0.00	0.00	0.00	0	541.67	17
85	10.00	0.00	0.00	0.00	0.00	0.00	0	540.90	20
86	10.00	0.00	0.00	0.00	0.20	1549	0	546.34	17
87	10.00	0.00	0.00	0.00	0.00	0.00	0	529.86	15
88	10.00	0.00	0.00	0.00	0.00	*****	0	559.51	13
89	10.00	0.00	0.00	0.00	0.60	520.7	0	555.86	21
90	10.00	0.00	0.00	0.00	0.10	3092	0	530.63	23
91	10.00	0.00	0.00	0.00	1.10	286.9	0	549.17	20
92	10.00	0.00	0.00	0.00	0.00	0.00	0	550.33	12
93	10.00	0.00	0.00	0.00	0.00	0.00	0	554.45	14
94	10.00	0.00	0.00	0.00	0.00	0.00	0	551.53	13

25 Oct 95 03:01

Page #3

Protocol #: 9

10 min - 1st vial

User : TRL I

S#	TIME	A-CTS	CPMA	A:2S%	CPMB	B:2S%	DPM1	tSIE	LUM	FLAG
95	10.00	0.00	0.00	0.00	0.00	0.00	0	552.98	19	
96	10.00	0.00	0.00	0.00	0.00	0.00	0	557.75	16	
97	10.00	0.00	0.00	0.00	0.30	1035	0	553.14	17	
98	10.00	0.00	0.00	0.00	0.00	0.00	0	557.31	13	
99	10.00	0.00	0.00	0.00	0.00	0.00	0	559.93	21	
100	10.00	0.00	0.00	0.00	0.80	392.1	0	564.82	15	
101	10.00	0.00	0.00	0.00	0.00	0.00	0	526.96	7	
102	10.00	0.00	0.00	0.00	0.00	0.00	0	552.03	8	
103	10.00	0.00	0.00	0.00	0.00	0.00	0	529.64	7	
104	10.00	0.00	0.00	0.00	0.00	0.00	0	539.97	8	
105	10.00	0.00	0.00	0.00	0.00	0.00	0	552.00	11	
106	10.00	0.00	0.00	0.00	0.00	0.00	0	562.70	10	
107	10.00	0.00	0.00	0.00	0.00	0.00	0	544.81	15	
108	10.00	0.00	0.00	0.00	0.00	0.00	0	548.15	13	
109	10.00	0.00	0.00	0.00	0.00	0.00	0	547.13	15	
110	10.00	0.00	0.00	0.00	1.00	315.0	0	546.13	9	
111	10.00	0.00	0.00	0.00	1.20	263.5	0	548.60	10	
112	10.00	0.00	0.00	0.00	0.00	0.00	0	550.03	6	
113	10.00	67.00	6.70	178.4	0.20	1549	14	546.03	5	
114	10.00	0.00	0.00	0.00	0.00	0.00	0	554.00	18	
115	10.00	43.00	4.30	278.7	0.00	0.00	9	552.32	11	
116	10.00	0.00	0.00	0.00	0.00	0.00	0	546.06	6	
117	10.00	0.00	0.00	0.00	0.00	0.00	0	533.31	29	
118	10.00	0.00	0.00	0.00	0.00	0.00	0	546.10	26	
119	10.00	0.00	0.00	0.00	0.00	0.00	0	549.29	34	
120	10.00	0.00	0.00	0.00	0.00	*****	0	531.11	39	

SYSTEM NORMALIZED

C14 IPA DATA PROCESSED

C14 CHI SQUARE IPA DATA PROCESSED

10/24/95

1 bkg

Figure V.39. Bldg. 968 Floor Grid Map

RADIATION AND CONTAMINATION SURVEY FORM

Date: 11-15-95 Surveyor Name: T. GORMAN Reviewed by: P. J. J.

Time: 0730 Signature: T. Gorman Location: 908

SWP/SOP/OP# — Purpose: CHARACTERIZATION

BKGD = 959 cts/60 min = 15.98 cpm = 29.25 dpm

HOT WATER

$$\frac{54 \text{ dpm}}{\text{ml}} - \frac{29.25 \text{ dpm}}{\text{ml}} = \frac{25 \text{ dpm}}{\text{ml}} \times \frac{1000 \text{ ml}}{\text{L}} \times \frac{\text{pCi}}{2.22 \text{ dpm}} =$$

Cold Water

$$\frac{32 \text{ dpm}}{\text{ml}} - \frac{29 \text{ dpm}}{\text{ml}} = \frac{3 \text{ dpm}}{\text{ml}} \times \frac{1000 \text{ ml}}{\text{L}} \times \frac{\text{pCi}}{2.22 \text{ dpm}} =$$

Chilled Water

$$\frac{100 \text{ dpm}}{\text{ml}} - \frac{29 \text{ dpm}}{\text{ml}} = \frac{71 \text{ dpm}}{\text{ml}} \times \frac{1000 \text{ ml}}{\text{L}} \times \frac{\text{pCi}}{2.22 \text{ dpm}} =$$

Cooling Tower

$$\frac{38 \text{ dpm}}{\text{ml}} - \frac{29 \text{ dpm}}{\text{ml}} = \frac{9 \text{ dpm}}{\text{ml}} \times \frac{1000 \text{ ml}}{\text{L}} \times \frac{\text{pCi}}{2.22 \text{ dpm}} =$$

#	dpm/100cm ² dpm/wipe μCi/L mCi/L	Comments
1	13063	
2	11261	JAN SUK
3	1351	JAN SUK
4	31982	EQUIP. RM
5	9054	COOLING TOWER
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC2550 Serial No. 104314 Date Last Calibrated: 11-15-95

Background 16 α β γ n 43 cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: —

Instrument — Serial No. — Date Last Calibrated: —

Background — α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.: —

Remarks: —

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Soiled Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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15 Nov 95 07:34

Protocol #:11

20m1 60 min FVS

Page #1

User : TRL

: 60.00

Data Mode: DPM

Nuclide: 3HUGAB20

Quench Set: 3HUGAB20

Sigma Coincidence On

Background Subtract: None

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	0.00
Region B:	18.6 - 2000		0	5.0	0.00
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC2550 #104314

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DPM1	tSIE	FLAG
1	60.00	959.00	15.98	6.46	18.32	6.03	29.25	650.40	BACKGROUND
2	60.00	1614.00	26.90	4.98	20.25	5.74	53.87	541.95	HOT WATER
3	60.00	964.00	16.07	6.44	19.95	5.78	32.07	545.08	COLD WATER
4	60.00	3010.00	50.17	3.65	20.22	5.74	99.79	548.22	CHILLED WATER
5	60.00	1130.00	18.83	5.95	19.40	5.86	37.72	541.87	COOLING TOWER

SYSTEM NORMALIZED

4 IPA DATA PROCESSED

214 CHI SQUARE IPA DATA PROCESSED

43 IPA DATA PROCESSED

43 CHI SQUARE IPA DATA PROCESSED

3KG IPA DATA PROCESSED

14 Nov 95 16:03

N²/B.A.

Page #1

Protocol #: 9

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	6.40
Region B:	18.6 - 2000		0	5.0	10.80
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA A:25%	CPMB B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	64.00	6.40 25.00	10.80 19.25		539.74	68	B
2	10.00	11.00	1.10 676.9	3.20 98.43	2	528.08	60	
3	10.00	18.00	1.80 387.5	0.00 0.00	4	554.64	58	
4	10.00	5.00	0.50 1126	0.00 0.00	1	390.17	33	
5	10.00	13.00	1.30 440.0	2.40 129.1	3	467.77	30	
6	10.00	18.00	1.80 314.9	1.50 202.6	4	534.03	29	
7	10.00	12.00	1.20 498.6	0.00 0.00	3	523.96	42	

2 - N² at tank (bottle fill line)
 3 - N² at tank (line to bldg 948)
 4 - Breathing air line to bldg 948
 5 - Breathing air at tanks (bottles)
 6 - Service air in room 115
 7 - Service air at compressors

RADIATION AND CONTAMINATION SURVEY FORM

DUPLICATE

6220

Date: 3/12/96

Surveyor Name: J. GORMAN

Reviewed by: Page

Time: 0830

Signature: [Signature]

Location: 968/MAIN EXHAUST PLENUM

SWP/SOP/OP# Purpose: CHARACTERIZATION

#	dbm/100cm ² dpm/swipe μCi/l mCi/l	Comments
1		
2		
3		
4		
5		
6		
7		
8		
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10		
11		
12		
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27		
28		
29		
30		

Results Attached

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: 3/12/96

Background 16 α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Instrument Serial No. Date Last Calibrated:

Background α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Remarks:

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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Form HP-01

Page 1 of 4

12 Mar 96 10:27

Protocol #: 8

10 min - 1st vial

Page #1

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	16.00
Region B:	18.6 - 2000		0	5.0	10.40
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

S#	TIME	A-CTS	CPMA	A:25%	CPMB	B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	160.00	16.00	15.81	10.40	19.61		631.22	19	B
2	10.00	1435.00	143.50	5.84	1.50	199.1	298	525.55	9	
3	4.49	1528.16	340.35	5.29	0.00	0.00	678	626.54	9	
4	2.05	1578.20	769.85	5.10	2.77	197.2	1670	473.34	9	
5	9.20	1453.80	158.02	5.73	2.53	123.4	327	529.86	9	
6	10.00	1171.00	117.10	6.59	1.20	247.2	246	511.56	7	
7	8.25	1468.00	177.94	5.63	1.60	197.4	393	455.04	10	
8	2.61	1563.24	598.94	5.14	0.00	0.00	1293	478.30	10	
9	6.80	1491.20	219.29	5.49	1.66	202.2	461	511.30	11	
10	3.88	1537.92	396.37	5.24	2.23	186.0	869	462.08	7	
11	2.51	1562.84	622.65	5.14	7.13	79.46	1319	500.15	8	
12	6.64	1495.76	225.27	5.47	1.20	279.1	478	499.06	7	
13	6.91	1489.44	215.55	5.50	1.76	190.5	458	496.91	9	
14	10.00	1125.00	112.50	6.76	3.90	80.60	236	513.09	14	
15	4.98	1520.32	305.29	5.33	3.46	113.2	651	492.12	10	
16	7.17	1485.28	207.15	5.52	2.71	125.0	440	497.64	9	
17	7.11	1489.24	209.46	5.51	0.71	453.7	443	503.32	10	
18	8.32	1466.88	176.31	5.64	2.94	110.6	371	508.05	12	
19	10.00	1304.00	130.40	6.18	2.20	137.9	270	528.47	12	
20	5.02	1519.68	302.73	5.33	2.35	161.1	654	477.52	8	
21	3.91	1539.44	393.72	5.24	0.34	1139	930	410.63	11	
22	0.80	1602.20	2002.75	5.02	3.35	254.9	4244	493.68	5	

23	1.01	1583.04	1208.43	5.06	0.00	0.00	2612	477.08	4
24	1.07	1583.88	1480.26	5.06	9.23	95.44	3141	498.13	4
25	0.60	1596.40	2660.67	5.02	21.27	68.99	5698	487.25	2
26	0.39	1628.76	4176.31	4.97	15.24	107.2	9164	461.70	2
27	0.50	1625.00	3250.00	4.97	17.60	85.82	6963	486.87	4
28	0.93	1592.12	1711.96	5.04	0.35	2013	3600	509.61	3
29	0.17	1612.28	9484.00	4.99	24.89	116.0	21024	452.40	3
30	0.17	1675.28	9854.59	4.89	42.54	83.10	20725	509.63	2
31	0.51	1617.84	3172.24	4.99	9.21	136.5	6671	509.69	4
32	0.76	1590.84	2093.21	5.03	14.60	79.80	4621	455.88	3
33	0.20	1659.80	8299.00	4.91	29.60	95.80	17991	473.95	2
34	0.49	1604.16	3273.80	5.01	22.25	73.94	7596	421.24	4
35	0.32	1622.88	5071.50	4.97	23.98	86.88	12211	399.12	3
36	0.22	1597.48	7261.27	5.01	3.24	490.6	16480	435.35	2
37	1.58	1577.72	998.56	5.08	6.69	103.0	2133	490.38	8
38	1.64	1577.76	962.05	5.08	6.06	109.8	2089	472.34	5
39	1.96	1573.64	802.88	5.10	5.42	111.4	1731	479.83	7
40	1.05	1583.20	1507.81	5.06	11.50	81.36	3314	460.13	5
41	1.74	1574.16	904.69	5.09	3.39	176.5	1974	467.14	10

12 Mar 96 13:32

Page #2

Protocol #: 8

10 min - 1st vial

User : TRL

S#	TIME	A-CTS	CPMA	A:2S%	CPMB	B:2S%	DPM1	tSIE	LUM	FLAG
42	0.47	1620.48	3447.83	4.98	17.26	89.68	8371	394.12	3	
43	1.10	1588.40	1444.00	5.05	10.51	85.21	3255	440.14	4	
44	2.94	1560.96	530.94	5.16	3.21	148.5	1130	494.42	7	
45	1.64	1575.76	960.83	5.09	7.28	94.42	2068	481.94	5	
46	1.01	1588.84	1573.11	5.05	13.36	74.19	3918	377.57	4	
47	4.71	1527.64	324.34	5.30	4.04	100.4	707	468.36	6	
48	2.26	1568.84	694.18	5.12	1.99	256.7	1558	442.94	5	
49	2.31	1569.04	679.24	5.12	2.15	236.2	1463	480.72	4	
50	2.71	1562.64	576.62	5.15	3.62	137.6	1248	476.07	5	
51	1.85	1572.40	849.95	5.10	2.57	220.6	1869	459.84	4	
52	0.60	1598.40	2664.00	5.02	14.60	89.52	6785	360.80	2	
53	2.11	1570.24	744.19	5.11	3.82	146.1	1623	467.67	6	

AVE : 3855 dpm / 100cm²

AVE : 3855 dpm / 100cm²

RADIATION AND CONTAMINATION SURVEY FORM

Date: 1/24/96

Surveyor Name: J. GORMAN

Reviewed by: [Signature]

Time: 1500

Signature: [Signature]

Location: BLDG 968

SWP/SOP/OP# _____ Purpose: WATER SYSTEM CHARACTERIZATION

1) BKGD

$$14.77 \text{ cpm} \Rightarrow 29.70 \text{ dpm}$$

2) COLD WATER

$$\frac{28.69 \text{ dpm}}{\text{ml}} - \frac{29.70 \text{ dpm}}{\text{ml}} = 0$$

3) HOT WATER

$$\frac{29.14 \text{ dpm}}{\text{ml}} - \frac{29.70 \text{ dpm}}{\text{ml}} = 0$$

4) COOLING TOWER

$$\frac{28.91 \text{ dpm}}{\text{ml}} - \frac{29.70 \text{ dpm}}{\text{ml}} = 0$$

5) CHILLED WATER

$$\frac{57.09 \text{ dpm}}{\text{ml}} - \frac{29.70 \text{ dpm}}{\text{ml}} = \frac{27.39 \text{ dpm}}{\text{ml}} \times \frac{\text{PCI}}{2.22 \text{ dpm}} \times \frac{100 \text{ ml}}{\text{l}} = 1233.7 \text{ PCI/l}$$

#	dpm/100cm2 dpm/swipe mCi mCi/l	Comments
1	BKGD	
2	0	
3	0	
4	0	
5	12338	
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 255D Serial No. 104314 Date Last Calibrated: 1-24-96

Background 14.77 $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h $\mu\text{Ci/m}^3$ Corr. Fact. or Eff.: _____

Instrument _____ Serial No. _____ Date Last Calibrated: _____

Background _____ $\alpha \beta \gamma$ n H³ cpm mR/h mrem/h $\mu\text{Ci/m}^3$ Corr. Fact. or Eff.: _____

Remarks: 60 MINUTE COUNT TIMES

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Waste Survey	219.03 Property Release Survey	219.04 Soiled Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Equipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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24 Jan 96 19:48

Protocol #:11

20 ml no Subt

Page #1

User : PTC25!

Time: 60.00

Data Mode: DPM

Nuclide: 3HUGAB20

Quench Set: 3HUGAB20

Sigma Coincidence On

Background Subtract: None

	LL	UL	LCR	2S%	BKG
Region A:	0.0 - 18.6		0	5.0	0.00
Region B:	18.6 - 2000		0	5.0	0.00
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

Characterization

Luminescence Correction On

S#	TIME	A-CTS	CPMA	A:2S%	CPMB	B:2S%	DPM1	tSIE	FLAG
1	60.00	886.00	14.77	10.51	19.90	5.79	29.70	543.20	BKGD
2	60.00	858.00	14.30	9.38	19.85	5.80	28.69	545.55	COLD WATER
3	60.00	875.00	14.58	7.78	20.45	5.71	29.14	549.33	HOT WATER
4	60.00	866.00	14.43	7.91	19.62	5.83	28.91	547.21	COOLING TOWER
5	60.00	1748.00	29.13	5.20	19.43	5.86	57.09	568.34	CHILL WATER

RADIATION AND CONTAMINATION SURVEY FORM

Date: 11/14/95 Surveyor Name: T. GORMAN Reviewed by: P. GARCIA
Time: 1515 Signature: TOM GORMAN Location: BLDG 908

SWP/SOP/OP# Purpose: AIR/NITROGEN SYSTEMS CHARACTERIZATION

100 CM² SWIPE TAKEN INSIDE GAS LINE TUBING
AS NOTED ON ATTACHED DATA SHEET.

#	dpm/100cm ² dpm/swipe μCi/l mCi/l	Comments
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument: PTC 2550 Serial No. 104314 Date Last Calibrated: 11-14-95

Background: 6.4 α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Instrument: Serial No. Date Last Calibrated:

Background: α β γ n H³ cpm mR/h mrem/h μCi/m³ Corr. Fact. or Eff.:

Remarks:

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Existed Source Wipe Test	219.06 Remediation Facility Survey	219.07 Shipments Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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14 Nov 95 16:03

N²/B.A.

Page #1

Protocol #: 9

10 min - 1st vial

User : TRL

Time: 10.00

Data Mode: DPM

Nuclide: 3HUGAB07

Quench Set: 3HUGAB07

Background Subtract: 1st Vial

	LL	UL	LCR	25%	BKG
Region A:	0.0 - 18.6		0	5.0	6.40
Region B:	18.6 - 2000		0	5.0	10.80
Region C:	0.0 - 0.0		0	0.0	0.00

Quench Indicator: tSIE/AEC

Ext Std Terminator: Count

PTC 2550 #104314

Luminescence Correction On

Heterogeneity Monitor On

Color Quench Correction On

S#	TIME	A-CTS	CPMA A:25%	CPMB B:25%	DPM1	tSIE	LUM	FLAG
1	10.00	64.00	6.40 25.00	10.80 19.25		539.74	68	B
2	10.00	11.00	1.10 676.9	3.20 98.43	2	528.08	60	
3	10.00	18.00	1.80 387.3	0.00 0.00	4	554.64	58	
4	10.00	5.00	0.50 1126	0.00 0.00	1	390.17	33	
5	10.00	13.00	1.30 440.0	2.40 129.1	3	467.77	30	
6	10.00	18.00	1.80 314.9	1.50 202.6	4	534.03	29	
7	10.00	12.00	1.20 498.6	0.00 0.00	3	523.96	42	

- 2 - N² at tank (bottle fill line)
- 3 - N² at tank (line to bldg 968)
- 4 - Breathing air line to bldg 968
- 5 - Breathing air at tanks (bottles)
- 6 - Service air in room 115
- 7 - Service air at compressors

APPENDIX B

CONCRETE CHARACTERIZATION

Analysis Results

January 22, 1996

1.0 GENERAL

Thermo NUtech Sample Delivery Group 8209 is comprised of thirteen concrete samples. The samples were received on December 7, 1995. The DVD data package indicates that the methods used for the analyses were for soil matrices. The sample matrix is concrete but the analytical methods still apply to concrete.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

A measured mass of concrete sample was placed in a distillation flask. Toluene was added to form an azeotrope. Ten mL's of de-ionized water was also added. The distillation was performed until the volume of distillate received was zero for a period of one and a half hours. Ten mL's of the distillate was aliquoted into an LSC vial and counted. The aliquot for the volume counted was determined by taking the ratio of the 10 mL given to counting and the total volume received from the distillation, and multiply that ratio against the mass of concrete in the distillation flask. An average counter efficiency was used for those samples that had activity greater than the activity of the tritium solution used for efficiency determination. No problems were encountered during the analyses.

2.2 Gamma Scan Analyses Analyses

No problems were encountered during the analyses.

8209-015

METHOD BLANK

Method Blank

SDG 8209 Client/Project # Sandia National Lab LD-8018
Contact N. Joseph Verville Project # LD-8018

Lab sample id N512006-15 Client sample id Method Blank
Dept sample id 8209-015 Material/Matrix CONCRETE

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.041	0.031	0.06		U	H
Potassium 40	13966-00-2	U		20		U	GAM
Cobalt 60	10198-40-0	U		1		U	GAM
Cesium 137	10045-97-3	U		1		U	GAM
Radium 226	13982-63-3	U		2		U	GAM
Thorium 228	14274-82-9	U		2		U	GAM
Thorium 232	7440-29-1	U		5		U	GAM

QC-BLANK #24935

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 8

Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-014

LAB CONTROL SAMPLE

Lab Control Sample

SDG 8209
Contact N. Joseph Verville

Client/Project # Sandia National Lab LD-8018
Project # LD-8018

Lab sample id NS12006-14
Dept sample id 8209-014

Client sample id Lab Control Sample
Material/Matrix CONCRETE

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	1.9	0.062	0.06			H	1.90	0.076	100	83-117	
Potassium 40	U		20		U	GAM					
Cobalt 60	U		2		U	GAM					
Cesium 137	310	7.0				GAM	313	13	99	83-117	
Radium 226	U		3		U	GAM					
Thorium 228	U		3		U	GAM					
Thorium 232	U		7		U	GAM					

QC-LCS #24934

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 9

Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/22/96

8209-001

DATA SHEET

1-R27

SDG 8209 Client/Project # Sandia National Lab LD-8018
 Contact N. Joseph Verville Project # LD-8018
 Lab sample id N512006-01 Client sample id 1-R27
 Dept sample id 8209-001 Location/Matrix CONCRETE
 Received 12/07/95 Collected 12/01/95
 Chain of custody id LD-8018

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	210	3.0	0.3			H
Potassium 40	13966-00-2	4.7	0.77				GAM
Cobalt 60	10198-40-0	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.05		U	GAM
Radium 226	13982-63-3	0.27	0.10				GAM
Thorium 228	14274-82-9	0.40	0.078				GAM
Thorium 232	7440-29-1	0.45	0.28				GAM

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 10

Lab id TMA
 Protocol SANDIA-1
 Version Ver 1.0
 Form DVD-DS
 Version 3.06
 Report date 01/22/96

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-002

DATA SHEET

2-P23

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>
Lab sample id <u>N512006-02</u>	Client sample id <u>2-P23</u>
Dept sample id <u>8209-002</u>	Location/Matrix <u>CONCRETE</u>
Received <u>12/07/95</u>	Collected <u>12/01/95</u>
	Chain of custody id <u>LD-8018</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	150	2.1	0.3			H
Potassium 40	13966-00-2	3.9	0.28				GAM
Cobalt 60	10198-40-0	U		0.02		U	GAM
Cesium 137	10045-97-3	U		0.01		U	GAM
Radium 226	13982-63-3	0.30	0.032				GAM
Thorium 228	14274-82-9	0.25	0.022				GAM
Thorium 232	7440-29-1	0.29	0.067				GAM

DATA SHEETS

Page 2

SUMMARY DATA SECTION

Page 11

Lab id <u>TMA</u>
Protocol <u>SANDIA-1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/22/96</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-003

3-X32

DATA SHEET

SDG 8209 Client/Project # Sandia National Lab LD-8018
Contact N..Joseph Verville Project # LD-8018

Lab sample id N512006-03 Client sample id 3-X32
Dept sample id 8209-003 Location/Matrix CONCRETE
Received 12/07/95 Collected 12/01/95
Chain of custody id LD-8018

ANALYTE	CAS NO	RESULT pCi/g	2σ BRR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	56	0.80	0.1			H
Potassium 40	13966-00-2	3.9	0.40				GAM
Cobalt 60	10198-40-0	U		0.03		U	GAM
Cesium 137	10045-97-3	U		0.02		U	GAM
Radium 226	13982-63-3	0.36	0.054				GAM
Thorium 228	14274-82-9	0.22	0.032				GAM
Thorium 232	7440-29-1	0.35	0.10				GAM

DATA SHEETS

Page 3

SUMMARY DATA SECTION

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Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-004

DATA SHEET

4-T20

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>
Lab sample id <u>N512006-04</u>	Client sample id <u>4-T20</u>
Dept sample id <u>8209-004</u>	Location/Matrix <u>CONCRETE</u>
Received <u>12/07/95</u>	Collected <u>12/01/95</u>
Chain of custody id <u>LD-8018</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	93	1.3	0.2			H
Potassium 40	13966-00-2	3.9	0.80				GAM
Cobalt 60	10198-40-0	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.04		U	GAM
Radium 226	13982-63-3	0.45	0.10				GAM
Thorium 228	14274-82-9	0.22	0.052				GAM
Thorium 232	7440-29-1	0.63	0.44				GAM

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-005

5-N14

DATA SHEET

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab</u>	<u>LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project. # <u>LD-8018</u>	
Lab sample id <u>N512006-05</u>	Client sample id <u>5-N14</u>	
Dept sample id <u>8209-005</u>	Location/Matrix <u>CONCRETE</u>	
Received <u>12/07/95</u>	Collected <u>12/01/95</u>	
Chain of custody id <u>LD-8018</u>		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1400	19	0.8			H
Potassium 40	13966-00-2	3.4	0.25				GAM
Cobalt 60	10198-40-0	U		0.01		U	GAM
Cesium 137	10045-97-3	U		0.01		U	GAM
Radium 226	13982-63-3	0.26	0.036				GAM
Thorium 228	14274-82-9	0.22	0.021				GAM
Thorium 232	7440-29-1	0.23	0.071				GAM

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-006

6-014

DATA SHEET

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab</u>	<u>LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>	
Lab sample id <u>N512006-06</u>	Client sample id <u>6-014</u>	
Dept sample id <u>8209-006</u>	Location/Matrix <u>CONCRETE</u>	
Received <u>12/07/95</u>	Collected <u>12/01/95</u>	
Chain of custody id <u>LD-8018</u>		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1500	21	1			H
Potassium 40	13966-00-2	3.7	0.75				GAM
Cobalt 60	10198-40-0	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.05		U	GAM
Radium 226	13982-63-3	0.36	0.082				GAM
Thorium 228	14274-82-9	0.30	0.053				GAM
Thorium 232	7440-29-1	0.51	0.22				GAM

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id TMA
 Protocol SANDIA-1
 Version Ver 1.0
 Form DVD-DS
 Version 3.06
 Report date 01/22/96

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-007

DATA SHEET

7-T14

SDG 8209 Client/Project # Sandia National Lab LD-8018
 Contact N. Joseph Verville Project # LD-8018
 Lab sample id N512006-07 Client sample id 7-T14
 Dept sample id 8209-007 Location/Matrix CONCRETE
 Received 12/07/95 Collected 12/01/95
 Chain of custody id LD-8018

ANALYTE	CAS NO	RESULT pCi/g	2σ BRR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1000	15	0.7			H
Potassium 40	13966-00-2	3.0	0.50				GAM
Cobalt 60	10198-40-0	U		0.03		U	GAM
Cesium 137	10045-97-3	U		0.03		U	GAM
Radium 226	13982-63-3	0.30	0.065				GAM
Thorium 228	14274-82-9	0.24	0.050				GAM
Thorium 232	7440-29-1	0.15	0.15				GAM

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-008

DATA SHEET

8-X17

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab</u>	<u>LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>	
Lab sample id <u>N512006-08</u>	Client sample id <u>8-X17</u>	
Dept sample id <u>8209-008</u>	Location/Matrix <u>CONCRETE</u>	
Received <u>12/07/95</u>	Collected <u>12/01/95</u>	
Chain of custody id <u>LD-8018</u>		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	190	2.7	0.2			H
Potassium 40	13966-00-2	3.6	0.35				GAM
Cobalt 60	10198-40-0	U		0.02		U	GAM
Cesium 137	10045-97-3	U		0.02		U	GAM
Radium 226	13982-63-3	0.27	0.038				GAM
Thorium 228	14274-82-9	0.25	0.027				GAM
Thorium 232	7440-29-1	0.15	0.074				GAM

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-009

DATA SHEET

P37

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab</u>	<u>LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>	
Lab sample id <u>N512006-09</u>	Client sample id <u>P37</u>	
Dept sample id <u>8209-009</u>	Location/Matrix <u>CONCRETE</u>	
Received <u>12/07/95</u>	Collected <u>12/01/95</u>	
	Chain of custody id <u>LD-8018</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1000	23	2			H
Potassium 40	13966-00-2	U		5		U	GAM
Cobalt 60	10198-40-0	U		0.5		U	GAM
Cesium 137	10045-97-3	U		0.3		U	GAM
Radium 226	13982-63-3	U		0.8		U	GAM
Thorium 228	14274-82-9	U		0.4		U	GAM
Thorium 232	7440-29-1	U		2		U	GAM

DATA SHEETS

Page 9

SUMMARY DATA SECTION

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Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-010

S40

DATA SHEET

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>
Lab sample id <u>N512006-10</u>	Client sample id <u>S40</u>
Dept sample id <u>8209-010</u>	Location/Matrix <u>CONCRETE</u>
Received <u>12/07/95</u>	Collected <u>12/01/95</u>
	Chain of custody id <u>LD-8018</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	190	2.7	1			H
Potassium 40	13966-00-2	6.7	6.2				GAM
Cobalt 60	10198-40-0	U		0.5		U	GAM
Cesium 137	10045-97-3	U		0.4		U	GAM
Radium 226	13982-63-3	U		1		U	GAM
Thorium 228	14274-82-9	U		0.6		U	GAM
Thorium 232	7440-29-1	U		2		U	GAM

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id	<u>TMA</u>
Protocol	<u>SANDIA-1</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-DS</u>
Version	<u>3.06</u>
Report date	<u>01/22/96</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-011

W38

DATA SHEET

SDG 8209 Client/Project # Sandia National Lab LD-8018
 Contact N. Joseph Verville Project # LD-8018
 Lab sample id NS12006-11 Client sample id W38
 Dept sample id 8209-011 Location/Matrix CONCRETE
 Received 12/07/95 Collected 12/01/95
 Chain of custody id LD-8018

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	220	3.1	0.8			H
Potassium 40	13966-00-2	3.5	3.0				GAM
Cobalt 60	10198-40-0	U		0.3		U	GAM
Cesium 137	10045-97-3	U		0.2		U	GAM
Radium 226	13982-63-3	U		0.5		U	GAM
Thorium 228	14274-82-9	U		0.3		U	GAM
Thorium 232	7440-29-1	U		1		U	GAM

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id TMA
 Protocol SANDIA-1
 Version Ver 1.0
 Form DVD-DS
 Version 3.06
 Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-012

W39

DATA SHEET

SDG <u>8209</u>	Client/Project # <u>Sandia National Lab LD-8018</u>
Contact <u>N. Joseph Verville</u>	Project # <u>LD-8018</u>
Lab sample id <u>N512006-12</u>	Client sample id <u>W39</u>
Dept sample id <u>8209-012</u>	Location/Matrix <u>CONCRETE</u>
Received <u>12/07/95</u>	Collected <u>12/01/95</u>
Chain of custody id <u>LD-8018</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	92	1.9	1			H
Potassium 40	13966-00-2	U		7		U	GAM
Cobalt 60	10198-40-0	U		0.9		U	GAM
Cesium 137	10045-97-3	U		0.5		U	GAM
Radium 226	13982-63-3	1.6	1.2				GAM
Thorium 228	14274-82-9	1.2	0.91				GAM
Thorium 232	7440-29-1	U		3		U	GAM

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SUMMARY DATA SECTION
Page 21

Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

8209-013

DATA SHEET

W40

SDG 8209 Client/Project # Sandia National Lab LD-8018
Contact N. Joseph Verville Project # LD-8018
Lab sample id N512006-13 Client sample id W40
Dept sample id 8209-013 Location/Matrix CONCRETE
Received 12/07/95 Collected 12/01/95
Chain of custody id LD-8018

ANALYTE	CAS NO	RESULT pCi/g	2σ BRR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	94	1.8	0.6			H
Potassium 40	13966-00-2	U		6		U	GAM
Cobalt 60	10198-40-0	U		0.4		U	GAM
Cesium 137	10045-97-3	U		0.3		U	GAM
Radium 226	13982-63-3	U		0.6		U	GAM
Thorium 228	14274-82-9	0.59	0.41				GAM
Thorium 232	7440-29-1	U		1		U	GAM

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Summary DATA SECTION

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Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/96

TMA/RICHMOND

SAMPLE DELIVERY GROUP 8209

LAB METHOD SUMMARY

GAMMA SCAN FOR SOIL

GAMMA SCAN

Test GAM Matrix CONCRETESDG 8209Contact N. Joseph VervilleClient Sandia National LabContract LD-8018Project # LD-8018

RESULTS

LAB RAW SUP-

SAMPLE ID TEST PIX PLANCHET CLIENT SAMPLE ID Cobalt 60 Cesium 137

Preparation batch 2807-039

N512006-01	8209-001	1-R27	U	U
N512006-02	8209-002	2-P23	U	U
N512006-03	8209-003	3-X32	U	U
N512006-04	8209-004	4-T20	U	U
N512006-05	8209-005	5-N14	U	U
N512006-06	8209-006	6-Q14	U	U
N512006-07	8209-007	7-T14	U	U
N512006-08	8209-008	8-X17	U	U
N512006-09	8209-009	P37	U	U
N512006-10	8209-010	S40	U	U
N512006-11	8209-011	W38	U	U
N512006-12	8209-012	W39	U	U
N512006-13	8209-013	W40	U	U
N512006-14	8209-014	LCS (QC ID=24934)	No data U	ok
N512006-15	8209-015	BLK (QC ID=24935)	U	U

Nominal values and limits from method

RDLs (pCi/g)

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

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Lab id TMAProtocol SANDIA-1Version Ver 1.0Form DVD-LMSVersion 3.06Report date 01/22/96

TMA/RICHMOND

SAMPLE DELIVERY GROUP 8209

Test GAM Matrix CONCRETESDG 8209Contact N. Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN FOR SOIL

GAMMA SCAN

Client Sandia National LabContract LD-8018Project # LD-8018

METHOD PERFORMANCE

LAB	SUP-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	t	t	min	keV	KeV	HELD PREPARED	YZED	DETECTOR
reparation batch 2807-039 2σ prep. error 10.0 % Reference Logbook # 2807, page # 039														
512006-01		1-R27	0.06	73.5						892		26 12/22/95	12/27	PD,01,00
512006-02		2-P23	0.02	181						892		26 12/22/95	12/27	JR,04,00
512006-03		3-X32	0.03	162						425		27 12/22/95	12/28	JR,04,00
512006-04		4-T20	0.06	68.5						892		26 12/22/95	12/27	PD,03,00
512006-05		5-N14	0.01	174						998		27 12/22/95	12/28	JR,04,00
512006-06		6-Q14	0.06	69.4						892		26 12/22/95	12/27	PD,02,00
512006-07		7-T14	0.03	196						856		27 12/22/95	12/28	JR,01,00
12006-08		8-X17	0.02	181						514		28 12/22/95	12/29	JR,04,00
12006-09		P37	5	4.28						856		27 12/22/95	12/28	CP,02,00
12006-10		S40	2	3.35						856		27 12/22/95	12/28	CP,03,00
12006-11		W38	1	6.99						840		33 12/22/95	01/03	CP,01,00
12006-12		W39	7	2.44						840		33 12/22/95	01/03	CP,02,00
12006-13		W40	6	4.80						840		33 12/22/95	01/03	CP,03,00
12006-14		LCS (QC ID=24934)	20	2.00						408		12/22/95	01/02	JR,04,00
12006-15		BLK (QC ID=24935)	20	2.00						820		12/22/95	01/02	JR,04,00
Final values and limits from method			125			100			180					

PROCEDURES REFERENCE TMA Environ. Procedures Manual
 EP-100 Ge(Li) Preparation for Environmental Samples,
 rev 0

AVERAGES ± 2 SD MDA 4 ± 10
 FOR 15 SAMPLES YIELD 4

METHOD SUMMARIES
 Page 2
 PRIMARY DATA SECTION
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Lab id TMA
 Protocol SANDIA-1
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

Test H Matrix CONCRETE
SDG 8209
Contact N. Joseph Verville

LAB METHOD SUMMARY

TRITIUM-SOIL
LIQUID SCINTILLATION

Client Sandia National Lab
Contract ID-8018
Project # ID-8018

RESULTS

LAB RAW SUP-

SAMPLE ID TEST PIX PLANCHET CLIENT SAMPLE ID Tritium

Preparation batch 2807-039

N512006-01	8209-001	1-R27	210
N512006-02	8209-002	2-P23	150
N512006-03	8209-003	3-X32	55
N512006-04	8209-004	4-T20	93
N512006-05	8209-005	5-N14	1400
N512006-06	8209-006	6-Q14	1500
N512006-07	8209-007	7-T14	1000
N512006-08	8209-008	8-X17	190
N512006-09	8209-009	P37	1000
N512006-10	8209-010	S40	190
N512006-11	8209-011	W38	220
N512006-12	8209-012	W39	92
N512006-13	8209-013	W40	94
N512006-14	8209-014	LCS (QC ID=24934)	OK
N512006-15	8209-015	BLK (QC ID=24935)	U

Nominal values and limits from method RDLs (pCi/g)

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

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Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/22/96

TMA/RICHMOND
SAMPLE DELIVERY GROUP 8209

Test H Matrix CONCRETE
SDG 8209
Fact N. Joseph Verville

LAB METHOD SUMMARY
TRITIUM-SOIL
LIQUID SCINTILLATION

Client Sandia National Lab
Contract LD-8018
Project # LD-8018

METHOD PERFORMANCE

PLR ID	TEST FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT t	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
paration batch 2807-039			2σ prep error 10.0 % Reference Logbook # 2807, page # 039												
2006-01		1-R27	0.13	59.1					3			43	01/12/96	01/13	LSC-005
2006-02		2-P23	0.1	113					6			43	01/12/96	01/13	LSC-005
2006-03		3-X32	0.1	106					7			43	01/12/96	01/13	LSC-005
2006-04		4-T20	0.2	57.1					9			43	01/12/96	01/13	LSC-005
2006-05		5-N14	0.8	112					1			43	01/12/96	01/13	LSC-005
2006-06		6-Q14	1	57.9					1			43	01/12/96	01/13	LSC-005
2006-07		7-T14	0.7	124					1			43	01/12/96	01/13	LSC-005
2006-08		8-X17	0.2	109					2			43	01/12/96	01/13	LSC-005
2006-09		P37	2	4.22					10			43	01/12/96	01/13	LSC-005
2006-10		S40	1	3.29					77			43	01/12/96	01/13	LSC-005
2006-11		W38	0.8	6.86					31			43	01/12/96	01/13	LSC-005
2006-12		W39	1	2.42					100			43	01/12/96	01/13	LSC-005
2006-13		W40	0.6	4.75					100			43	01/12/96	01/13	LSC-005
2006-14		LCS (QC ID=24934)	0.06	50.0					100				01/12/96	01/13	LSC-005
2006-15		BLK (QC ID=24935)	0.06	50.0					50				01/12/96	01/15	LSC-005
anal values and limits from method			50.0		25		180								

PROCEDURES REFERENCE EPA 906.0; ASTM 2476-81
EP-060 Soil Preparation, rev 0
EP-070 Soil Dissolution, rev 0
EP-211 Tritium in Solid Samples by Azeotropic Distillation, rev 0

AVERAGES ± 2 SD MDA 0.6 ± 1
FOR 15 SAMPLES YIELD _____ ± _____

Lab id TMA
Protocol SANDIA-1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/22/96

APPENDIX C
SITE RADIOLOGICAL SOIL CHARACTERIZATION

RADIOLOGICAL SOIL CHARACTERIZATION

**Dave Brekke and John Chavarria
Environmental Operations Department**

Sandia National Laboratories/California

October 1995

Abstract

In conjunction with the transition of the Tritium Research Laboratory, the Environmental Operations Department characterized the tritium concentration in surface soil at the SNL/California site. The objective of this soil survey was to assess the potential for residual tritium resulting from site operations. These data were used as the basis to determine if additional characterization or remedial actions were necessary.

Of the 21 locations sampled, only two had tritium concentrations statistically above background. The concentration of tritium in soil at all other locations was below the laboratory's minimum detection limit. The highest tritium concentration measured in surface soil at the SNL/California site was 0.096 ± 0.03 pCi/g. Using the DOE prescribed methodology, the acceptable residual soil concentration limit for tritium was determined to be 1.03×10^3 pCi/g. Thus, the highest tritium concentration measured was 0.009% of the allowable limit for unrestricted release of the site and protection of the public. Soil samples also were analyzed for gamma-emitting radionuclides. The only such isotopes identified were those of natural origin or expected from world-wide fallout. Therefore, it is the conclusion of this assessment that no further surface environment characterization nor remediation is warranted.

Introduction

The purpose of this evaluation was to assess the presence of residual tritium in surface soil from DOE activities and estimate the maximum credible individual radiation dose resulting from possible reuse of property. This information was used to derive soil concentration guidelines in accordance with methods prescribed by DOE. Furthermore, this information was used as the basis for determining if further environmental characterization or remedial action is necessary.

The Tritium Research Laboratory (TRL) at SNL/California began experimentation with limited quantities of tritium in 1977. The facility terminated tritium-related research in 1993, and removed the last of the tritium inventory in 1994. In November 1994, the DOE reclassified the TRL as a Non-nuclear, Low Hazard Facility.

Throughout the operating life of the facility, SNL/California maintained an extensive effluent monitoring and environmental surveillance program to assess the impacts of tritium on the surrounding environment. The routine environmental monitoring program is documented in the SNL/California Environmental Monitoring Plan¹, and each year the tritium monitoring results are published in the SNL/California Site Environmental Report².

DOE Order 5400.5³ states that environmental surveillance should be performed to assess the impacts from facility operations. DOE Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance⁴ continues by requiring that "periodic sampling and analysis of indicator materials, such as soil ... should be performed to determine if there is measurable long-term buildup of radionuclides in the terrestrial environment ... Soil sampling and analysis should be used to evaluate the long-term accumulation trends and establish environmental radionuclide inventories." Soil is an integrating medium that can accumulate pollutants released directly to the ground, to the air or as a liquid effluent. However, tritium, due to its presence in the environment as tritiated water, is not significantly attenuated by the ion exchange properties of soil. Thus, it is quickly carried out of the root zone of most of the plants that characterize the SNL/California site. For this reason, surface soil sampling was considered to be adequate, as it characterized the tritium that was available for plant uptake, and thus incorporation into foodchains.

The environmental pathway analysis computer code RESRAD^{5,6} was developed by the DOE to calculate radiation doses from residual radioactive material in soil and derive soil cleanup criteria. The highest residual tritium concentration measured in surface soil around the former TRL was input into RESRAD to calculate potential radiation dose and generate site-specific soil guidelines. RESRAD contains a model specifically for tritium. This code also was utilized for implementing DOE policy for reducing residual radioactivity to levels that are as low as reasonably achievable (ALARA).

DOE guidance, "Environmental Implementation Guide for Radiological Survey Procedures" (Draft, November 1992)⁷, states that environmental characterization should be commensurate with the potential for contamination at the site. The TRL has never discharged tritium-containing effluent directly to the ground or to the arroyo. Furthermore, there has never been on-site disposal of radioactive waste at SNL/California. The only plausible pathway for soil contamination was deposition from the air.

It should be noted that the tritium levels measured in surface soil cannot be attributed solely to TRL operations. The area surveyed was in close proximity to another major tritium source operated by Lawrence Livermore National Laboratory (LLNL), which historically has had greater emissions of tritium to the atmosphere. LLNL will continue to emit tritium for the foreseeable future, although at much lower emission rates than in the past. Figure 1 shows the tritium releases to the atmosphere for both SNL/California and LLNL for the past ten years. This survey established an environmental baseline for tritium at the point of termination of tritium activities at SNL/California.

A variety of radionuclides have been handled and stored at Building 968 over the years; however, only tritium has had the potential for release to the environment. To verify this information, ten soil samples were analyzed for gamma-emitting radionuclides.

The Environmental Radiological Survey Plan, which expands on the purpose and scope of this assessment, is provided in Attachment I.

Materials and Methods

Sampling protocol: The soil sampling methods used in this assessment generally followed the American Society for Testing and Materials (ASTM) procedure "Standard Practice for Sampling Surface Soils for Radionuclides⁸." At each location, a 500-mL discrete sample (no compositing) was taken of surface soil (top 5 cm) over a 0.25 m² area. The field operating procedure titled "Collection of Surface Soil Samples for Tritium Analysis" is provided in Attachment I.

This assessment was confined to sampling surface soil. This was justified on the basis that the only significant pathway for soil contamination at SNL/California was deposition from air. Consequently, the upper layer of soil should have contained the highest concentration of radionuclides. In addition, this layer of soil contained the material available for resuspension and uptake by plants. According to studies by Meriwether⁹: "For the maximum concentration of surface-induced, anthropogenically produced radionuclides, sample the top five centimeters of all soil. Incremental sampling will produce decreased values with depth." Furthermore, Lawrence Livermore National Laboratory evaluated radionuclide soil concentrations specifically in the Livermore area in respect to depth profile and determined that from atmospheric deposition the concentration of radionuclides was highest in the top 5 cm of soil¹⁰.

Sampling Locations: Site knowledge and professional judgment were used to determine the locations to be sampled and the total number of samples to be collected. Samples of surface soil were obtained at 19 locations around the SNL/California site. In addition, two background samples were collected, two locations were sampled in duplicate, and one blank was submitted to the laboratory. A list of the sample locations and analyses performed is provided in Table 1.

The sampling strategy targeted areas with the highest potential for tritium contamination. Thus, the largest number of samples were collected immediately adjacent to the facility; areas in the predominant downwind direction of the stack release point; and surface drainage paths, including the arroyo which receives surface water runoff. Samples of soil from other areas of the site were taken for completeness. Sampling locations are shown on Figure 2. Figure 3 is the 1994 annual average wind rose for the site, which was used to help identify downwind sampling locations.

Table 1. Sampling Locations and Analyses

Sample Designator	Location	Analyses
SO-01	Near air sampling location ATS-01 28 ft. from radio tower bldg. (@ 97°)	Tritium
SO-02	Near air sampling location ATS-02 19 ft. S of light pole (@ 84°)	Tritium Gamma

SO-03	Near air sampling location ATS-03 36 ft. N of TRL wastewater tank pit (@ 316)	Tritium Gamma
SO-04	Near air sampling location ATS-04 45 ft. from meteorological tower (@162°)	Tritium Gamma
SO-05	Near air sampling location ATS-05 37 ft. W of sampler (@ 266°)	Tritium
SO-06	Near air sampling location ATS-06 36 ft. W of fence (@ 200° from sampler)	Tritium
SO-07	Near air sampler location ATS-07 (background) Veterans Hospital, 105 ft. NE of sampler (@ 4°)	Tritium Gamma
SO-08	NE of the TRL stack, inside of TRL fence 20 ft. from inner fence (@ 22°)	Tritium Gamma
SO-09	South of new TRL parking lot 71 ft. from W end of fence (@ 79°)	Tritium
SO-10	West side of path from B906 to East Ave. 26 ft. S of perimeter fence	Tritium Gamma
SO-11	NE of TRL stack, near inner perimeter fence 261 ft. W of Greenville fence (@ 106° gate)	Tritium Gamma
SO-12	East of TRL stack, near aqueduct 182 ft. E of security fence (@ 84° from gate)	Tritium
SO-13	South of TRL stack 67 ft. from corner of retaining wall (@ 338°)	Tritium
SO-14	South of TRL stack, off South Gate Dr., near crest of hill 30 ft. E of Portal Rd. (129° electrical tower)	Tritium

SO-15	Near sewer outfall monitoring station 113 ft. W of monitoring building (@ 248°)	Tritium
SO-16	West side of site, outside inner perimeter fence 205 ft. W of inner security fence (@ 208° from gate closest to IMTL)	Tritium
SO-17	Arroyo Seco, by Thunderbird Lane 72 ft. E of bridge (@ 103°)	Tritium
SO-18	Arroyo Seco, in bend closest to TRL stack 34 ft. from tree (@ 231° to TRL stack)	Tritium Gamma
SO-19	Arroyo Seco, where crossed by A Street 38 ft. from bridge (@ 79°)	Tritium Gamma
SO-20	Arroyo Seco, where crossed by Sandia Dr. 147 ft. down arroyo W from bridge	Tritium
SO-21	Las Positas College (background) 75 ft. SE of the SE corner of the parking lot (@ 106° from SE corner of parking lot)	Tritium
SO-22	Duplicate of SO-13 (chosen at random)	Tritium
SO-23	Duplicate of SO-07 (chosen at random)	Tritium Gamma
SO-24	Blank (laboratory grade sand) (taken at location SO-14)	Tritium

Background Measurements: Guidelines for residual radioactive materials are expressed in terms of radionuclide concentrations above normal background. Therefore, one requirement of this survey was to identify tritium introduced to the environment from DOE activities. The soil concentrations measured in site "indicator" samples were compared to those measured in "background" samples to differentiate between normal environmental levels and additional activity introduced from past site operations. DOE Order 5400.5

Figure 1. Tritium Releases from both SNL/California and LLNL Since 1984

Figure 2. Soil Sampling Locations

Figure 3. Annual Wind Rose

defines residual concentrations of radioactive material in soil as those in excess of background concentrations averaged over an area of 100 m².

Therefore, background measurements were made to provide baseline data to compare against measurements made at the site. In addition, quantifying the background level of tritium was necessary to properly assess incremental risks associated with past operations, if any. The tritium background in soil was determined by sampling two locations that were generally uninfluenced by effluent releases and site operations (generally upwind). These locations were typical of local geology.

Sample Analysis: Radiological analyses of the soil samples were performed by Thermo Nuclear Services (TNS) of Richmond, California, an independent, off-site contract laboratory. TNS has the appropriate certifications, quality assurance elements, and performs extensive radiochemical analyses on environmental samples from other DOE sites. Tritium analyses were performed by slurrying a known weight of soil with toluene, then distillation of the toluene/water azeotrope. The captured azeotrope was then subjected to liquid scintillation counting to determine the tritium concentration of the soil moisture. Ten of the soil samples were also scanned for gamma-emitting radionuclides using a Ge(Li) detector.

Quality Assurance: The sampling plan and operating procedure used in collecting the soil samples are provided in Attachment I. In addition, these activities were conducted in accordance with the SNL/California Environmental Monitoring Program Quality Assurance Project Plan¹¹. This plan is consistent with the industry standards for quality assurance in ANSI/ASME NQA-1.

Briefly, quality control samples consisted of two duplicates and one blank, which were processed along with the indicator samples. The duplicates (SO-22 and SO-23) were used to assess the precision of the sampling and analysis system. The data quality objective for precision of sampling and analysis was $\pm 30\%$. One sample (SO-24) consisted of purified laboratory grade sand to serve as a blank. The blind blank was introduced along with the other samples to identify any contamination from the sampling method or laboratory analysis.

Results

Tritium

The tritium results (expressed in pCi/g of soil) are presented in Table 2, along with the analytical error ($\pm$ two sigma) and the laboratory's minimum detectable activity (MDA). Only two locations (SO-03 and SO-08) showed soil with measurable tritium (i.e., above the analytical detection limit). These two sites were located in immediate proximity to the TRL. There were also two other sampling locations (SO-02 and SO-09) at the former TRL complex, which showed no quantifiable tritium activity.

The remaining soil samples collected throughout the SNL/California site were below the detection limit. There was no detectable tritium activity in any of the sediment samples from the Arroyo Seco. This suggests there has been no significant migration nor accumulation of tritium from surface water runoff. The two off-site "background" samples also showed tritium concentrations below detection:

Since 19 of the 21 results registered below the analytical detection limit, it was not possible, nor necessary, to perform any statistical tests on the data set. Even the two positive results were very close to the detection limit. As for the quality control samples, both sets of duplicates were well within the acceptance criteria and the blank showed no tritium activity.

Table 2. Soil Sampling Results

Sample ID	Result (pCi/g)	Error (2 sigma)	MDA
SO-01	0.012	0.028	0.05
SO-02	0.038	0.032	0.05
SO-03	0.096	0.035	0.05
SO-04	-0.016	0.026	0.05
SO-05	0.021	0.029	0.05
SO-06	0.014	0.035	0.06
SO-07	0	0.028	0.05
SO-08	0.078	0.033	0.05
SO-09	0.450	0.053	0.5
SO-10	-0.003	0.029	0.05
SO-11	0.017	0.028	0.05
SO-12	0.005	0.030	0.05
SO-13	-0.005	0.027	0.05
SO-14	0.002	0.027	0.05
SO-15	0.012	0.028	0.05
SO-16	0.003	0.027	0.05
SO-17	0.002	0.027	0.05
SO-18	0.026	0.027	0.04
SO-19	0.001	0.025	0.04
SO-20	0.02	0.027	0.04
SO-21	0.01	0.032	0.06
SO-22	0	0.026	0.046
SO-23	0.005	0.029	0.05
SO-24	0.004	0.023	0.04

Gamma-Emitting Radionuclides

In addition to tritium analysis, ten samples were analyzed for gamma-emitting radionuclides. There are no records of operations at SNL/California introducing these types of radionuclides into the environment. These additional analyses were performed to verify this fact. The laboratory results show that the only gamma-emitting radionuclides present in surface soil samples were those of natural origin or a result of world-wide fallout from past nuclear weapons test (none of which have ever been performed in the Livermore area). These included K-40, Co-60, Cs-137, Ra-226, Th-228, and Th-232. The surface concentrations of these radionuclides were within the expected ranges. There was no evidence based on process knowledge that any operations at SNL/California would have released these isotopes to the environment. Thus, there were no other radionuclides identified in surface soil attributable to SNL/California operations.

Copies of the laboratory reports, for both tritium and gamma spectroscopy, are provided in Attachment II.

Discussion

Radiological Dose:

The maximum potential radiation dose (expressed as effective dose equivalent) was calculated to evaluate the impact on people from the tritium concentrations measured in surface soil at SNL/California. The environmental pathway analysis code RESRAD^{5,6,12} was used in this assessment. This code was developed by DOE to evaluate residual radionuclides in soil.

For this assessment, the contaminated zone was characterized by an area that contained tritium concentrations in soil above background concentrations. It was assumed that tritium was present in surface soil at the highest tritium concentration measured and distributed homogeneously across the assessment area. This is a very conservative assumption and may be considered a worst-case scenario. Furthermore, it was assumed that the SNL/California site was released immediately (i.e., zero radioactive decay) for unrestricted public use. The dose was calculated for a hypothetically exposed individual who resided continuously at this location and consumed a portion of his diet that was produced within the assessment area. The assessment included three exposure pathways: external direct irradiation, inhalation of resuspended soil, and ingestion of foodstuffs produced at this location. (The analysis included dermal absorption of tritiated water vapor.)

The maximum total radiation dose from tritium in soil following one year of continuous occupation was 2.8×10^{-3} mrem effective dose equivalent. This resulting dose is a small fraction of the DOE limit of 100 mrem/year for protection of the public. It also is insignificant compared to the 100 mrem/year dose limit imposed by the U.S. National Council on Radiation Protection and Measurements (NCRP)¹³ for protection of the general public.

Furthermore, this dose is approximately three orders of magnitude below the 1 mrem dose that the NCRP considers as a negligible risk. NCRP Report No. 91 suggests that further efforts to reduce radiation exposures below this level is unwarranted. The NCRP goes on to state that the risk from radiation doses below this level should be "dismissed from consideration."

To put this dose in perspective, the national average radiation dose received by a typical person in the United States from natural and man-made sources is approximately 300 to 365 mrem per year¹⁴. A typical dose from terrestrial radiation, i.e., from radionuclides occurring naturally in the earth's crust, is 28 mrem a year¹⁴. The maximum possible dose from the additional tritium in soil at SNL/California is 10,000 times less than the dose from naturally occurring radionuclides in soil.

Guideline for Residual Tritium:

There are currently no numeric regulatory limits for residual tritium in soil. DOE Order 5400.5 contains radiological protection requirements for the public and guidelines for residual radioactive material. Chapter IV, Section 4 (a), Residual Radionuclides in Soil, states: "Guidelines for residual concentrations of radionuclides shall be derived from the basic dose limits by means of an environmental pathway analysis using specific property data where available." The basic dose limit for the general public is 100 mrem effective dose equivalent in a year, excluding natural background and medical exposures. In this

assessment, the dose criteria was set at 30 mrem/yr. (as recommended) to account for the possibility of additional exposure sources.

Once again, RESRAD was used to derive a site-specific soil guideline for tritium. This guideline was based on the highest measured tritium concentration and specific exposure parameters for this area.

Using the DOE methodology, the soil guideline for tritium was determined to be 1.03×10^3 pCi/g. This is interpreted as the concentration of tritium in soil (based on a maximum exposure scenario) that an individual could be exposed to continuously for a year and not exceed the basic radiation limit for the public (30 mrem/yr.). The highest concentration of tritium in soil at SNL/California was 0.009% of this allowable limit.

A copy of the RESRAD computer print out, containing a summary of the site-specific parameters and results of the environmental pathway analysis, is provided in Attachment III.

Conclusions

The concentrations of tritium in surface soil at the former TRL complex and around the SNL/California site do not represent a health or regulatory concern. Nineteen of the 21 soil samples collected showed no detectable tritium, while the remaining two were very near the minimum detection limit. The highest tritium concentration measured was 0.009% of the acceptable limit for unrestricted release and protection of the public.

Therefore, based on the finding of this assessment, no further characterization of the surface environment is necessary and no remediation is warranted.

A copy of this report has been archived in the SNL/California ES&H Records Center under record title "Miscellaneous Environmental Surveillance" (RRS # EM-204.04). Along with the report, the Records Center Submittal included site maps showing the exact sampling locations, the complete RESRAD computer printout, copies of the field log book, and other supporting documentation.

References

1. Holland, R. C., Sandia National Laboratories, California, Environmental Monitoring Plan, SAND94-8011 (February 1994).
2. Brekke, D. D.; Holland, R. C., Sandia National Laboratories, California, Site Environmental Report for 1994, SAND95-8006 (1995).
3. U.S. Department of Energy Order 5400.5, Radiation Protection of the Public and the Environment, Chapter IV, "Residual Radioactive Material" (March 1988).
4. U.S. Department of Energy, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance, EH/0173T (January 1991).
5. Yu, C., Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0, Argonne National Laboratory, ANL/EAD/LD-2 (September 1993).
6. Yu, C., Data Collection Handbook to Support Modeling the Impacts of Radioactive Material in Soil, Argonne National Laboratory, ANL/EAIS-8 (April 1993).
7. U.S. Department of Energy, Environmental Implementation Guide for Radiological Survey Procedures (DRAFT, November 1992).
8. American Society for Testing and Materials (ASTM), Standard Practice for Sampling Surface Soils for Radionuclides, American Society for Testing and Materials (1990).
9. Meriwether, J. R., Evaluation of Soil Radioactivities Using Pedologically Based Sampling Techniques, Health Physics Society Journal, 0017-9078 (1995).
10. Gallegos, G., Surveillance Monitoring of Soils for Radioactivity: Lawrence Livermore National Laboratory 1976 to 1992, Health Physics Society Journal, 0017-9078 (1995).
11. Holland, R. C., Environmental Monitoring Program Quality Assurance Project Plan, Sandia National Laboratory, Livermore, California, SAND93-8010 (June 1993).
12. Eckerman, K. F.; Wolbarst, A. B.; Richardson, A., Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion. U.S. Environmental Protection Agency, Federal Guidance Report No. 15, EPA-500/1-79-001 (1979).

RADIATION AND CONTAMINATION SURVEY FORM

Date: February 23, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1100 Signature: [Signature] Location: 968/129
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

#	Units dpm/100cm ²	Comments
1	564	Lights
2	181	Vent exhaust duct
3	223	Lights
4	79	"
5	23	Vent supply grill
6	99	Lights
7	0	Vent supply grill
8	253	Lights
9	0	Vent supply grill

File No.:_____

[illegible]

RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 8, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1130 Signature: [Signature] Location: 968/126
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Lab 126, Component Development Lab

- Ventilation supply
 — Fluorescent light
 — Ventilation exhaust

Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Smears on the Vent. exhaust were taken inside the ducts using wet smears.
 Smears #27 - 30 were taken on the cable tray.
 Smears #31 - 37 were taken above the ceiling on the I-beams, vent ducts, and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	74	"Lights"
2	81	"
3	44	"
4	30	"
5	41	"
6	119	"
7	19	"
8	53	"
9	88	"
10	50	"
11	139	"
12	75	"
13	56	"
14	32	"
15	7	"
16	3	Vent supply grill
17	197	Vent exhaust duct
18	0	Vent supply grill
19	0	"
20	0	"
21	34	"
22	349	Vent exhaust duct
23	156	"
24	7251	"
25	99	"
26	176	"
27	29	Cable trays
28	1	"
29	38	"
30	49	"

Instrument PTC2550 Serial No. 104314 Date Last Calibrated: Feb. 8, 1995
 Background 13 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A
 Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995
 Background 15 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A
 Remarks: Item #24 deconed to 200 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Remediation Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 8, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1500 Signature: [Signature] Location: 968/125
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Lab 125

- Ventilation supply
- Fluorescent light
- Ventilation exhaust

Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Smears on the Vent. exhaust were taken inside the ducts using wet smears.
 Smears #21-24 were taken above the ceiling on the I-beams, vent ducts, and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	44	Lights
2	391	"
3	237	"
4	9	Vent supply grill
5	3	Cable tray
6	0	Vent supply grill
7	134	Lights
8	1354	Vent exhaust duct
9	160	Lights
10	2779	Vent exhaust duct
11	270	Lights
12	421	Vent supply grill
13	0	Lights
14	1979	"
15	10533	Vent exhaust duct
16	0	Vent supply grill
17	16	Vent supply grill
18	257	Lights
19	34	Cable tray
20	37	"
21	160	Components > ceiling
22	252	"
23	32	"
24	55	"
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 8, 1995

Background 13 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Items 8, 10, & 15 deconed to 400 dpm/100cm²; Item # 14 deconed to 66 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 10, 1995 Surveyor Name: Bob Gamble & Jeff Garcia Reviewed by: [Signature]

Time: 1055 Signature: [Signature] Location: 968/122

SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Lab 122

- Ventilation supply
 — Fluorescent light
 — Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.

Smears on the vent supply grates were taken on the top (supply side) of the grate.

Ventilation exhaust duct smears were taken inside the ducts.

Smears #18 - 20 were taken on the cable tray.

Smears #21 - 26 were taken above the ceiling on the I-beams, vent ducts, and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	1025	Lights
2	372	"
3	14484	"
4	0	Vent supply grill
5	0	"
6	788	Lights
7	4078	"
8	17	Vent supply grill
9	10	"
10	584	Lights
11	2387	Vent exhaust duct
12	1923	"
13	1743	"
14	2044	Lights
15	302	"
16	10157	"
17	3692	Vent exhaust duct
18	326	Cable tray
19	172	"
20	3845	"
21	10	Components > ceiling
22	0	"
23	2	"
24	0	"
25	28	"
26	104	"
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 10, 1995

Background 13 $\alpha \beta \gamma$ n H²cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Items #1, 3, 7, 14, & 16 deconed to <= 172 dpm/100cm². Item #20 deconed to 193 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipmate Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Isotopic Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 20, 1995 Surveyor Name: Bob Gamble Reviewed by: [Signature]
 Title: 1000 Signature: [Signature] Location: 968/121

WP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Lab 121

— Ventilation supply
 — Fluorescent light
 — Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.
 Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Smear #15 was taken on top of the hood, smear # 16 on the water lines.
 Smears #17 - 20 were taken above the ceiling on the I-beams, vent ducts, and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	155	Lights
2	0	Vent supply grill
3	43	Lights
4	333	"
5	0	Vent supply grill
6	0	Lights
7	158	"
8	513	Vent exhaust grill
9	245	Lights
10	266	"
11	206	Vent exhaust grill
12	320	Lights
13	62	"
14	26	Vent supply grill
15	65	Top of hood
16	42	Water lines
17	24	components > ceiling
18	0	"
19	1	"
20	6	"
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument: PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 20, 1995

Background: 13 α β γ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument: N/A Serial No. N/A Date Last Calibrated: N/A

Background: N/A α β γ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Smear results are attached.

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Exposure Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

File No.:_____

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ADIATION AND CONTAMINATION SURVEY FORM

February 10, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: *[Signature]*
 Inc: 1600 Signature: *[Signature]* Location: 968/120

NP/SOP/OP# Purpose: Pre-characterization study of overhead fixtures

Lab 120, Pressure Lab

— Ventilation supply
 — Fluorescent light
 — Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.
 Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Ventilation exhaust duct smears were taken inside the ducts.
 Smears #35 - 39 were taken on the cable tray.
 Smear # 40 was taken next to smear #11, using cocktail as a solvent. (wetting agent)

#	Units dpm/100cm ²	Comments
1	4230	lights
2	4045	"
3	5894	"
4	595	"
5	0	Vent supply grill
6	118534	Vent exhaust duct
7	20953	"
8	38	Vent supply grill
9	325	Light
10	4	Vent supply grill
11	148950	Vent exhaust duct
12	403	Light
13	56189	Vent exhaust duct
14	6156	Light
15	27	Vent supply grill
16	687	Light
17	345	"
18	386	"
19	0	Vent supply grill
20	14532	Vent exhaust duct
21	0	Vent supply grill
22	317	Light
23	674	"
24	23794	Vent exhaust duct
25	192755	Vent exhaust duct
26	2488	Light
27	152	"
28	336	"
29	5	Vent supply grill
30	231	Lights

Instrument: PTC 2550 Serial No. 104314 Date Last Calibrated: February 10, 1995

Background: 13 $\alpha \beta \gamma n$ H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument: PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background: 15 $\alpha \beta \gamma n$ H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Items # 1, 2, 3, 14, 26, 32, & 35 decont'd to ≤ 400 dpm/100cm². Items #6, 7, 11, 13, 20, 25, & 40 removed to LSA waste. Item # 24 decont'd to 500 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Scaloid Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: April 21, 1995 Surveyor Name: Bob Gamble & Jeff Garcia Reviewed by: [Signature]
 Time: 1400 Signature: [Signature] Location: 968/119
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.
 Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Ventilation exhaust duct smears were taken inside the ducts.
 Smears #22 - 25 were taken above the ceiling on the I-beams, vent ducts, and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	7860	Vent duct exhaust
2	14252	Lights
3	22051	"
4	1850	Vent duct exhaust
5	5919	Lights
6	0	Vent supply grill
7	15	"
8	1825	Light
9	40	Vent supply grill
10	34	"
11	4449	"
12	40	Light
13	59	Vent supply grill
14	34	"
15	794	Light
16	14151	"
17	35	Vent supply grill
18	5421	Light
19	20151	"
20	36864	"
21	1226	Vent exhaust grill
22	27	Above ceiling
23	52	"
24	1541	"
25	121	"
26		
27		
28		
29		
30		

Instrument Serial No. 104314 Date Last Calibrated: April 21, 1995

Background 9 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Remarks: Items #1 & 4 removed to LSA waste. Items #2, 3, 5, 8, 11, 16, 18, 19, 20, 21, & 24 decontaminated to ≤ 75 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Scalped Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipyard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: February 16, 1995 Surveyor Name: Bob Gamble Reviewed by: [Signature]
 ne: 1120 Signature: [Signature] Location: 968/116

SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Room 116, Monitoring Room

- Ventilation supply (from underneath floor)
- Fluorescent light
- Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.

Smears # 12 & 13 were taken on cables/cable tray.

Smear # 11 taken on top of monitor cabinet.

#	Units dpm/100cm ²	Comments
1	298	Lights
2	562	"
3	127	"
4	43	Vent exhaust grill
5	611	Lights
6	447	"
7	793	"
8	679	Top of vent duct
9	66	H3 monitor
10	240	Vent exhaust grill
11	99	Top of electronics rack
12	187	Cable trays
13	406	"
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: February 16, 1995

Background 11 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Instrument N/A Serial No. N/A Date Last Calibrated: N/A

Background N/A $\alpha \beta \gamma$ n H³cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Remarks: _____

File Code:	217.02 Waste Waste Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Solid Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 16, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]

Time: 0800 Signature: [Signature] Location: 968/114

SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Lab 114

— Ventilation supply

— Fluorescent light

— Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.
Smears on the vent supply grates were taken on the top (supply side) of the grate.
Smear # 6 was taken on top of the wall cabinet.
Smears #9 - 10 were taken above the ceiling on the vent ducts and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	534	Vent Exhaust Grill
2	619	Lights
3	1299	"
4	38	Vent Supply Grill
5	537	Lights
6	275	Top of Cabinets
7	598	Top of Vent Hood
8	160	Hole in wall
9	302	Ceiling tiles > ceiling
10	88	"
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 16, 1995

Background 5 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Item #3 decont to 167 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipwreck Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring Survey	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 16, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1500 Signature: [Signature] Location: 968/112
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Room 112, Vault

— Ventilation supply

— Fluorescent light

— Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.

Smears #14 - 15 were taken on water and air lines.

Smears #16 - 18 were taken above the ceiling on the vent ducts and ceiling tiles.

#	Units dpm/100cm ²	Comments
1	24	Vent Grill
2	2974	Light
3	5235	H3 mon. valve
4	5604	Light
5	8800	Vent Exhaust Grill
6	1286	pipes
7	.658	H3 Monitor
8	170	Vent Grill
9	3610	Light
10	8504	Hose reel
11	556	pipes
12	1058	receptacle
13	85	hole in wall
14	303	water/air lines
15	1802	"
16	133	ceiling tiles > ceiling
17	0	"
18	50	"
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 16, 1995

Background 11 $\alpha \beta \gamma n$ H³cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma n$ H³cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Remarks: Items # 2, 4, 5, 9, 12, & 15 deconed to ≤ 75 dpm/100cm². Item #3 removed to LSA waste.

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Roadside Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 14, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1600 Signature: [Signature] Location: 968/110
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

Room 110, Waste Handling

— Ventilation supply

— Fluorescent light

— Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.

Smears on the vent supply grates were taken on the top (supply side) of the grate.

Ventilation exhaust duct smears were taken inside the ducts.

Smear #16 was taken on top of vent. hood.

Smears #14 - 15 were taken above the ceiling on the ceiling tiles.

#	Units dpm/100cm ²	Comments
1	140	Light
2	1952	Vent grill
3	180	Light
4	63	Vent duct
5	223	Light
6	7029	"
7	36	Vent grill
8	103	Light
9	625	"
10	0	Vent grill
11	259	Vent duct
12	77	"
13	336	"
14	55	top of ceil. tile
15	50	"
16	128	Top of Vent Hood
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 14, 1995

Background 10 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: Items #2 & 6 decont to 100 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 16, 1995 Surveyor Name: Bob Gamble Reviewed by: [Signature]
 Time: 1000 Signature: [Signature] Location: 968/104

SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

- Ventilation supply
 — Fluorescent light
 — Ventilation exhaust

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.

No drop ceiling in rm 104

#	Units dpm/100cm ²	Comments
1	99	transformer
2	322	light
3	505	duct top
4	269	light
5	223	"
6	320	vent grill
7	196	Vent exhaust
8	462	light
9	235	panel
10	90	pipes
11		
12		
13		
14		
15		
16		
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Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 16, 1995

Background 11 $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument N/A Serial No. N/A Date Last Calibrated: N/A

Background N/A $\alpha \beta \gamma$ n H³cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: _____

File Code	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipboard Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: February 14, 1995 Surveyor Name: Bob Gamble & Toff Garcia Reviewed by: [Signature]
 Time: 1500 Signature: [Signature] Location: 968/102
 SWP/SOP/OP# _____ Purpose: Pre-characterization study, overhead fixtures

All smears were taken using wet (water) Q-tips due to the dusty conditions and ventilation flow.
 Smears on the vent supply grates were taken on the top (supply side) of the grate.
 Ventilation exhaust duct smears were taken inside the ducts.
 Smears #14 - 15 were taken on I-beams.

#	Units dpm/100cm ²	Comments
1	5367	Penetrations
2	684	top H3 monitor
3	864	Light
4	773	Vent Duct
5	758	Light
6	406	"
7	677	"
8	535	Vent Duct
9	55	"
10	413	Light
11	159	Duct
12	277	Light
13	250	Fixture
14	696	I-beam
15	214	"
16		
17		
18		
19		
20		
21		
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24		
25		
26		
27		
28		
29		
30		

Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: February 14, 1995

Background 8 $\alpha \beta \gamma n$ H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Instrument PTC 1500 Serial No. 086826 Date Last Calibrated: August 15, 1995

Background 15 $\alpha \beta \gamma n$ H³ cpm mR/h mrem/h $\mu\text{Ci}/\text{m}^3$ Corr. Fact. or Eff.: N/A

Remarks: Item #1 resurveyed after decon 383 dpm/100cm².

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Sealed Source Wipe Test	219.06 Radioactive Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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RADIATION AND CONTAMINATION SURVEY FORM

Date: Feb. 21, 1995 Surveyor Name: Bob Gamble Reviewed by: Tom Homan

Time: 0900 Signature: [Signature] Location: 968 ceiling tiles

SWP/SOP/OP# _____ Purpose: Pre-characterization study, ceiling tiles

All smears were taken on the under (finished) side of the ceiling tile panels in each room. Random smears were also taken on the support frame grid. Of the 70 smears taken, all were <1000 dpm/100cm², only 2 were > 100 dpm/100cm² (763, 259), and all but 5 were under 40 dpm/100cm². Resurvey of the two highest smears verified the original values, and indicated that elevated levels are found on the ceiling tiles near the venting (open) GPS lines.

#	Units dpm/100cm ²	Comments
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
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Instrument PTC 2550 Serial No. 104314 Date Last Calibrated: Feb. 21, 1995

Background 12 $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Instrument N/A Serial No. N/A Date Last Calibrated: N/A

Background N/A $\alpha \beta \gamma$ n H^3 cpm mR/h mrem/h μ Ci/m³ Corr. Fact. or Eff.: N/A

Remarks: _____

File Code:	217.02 Waste Water Analysis	217.03 Misc. Waste Analysis	219.01 Misc. Surveys	219.03 Property Release Survey	219.04 Soiled Source Wipe Test	219.06 Routine Facility Survey	219.07 Shipment Survey	220.02 Radiography Source	220.06 NELA Survey	220.07 Area Monitoring	220.08 Misc. Source Survey	220.09 Accelerator Survey
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APPENDIX E
REGULATORY MEMORANDUMS

Sandia National Laboratories

Livermore, California 94551-0969

date: June 19, 1995

to: Jim Bartel

from: Dave Brekke, 8644

subject: Mission Accomplished

I am pleased to forward a copy of the letter from the Federal Environmental Protection Agency approving our proposed plan for phasing out radiological monitoring at the Tritium Research Laboratory. Mr. Frank Sprague, lead at DOE Albuquerque Operations Office for Radionuclide NESHAPs Compliance, is unaware of any other Radiological Facility that has received written approval from EPA to completely discontinue emission monitoring and reporting. He stated that this may serve as a model for other DOE facilities.

This is a major accomplishment and will represent a significant cost savings to SNL. My congratulations to all those who contributed to this effort.

cc:

John Retelle, DOE/AL/KAO
Kurt Jackson, DHS/EMB
MS 0455 P. Chavez (5604)
MS 9037 R. Detry (8200)
MS 9901 A. West (8600)
MS 9221 D. Wright (8641)
MS 9221 T. Garcia (8641)
MS 9222 T. Larson (8644)
MS 0141 B. Krauss (11300)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 13 1995

George K. Laskar
Assistant Area Manager
Environment, Safety and Health
Department of Energy
P.O. Box 5400
Albuquerque, NM 87185-5400

Dear Mr. Laskar:

Thank you for your letter of May 30, 1995 transmitting the Proposed NESHAP Monitoring Plan for the SNL/California Tritium Research Laboratory (TRL) (February, 1995). This proposal (attached) describes the plan for emissions monitoring following shut-down of the TRL. We have reviewed this proposal and concur. Specifically, we agree with the following points:

1. If the emissions from the facility as determined by post-operational monitoring, produce an offsite AEDE from the air pathway less than 0.1 mrem but greater than 0.001 mrem, then periodic tritium emission monitoring will be performed as described in the plan.
2. Once the air pathway dose becomes less than 0.001 mrem AEDE, emissions monitoring may be discontinued and NESHAP reporting may be discontinued following a final submittal providing that documentation.

Please contact me at (415) 744-1048 or Shelly Rosenblum at (415) 744-1047 if you have any questions.

Sincerely,

A handwritten signature in cursive script, reading "Michael S. Bandrowski".

Michael S. Bandrowski, Director
Office of Radiation & Indoor Air
A-1-1

attachment

PROPOSED NESHAPS MONITORING PLAN FOR THE SNL/CALIFORNIA TRITIUM RESEARCH LABORATORY

Environmental Operations Department
Sandia National Laboratories/California

February 1995

This plan presents a strategy for compliance with the emission monitoring requirements of 40 CFR 61, Subpart H following the transition of the Tritium Research Laboratory at Sandia National Laboratories/California (SNL/CA).

Background

SNL is a research and development facility operated by Sandia Corporation for the US Department of Energy (DOE). Tritium is the only radionuclide routinely discharged to the atmosphere in measurable quantities from site operations. Essentially all tritium effluent originates from activities at the Tritium Research Laboratory (TRL), Building 968. Consequently, this facility is subject to Clean Air Act Radionuclide NESHAPs Rule, 40 CFR 61.

In September 1993, the DOE approved SNL/CA's plan to curtail tritium research at the California site; tritium experimentation ceased that same year. The removal of the available tritium inventory was completed October 1994. Shortly thereafter, the DOE reclassified the facility to a non-nuclear, low-hazard facility. Currently, efforts are underway to clean up residual tritium and characterize the radiological condition of the facility. In its present state, there is no potential for a release of tritium that could impact the public nor the general population of the site.

It is planned that the remaining contaminated equipment (principally the Vacuum Effluent Recovery System and the Gas Purification System) will be removed by the summer of 1995. This will eliminate any remaining source term within Building 968. However, due to the existence of a small amount of residual tritium, it will remain a radiological facility. Building 968 is a viable laboratory and will remain within DOE's institutional control; i.e., the facility will not be released for unrestricted use and will not have general public access.

NESHAPs Compliance

The TRL is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) Rule for Radionuclides, 40 CFR 61, specifically Subpart H for DOE facilities. Pursuant to Section 61.93(4)(i), continuous emission monitoring is required for a source that results in a projected annual radiological dose to a member of the public in excess of 0.1 mrem. The TRL has always maintained a continuous stack monitoring system that conforms to measurement methods outlined in Appendix B and ANSIN 13.1.

The stack monitoring system collects and analyzes a representative sample of the TRL gaseous effluent prior to being released to the atmosphere. The extraction manifold

comprises six sampling ports spaced across the diameter of the stack and is located approximately 50 feet up from the base of the stack. The sample line is routed down the inside wall of the stack to prevent condensation. The sample is passed through two ionization chambers providing real-time monitoring for tritium and then through a series of ethylene glycol bubblers. The bubblers serve as an integrative sampler to determine total tritium release. The bubbler array is capable of discriminating between the two primary forms of tritium: HT and HTO.

Tritium emissions to the environment have steadily decreased since the operations at the facility were terminated. In calendar year 1993, the total tritium discharge via the stack was 188 Ci, which resulted in a radiation dose to the MEI of 0.026 mrem EDE. This assessment was made using the EPA approved computer model CAP-88. Furthermore, it was conservatively assumed that all the tritium was in the more hazardous oxide chemical form and a 100% occupancy time at the nearest off-site resident. In 1994, the total tritium discharge to the atmosphere was 95 Ci. Even though the emissions from the TRL have been well below the 0.1 mrem threshold for the past three years, SNL/CA has maintained continuous stack monitoring.

To maintain continuity and completeness, SNL/CA plans to continue the radiological environmental surveillance program throughout the cleanup and transition process. This will include evaluation of all critical pathways and will provide direct measurements of the radiological condition of the surrounding environment.

Post Operational Monitoring Plan

The operational monitoring program supporting the TRL will terminate with the completion of the cleanup phase. SNL/CA will conduct post operational monitoring to verify the effectiveness of the facility cleanup and evaluate long term trends. The results of the post operational monitoring will provide the technical basis for defining future radiological monitoring at the TRL.

SNL/CA will maintain the current effluent monitoring and environmental surveillance system for one year following the completion of facility cleanup. This post operational monitoring will consist of the following:

1. **Stack Effluent Monitoring:** The facility will maintain the continuous integrating stack sampling system with the ethylene glycol bubblers. This data will be used to assess the impacts to local populations.
2. **Wastewater Monitoring:** All wastewater generated in Building 968 (excluding the sanitary systems) is collected and retained by two 2,500 gallon holding tanks. Each batch will be sampled and analyzed for tritium prior to discharge. This procedure will continue until the tritium concentration drops below the Federal and State public drinking water standard (20,000 pCi/L), after which time the tanks will be spot checked on a periodic basis.
3. **Environmental Surveillance:** The full radiological environmental surveillance network will be maintained to provide direct measurements of impacts on the local environment. This surveillance will evaluate any build-up in the environment and establish baseline information following cessation of tritium activities. Routine tritium measurements will continue to be made in ambient air, sanitary sewer effluent, storm water runoff.

Future NESHAPs Monitoring

The post operational monitoring data will serve as the technical basis for defining future radiological monitoring at the TRL. The extent of future monitoring will be based on the annual effective dose equivalent (AEDE) to a member of the general public. SNL/CA proposes following graded approach be used.

1. Periodic Confirmatory Monitoring

If the emissions from the facility produce an offsite AEDE from the air pathway that is less than 0.1 mrem but greater than 0.001 mrem, then periodic tritium emission monitoring will be performed. This will consist of semiannually sampling the stack effluent during a typical work cycle continuously for one week. Periodic measurements of tritium surface contamination within the building will be performed by the Health Physics Group.

In addition, the Environmental Operations Department at SNL/CA will continue to monitor ambient air, sanitary sewer effluent, and storm water runoff for the presence of tritium, as currently documented in the site Environmental Monitoring Plan. These surveillance activities also will denote the presence of any diffuse sources of tritium.

2. No Emission Monitoring

Once the air pathway dose becomes less than 0.001 mrem AEDE, SNL/CA will discontinue emission monitoring at the former TRL. At this point, DOE will no longer submit an annual NESHAPs compliance report to EPA for the SNL/CA facility.

Due to the history of tritium work performed at SNL/CA, certain elements of the radiological environmental surveillance program will be continued. SNL shall continue to monitor tritium levels at the site sanitary sewer outfall and in storm water runoff. In addition, both Lawrence Livermore National Laboratory and the California Department of Health Services (Agreement in Principle Program) will continue radiological monitoring in the Livermore area. This will provide additional independent assurance.

To ensure future compliance with the Radionuclide NESHAPs Rule, SNL/CA will continue to verify the inventory and use of radionuclides. If circumstances change such that a potential to emit radionuclides exists, SNL/CA will comply with all applicable requirements established in 40 CFR 61 Subpart H.

At the conclusion of post operational monitoring, the results will be summarized in a report and transmitted to EPA by the DOE. At that time, a plan for future monitoring will be presented. In summary, if emissions from the facility pose a maximum off-site impact of less than 0.001 mrem, DOE will request approval to discontinue further NESHAPs monitoring and reporting.

Sandia National Laboratories

Livermore, California 94551-0969

date: February 16, 1995

to: Reviewers

from: Dave Brekke, 8644

subject: Proposed NESHAPs Monitoring Plan

Following our successful meeting with EPA on February 9, I have drafted a proposal for future monitoring at the Tritium Research Laboratory. Our goal is to have this officially approved by EPA Region IX.

I am requesting your review and comment. This plan is consistent with the discussion of the February 9 meeting. At that time, Mr. Rosenblum indicated his concurrence with the proposal. If possible, I would like to receive your comments to me by February 24; we should confirm our negotiation while it is fresh in their minds.

If there are any elements of this plan you wish to discuss further, please contact me.

Reviewers:

Susan Lacy, DOE/KAO

8281 Jim Bartel

8641 Donn Wright

8641 Toff Garcia

11300 Becky Krauss

United States Government

memorandum

Department of Energy

Albuquerque Operations Office

ESH

JAN 24 1998

DATE:

REPLY TO: EPD
ATTN OF:SUBJECT: Guidance on the Approved Limits for the Release of Contaminated Materials and Property
Containing Residual Radioactive Material

TO: G. W. Johnson, Area Manager, AAO
 G. E. Dials, Area Manager, CAO
 M. J. Zamorski, Acting Area Manager, KAO
 D. A. Gurule, Area Manager, KCAO
 L. D. Kirkman, Acting Area Manager, LAAO
 R. E. Glass, Area Manager, PAO
 C. A. Cormier, Acting Project Manager, UMTRA
 J. R. Lampley, Manager, GJPO

The Department of Energy (DOE) Assistant Secretary for Environment, Safety and Health (EH-1), HQ, recently approved limits for the release of contaminated materials and property containing residual radioactive material. The attached memorandum (R. F. Pelletier, November 17, 1995, "Application of DOE 5400.5 requirements for release and control of property containing residual radioactive material") (Attachment 1) provides guidance on the use of these limits for DOE operations. Some important aspects of the limits and guidance are new and will be helpful to operations, but most of this action formalizes long-standing DOE guidance on limits for these activities into DOE Order (and regulation, when 10 CFR 834 is published). The following provides additional discussion on these topics to clarify conditions on the use of these limits.

Figure IV-1 of DOE Order 5400.5 has been revised. Now included are limits for Group 1 radionuclides (formerly reserved), and a specific value for tritium has been added. These values are designated as the limits authorized by DOE, and are to be used in the interim until this Table 1 has been formalized in 10 CFR 834 guidance. These limits are the residual radioactivity value that can be present and still allow the property/material to be released from DOE control.

The other new major aspect of the guidance is a statement of when DOE field and program elements can approve authorized limits for residual radioactive material in mass or volume. Operations/Field Offices can now approve authorized limits and survey protocols for residual radioactive material in mass or volumes or surface contamination limits in lieu of Table 1 values within parameters specified in Attachment 1.

FEB 05 1998

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If the material in question exhibits radioactive surface contamination less than the values in Table 1, conditions on the release/disposal of this material may be described as falling into three categories: Disposal in a DOE or Non-DOE Sanitary Landfill; Disposal and/or treatment in a DOE or Non-DOE Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal Facility (TSDF); or Transfer of ownership (either by sale or other means) to members of the public. The requirements of each of these categories and the expectations of the Albuquerque Operations Office (AL) are discussed below.

1a. Disposal at a DOE Sanitary Landfill

Material may be released/disposed without further regard to residual radioactivity if they are at or below the Table 1 values. Site policies and procedures should clearly describe the use of Table 1 values, and how other requirements of DOE Order 5400.5 (such as ALARA, survey measurement recordkeeping, and compliance with the specific requirements of the disposal facility) are met.

1b. Disposal at Non-DOE Sanitary Landfill

Same as 1a., *except*, notifying the appropriate state agency of the DOE authorized limits for this activity. Notify the AL Environmental Protection Divisions (EPD) if there is an issue on the use of these limits, and appropriate support from EPD, DOE HQ/EH, or HQ/AL Counsel will be provided as needed.

2a. Treatment and/or Disposal at a DOE RCRA TSDF

Same as 1a.

2b. Treatment and/or Disposal at a Non-DOE RCRA TSDF

Same as 1a., *except*, notifying the TSDF of the DOE authorized limits for this activity. Notify EPD if there is an issue on the use of these limits, and appropriate support from EPD, HQ/EH, or HQ/AL Counsel will be provided as needed.

3. Transfer of Ownership (Either by Sale or Other Means) to Members of the Public

Same as 1a., *except*, notifying the appropriate state agency and/or Nuclear Regulatory Commission (NRC) Region of the DOE authorized limits for this activity. Notify EPD if there is an issue on the use of these limits, and appropriate support from EPD, HQ/EH, or HQ/AL Counsel will be provided as needed.

If material exhibits radioactive contamination greater than the levels in Table 1, and the site believes a case can be made for an acceptable level of risk if the material is handled

JAN 24 1996

without regard to residual radioactivity, authorization for release/disposal should be processed in accordance with DOE Order 5400.5 (10 CFR 834, when published) and the guidance provided in the attached memorandum. Attachment 1 provides supplemental information and examples on application for supplemental authorized limits.

A notification (Attachment 2) has been sent to all appropriate contacts, and should satisfy the requirement in the EH guidance. If an individual site finds that additional notifications are necessary, the attached notification may be provided, or additional notification may be provided on a case-by-case basis as is deemed appropriate at each site.

Although these limits have been approved, it is incumbent on each site to incorporate these limits into policy and procedures, and procedure should reflect the requirement to sample and detect the limits in Table 1. As described, a notification has been made, but each site should evaluate whether they have any additions.

It should be noted that Attachment 1 makes other minor changes to DOE Order 5400.5; for example, the smear technique for tritium as explained on Page 8 of the memorandum. The sites should also consider training that may be necessary to accompany these changes in policies and procedures. The sites must realize that neither Attachment 1 nor Table 1 is a stand-alone document and must be used in conjunction with DOE Order 5400.5 (10 CFR 834, when published).

We will evaluate the need for a training session on the basis of questions and comments received, if the details provided in this discussion prove insufficient.

If you have any questions or comments, please contact Constance L. Soden, Director, Environmental Protection Division (EPD) (505/845-5586) or Frank H. Sprague, Environmental Radiation Specialist, at (505/845-4340).

Nicholas S. Dienes
Assistant Manager for
Technical Management and Operations

2 Attachments

cc w/attachments:

A. Wallo, EH-412, HQ
J. Randall, OCC, AL
R. Sena, ERD, AL
C. Soden, EPD, AL
G. Runkle, OSHD, AL
M. Williams, WMD, AL
F. Sprague, EPD, AL
H. Season, Jr., WPD, AL

HMFI
State Contact: Ed Bailey
D H S
Radiological Health Branch
601 N 7th Street
P.O. Box 942732
Sacramento, Ca.
94274

Impact PRC Analysis
Request thru DOE

Table 1. Surface Activity Guidelines
Allowable Total Residual Surface Activity (dpm/100 cm²)¹

Radionuclides ²	Average ^{10,11}	Maximum ^{10,11}	Removable ^{10,11}
Group 1 - Transuranics, I-125, I-129, Ac-227, Ra-226, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Group 2 - Th-natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1000	3000	200
Group 3 - U-natural, U-235, U-238, and associated decay products, alpha emitters	5000	15000	1000
Group 4 - Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous ¹⁰ fission) except Sr-90 and others noted above	5000	15000	1000
Tritium (applicable to surface and subsurface) ¹¹	N/A	N/A	10000

¹ As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

² Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

⁶ Measurements of average contamination should not be averaged over an area of more than 1 m². For objects of smaller surface area, the average should be derived for each such object.

⁷ The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

⁸ The maximum contamination level applies to an area of not more than 100 cm².

⁹ The amount of removable material per 100 cm² of surface area should be determined by wiping an area of that size with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm² is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

¹⁰ This category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 has been enriched.

¹¹ Property recently exposed or decontaminated, should have measurements (assays) at regular time intervals to ensure that there is not a build-up of contamination over time. Because tritium typically penetrates material it contacts, the surface guidelines in group 4 are not applicable to tritium. The Department has reviewed the analysis conducted by the DOE Tritium Surface Contamination Limits Committee ("Recommended Tritium Surface Contamination Release Guides," February 1991), and has assessed potential doses associated with the release of property containing residual tritium. The Department recommends the use of the stated guideline as an interim value for removable tritium. Measurements demonstrating compliance of the removable fraction of tritium on surfaces with this guideline are acceptable to ensure that non-removable fractions and residual tritium in mass will not cause exposures that exceed DOE dose limits and commitments.

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

PETE WILSON, Governor

DEPARTMENT OF HEALTH SERVICES

714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320

August 8, 1995

John-Olav Johnsen
AIP Coordinator
U.S. Department of Energy
Albuquerque Operations Office
Kirtland Area Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

Dear Mr. Johnsen:

This letter provides recommendations from the California Agreement in Principle (AIP) Program regarding the Transition Plan and Radiological Characterization Plan for the Tritium Research Laboratory (TRL) at Sandia National Laboratories/California (SNL/CA) as detailed in the attached memorandum. As discussed at a recent update meeting at SNL/CA, the need for post transition tritium monitoring in and around the TRL will need to be considered. Post operational tritium monitoring was included as a topic for discussion at the TRL transition meeting held on February 8, 1995 and has been discussed briefly between SNL/CA and AIP staff.

SNL/CA staff have kept us informed of the progress in transition of the TRL via informal discussions, meetings, visits to the TRL and most importantly by providing the quarterly TRL health physics report to the AIP Program. If you have questions concerning this letter, please contact me at (916) 324-2215.

Sincerely,

Darice Bailey
Senior Health Physicist
Environmental Management Branch

Enclosures

cc: E. Ballard, DOE
D. Brekke, SNL/CA
T. Garcia, SNL/CA
J. Retelle, DOE

Post-It™ brand fax transmittal memo 7671		# of pages 14
To	To: Garcia	
From	From: Kurt Jackson	
Co.	Co. SNL/CA	
Dept.	Dept. AIP Program	
Phone #	Phone #	
Fax #	Fax # (510) 294-3418	

Date: August 7, 1995

To: Darice Bailey
Senior Health Physicist, EMB

From: Kurt Jackson
Associate Health Physicist, EMB

Subject: Transition Plan and Radiological Characterization Plan for the Tritium Research Laboratory (TRL) at Sandia National Laboratories/California (SNL/CA)

At the AIP update meeting held at SNL/CA on June 21, 1995 the transition of the TRL and the need for post transition tritium monitoring were briefly discussed. At the meeting I indicated that I would provide some written notes and comments regarding the Radiological Characterization Plan for the TRL dated May 1995. This memorandum is intended to provide those notes and other feedback.

Notes regarding AIP Program interactions with TRL transition process to date:

1. SNL/CA staff have kept us informed of transition activities via meetings, reports, and TRL facility visits.
2. The quarterly TRL Health Physics Report has been especially helpful in tracking progress in the TRL transition. While this report was created for internal use, it provides excellent information for anyone interested in the health physics work involved in the TRL transition process. The U.S. Department of Energy (DOE) may find the report format useful for other DOE projects, especially those involving decontamination or transition of facilities where radioactive materials were used.
3. While the transition process for the TRL does not cover post transition tritium monitoring in and around TRL, this subject has been discussed. A meeting was held at TRL on February 9, 1995 to inform Federal, State and local regulatory agencies of the cleanup and transition status of the TRL. At that meeting post operational tritium monitoring was discussed along with the need to continue with measurements of tritium concentrations in the liquid effluent control system (LECS) prior to batch release of water to the sanitary sewer system.
4. In April of 1995, SNL/CA staff and AIP Program staff collected wastewater samples from the TRL LECS to be analyzed for tritium. SNL/CA results and AIP Program results agreed within counting uncertainty estimates.
5. The need to consider post operational monitoring for tritium at and around the TRL was discussed briefly again at the AIP Program update meeting on June 21, 1995. We also plan to discuss the need for tritium monitoring with SNL/CA staff in the future.

SNL/CA Memorandum
August 6, 1995
Page 2

Notes regarding Tritium Research Laboratory Radiological
Characterization Plan (SAND95-8216, printed May 1995)

1. The section titled 'environmental tritium release' on Pages 24-25 does not note or address the elevated levels of tritium found in groundwater around the SNL/CA site. The elevated tritium levels seen in groundwater around SNL/CA are probably the result of stack releases from the TRL, but this has not been clearly demonstrated. Based on the list of occurrences on Page 27 and discussions with SNL/CA staff, we understand that there has been no known release of tritium contaminated liquid directly to the ground from the TRL.

2. The radionuclides used in the past at TRL are discussed on Page 29. Specific health physics operating procedures to be used for the survey are listed on Page 37. It is important to determine and document the detection limits for each radionuclide to be covered by the survey. Detection limits should be determined before the characterization survey begins and should be included in the final survey report. The following two paragraphs are intended to illustrate the concern in more detail. I do not have all of the detailed operating procedures listed on Page 37, so SNL/CA staff may have this concern covered in those procedures.

A common problem with decontamination surveys, is a failure to specify and utilize survey procedures and equipment which provide a detection limit below the facility transfer or release limit for each of the radionuclides of concern at the facility. The final survey report should address which radionuclides were covered by the survey of each area and specify the reasons for excluding some radionuclide analysis from portions of the survey.

For example, additional instrument surveys and/or wipe sample analysis may be required at the TRL to achieve detection limits below facility transfer limits for Depleted Uranium and Plutonium-238. If this occurs, the final survey report should specify the basis for conducting these additional surveys only in limited areas of the TRL.

3. The Radiological Characterization Plan does not appear to specifically reference some of the guidance documents used for planning the characterization survey. For example, the guidance documents used to determine or justify the survey grid spacing provided on Pages 102 through 123 should be referenced or documented. The final survey report should include references to documents used for survey guidance and interpretation of results.

SNL/CA Memorandum
August 8, 1995
Page 3

Conclusions:

1. SNL/CA staff have provided the AIP Program with sufficient and useful information during the transition of TRL.
2. The Radiological Characterization Plan for TRL is adequate as provided. Clarification of some details noted in the comments above should be provided in the final survey report.
3. Post transition tritium monitoring at and around the TRL has been discussed informally. AIP staff and SNL/CA staff plan to discuss post transition monitoring in more detail soon.

APPENDIX F
CLEANUP AND TRANSITION PLANS

TRITIUM RESEARCH LABORATORY CLEANUP TEAM CHARTER

TRL CLEANUP TEAM MISSION

THE TRL HAS PROVIDED A FACILITY TO STUDY TRITIUM INTERACTIONS WITH MATERIALS SINCE 1977.

THE PURPOSE OF THE TRL CLEANUP MISSION IS TO:

EVALUATE AND USE THE BEST TRITIUM TECHNOLOGY AVAILABLE AND ACQUIRE, DEVELOP, AND USE ANY NEW TECHNOLOGY REQUIRED TO CONVERT A NON-REACTOR NUCLEAR FACILITY TO A NON-NUCLEAR FACILITY AND/OR SPECIAL-PURPOSE LABORATORY.

BENEFITS OF THE TRL CLEANUP ARE:

SUPPORT TRITIUM RESEARCH AND DEVELOPMENT AT CENTRALIZED DOE FACILITIES BY PROVIDING CLEANUP LESSONS LEARNED.

ALLEVIATE CONCERNS OVER LOCAL ENVIRONMENTAL ISSUES BY BECOMING A NON-NUCLEAR FACILITY

REDUCE TRITIUM RESEARCH COST IN THE LONG TERM (BEYOND 1995)

TRL CLEANUP TEAM GOAL

CLEANUP THE TRL TO <1000 Ci BY JANUARY 1995 TO ENABLE TRANSITION OF THE TRL FROM THE CURRENT MODERATE HAZARD (CATEGORY II) NON-REACTOR NUCLEAR STATUS FACILITY TO A NON-NUCLEAR STATUS FACILITY.

TRL CLEANUP TEAM OBJECTIVES

WHILE MAINTAINING THE DOE/DEFENSE PROGRAM MISSION CAPABILITY, AND AS PART OF NORMAL OPERATIONS:

- REDUCE ACCOUNTABLE TRITIUM TO ZERO
- RELOCATE ACTIVE EXPERIMENTS
- REALLOCATE EXCESS EQUIPMENT
- DETERMINE REMAINING TRITIUM LEVEL

TRL CLEANUP TEAM SCOPE

- DOCUMENT EACH OBJECTIVE OF THE TRL CLEANUP TEAM
- AREA (<1000 Ci) INCLUDES BUILDINGS 967, 968, 969, MO15 AND MO16, EQUIPMENT ROOM, EVAPORATOR, AND CONTROLLED AREA SURROUNDING TRL
- STORED WASTE IS NOT INCLUDED IN <1000 Ci GOAL

TRL CLEANUP TEAM RESTRICTIONS, ASSUMPTIONS, AND CONSTRAINTS

- TRAINED PERSONNEL MUST BE AVAILABLE
- ADEQUATE BUDGET MUST CONTINUE
- DOE WILL RECLASSIFY TO CATEGORY 3 AND ALLOW USE OF EXISTING SAR AND OSRs TO DECREASE THE TRITIUM INVENTORY TO <1000 Ci
- TRITIUM CAPABILITY OF TRL MUST BE MAINTAINED UNTIL MISSION IS CHANGED BY DOE

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Sandia National Laboratories
Livermore, California 94550

Date: September 16, 1994

To: Distribution

B. R. Steele

From: B. R. Steele, 8281

Re: Updated TRL Cleanup Plan

Attached is the TRL Cleanup Plan dated September 16, 1994. This is the fifth and final update of the TRL Cleanup Plan. The last update was dated July 11, 1994.

This will be the last update of the plan since all scheduled work will be completed with the next waste shipment scheduled for October 18, 1994; followed by the completion of the Determine Remaining Tritium Level scheduled for October 31, 1994.

I want to thank each of you for your contributions in completing this 3 year project within budget and ahead of the original January, 1995, scheduled date. Your efforts have been commendable.

Completion of this plan coincides nicely with my vacation and retirement plans which begin September 19, 1994, with a retirement party, so if you have questions concerning this plan, or want more detail, please contact J. J. Bartel at 294-2956.

Distribution:

9032 C. T. Oien
9032 D. E. Diemer,
9032 H. F. Norris
9671 J. J. Bartel
9671 J. R. Smith
9671 W. J. Fabyan
9671 V. V. Pestafias
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9671 W. R. Wall
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Information Copy to:

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9037 R. J. Detry
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9105 C. F. Acken
9901 L. A. West
John Andrews, DOE/KAO
Tom Goss, DOE/KAO
John Retelle, DOE/KAO
M. Durán, LANL, MS G-780

TRL CLEANUP PLAN
September 16, 1994

ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1	TRL CLEANUP	713.06d	1/2/92	10/31/94	98%															
2	REDUCE ACCOUNTABLE TRITIUM TO <1000 Ci	704.06d	1/2/92	10/18/94	89%															
3	TSP (13) to MD	204d	3/30/92	1/22/93	100%															
7	LLNL-Pd Vessels (5) to Waste	213d	4/15/93	2/21/94	100%															
45	GPS Water to MD for recovery	199d	1/2/92	10/9/92	100%															
58	GPS Water to Waste	499.06d	9/28/92	9/26/94	89%															
16	Tritium Gas to SR for Recovery	645d	1/2/92	7/25/94	100%															
42	MM Samples (66)	295d	2/8/93	4/8/94	100%															
59	Mass Spec Samples (10) to Waste	103d	2/8/93	7/1/93	100%															
66	Long-term Study Samples (12) to Waste	209d	6/18/93	4/18/94	100%															
73	Accountable Tritium Reduced to <1000 Ci	0d	10/18/94	10/18/94	0%															
77	RELOCATE ACTIVE EXPERIMENTS	649d	1/2/92	7/29/94	100%															
75	Room 110 Expr Apparatus	22d	1/21/93	2/19/93	100%															
89	Room 115 Experiments	158d	1/19/93	8/30/93	100%															
20	Room 119 South Experiments	64d	5/25/93	8/24/93	100%															
27	Room 119 North Experiments	232d	7/23/92	6/25/93	100%															
157	Room 120 Experiments	172d	3/1/93	10/28/93	100%															
155	Room 121 Experiments	170d	1/3/92	8/31/92	100%															
158	Room 122 Experiments	377d	9/30/92	4/5/94	100%															
191	Room 125 Experiments	566d	1/2/92	4/1/94	100%															
154	Room 129 Experiments	304d	6/1/92	8/16/93	100%															
40	Experiment Relocation Complete	0d	4/5/94	4/5/94	100%															
-	Document Experiment Relocation	133d	1/24/94	7/29/94	100%															
44	REALLOCATE EXCESS EQUIPMENT	562.5d	5/18/92	8/15/94	100%															
145	Room 102 Vault	30d	6/30/92	8/11/92	100%															
71	Room 104 Storage	12d	11/30/93	12/15/93	100%															
73	Room 112	8d	5/23/94	6/2/94	100%															
778	Room 115 Matl Characterization	423d	8/25/92	5/4/94	100%															
594	Room 119 Tritium Plasma	74d	10/7/93	1/28/94	100%															
527	Room 120 Tritium Handling	399d	1/4/93	8/1/94	100%															
591	Room 121 Microscopy Lab	278d	7/21/92	8/27/93	100%															
715	Rm 125 Permeation Lab	89d	8/2/93	12/6/93	100%															
734	Room 126 Component Development	36d	1/31/94	3/21/94	100%															
14	Room 129 Tritide Matl Lab	110d	3/1/93	8/3/93	100%															
755	Hallway	136d	9/21/93	4/8/94	100%															
765	RVERS	221d	8/1/92	6/21/93	100%															
837	Building 969	562.5d	5/18/92	8/15/94	100%															
372	Consolidate MO15/MO16 into Bldg 969	128d	3/1/93	8/27/93	100%															
373	Excess Equipment Reallocated	0d	8/1/94	8/1/94	100%															
874	DETERMINE REMAINING TRITIUM LEVEL	422.06d	3/1/93	10/31/94	91%															
875	Develop Tritium Location Model	272d	3/1/93	3/29/94	100%															
878	Measure Typical Tritium Concentration	179d	7/14/93	3/31/94	100%															
879	Determine/Document Remaining Tritium Level	210.06d	1/5/94	10/31/94	71%															

Project: TRL CLEANUP PLAN
Sandia National Laboratories
D. Diemer, 5361

Critical Progress Summary
Noncritical Milestone Rolled Up

Sep 1994

Project: TRL CLEANUP PLAN
 Sandia National Laboratories
 D. Diemer, 5361

Legend:
 Progress: [Hatched Box]
 Milestone: [Diamond]
 Critical: [Solid Box]
 Noncritical: [Dotted Box]
 Summary: [Thick Line]
 Rolled Up: [Thin Line]
 100% Complete: [Arrow]

TRL CLEANUP PLAN September, 1994

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
35	Analyze Sample	1d	2/10/94	2/10/94	100%																
36	Process Unit #4	90d	10/5/93	2/17/94	100%																
37	Move Unit to GB-1 HPS	1d	10/5/93	10/5/93	100%																
38	Bake Out Unit #4	2d	10/8/93	10/7/93	100%																
39	Analyze Sample	1d	2/17/94	2/17/94	100%																
40	Process Unit #5	88d	10/8/93	2/18/94	100%																
41	Move Unit to GB-1 HPS	1d	10/8/93	10/8/93	100%																
42	Bake Out Unit #5	2d	10/11/93	10/12/93	100%																
43	Analyze Sample	1d	2/18/94	2/18/94	100%																
44	Package for Burial	1d	2/21/94	2/21/94	100%																
45	GPS Water to MD for recovery	199d	1/2/92	10/9/92	100%																
46	Get UC809 Cntrs from LLNL	2d	1/2/92	1/3/92	100%																
47	Pack ALM1 in UC809 (1)	5d	1/8/92	1/10/92	100%																
48	Ship ALM1 to Mound (1)	10d	1/13/92	1/24/92	100%																
49	Get UC809 Cntrs from LLNL	5d	1/13/92	1/17/92	100%																
50	Pack ALM1 in UC809 (1)	10d	1/20/92	1/31/92	100%																
51	Ship ALM1 to Mound (1)	10d	2/3/92	2/14/92	100%																
52	Ship ALM1 to Mound (1)	10d	2/18/92	3/2/92	100%																
53	Get UC809 Cntrs from LLNL	5d	2/3/92	2/7/92	100%																
54	Pack ALM1s in UC809s (2)	31d	2/10/92	3/23/92	100%																
55	Ship ALM1s to Mound (2)	10d	3/24/92	4/6/92	100%																
56	Get UC809 Cntrs from LLNL	5d	5/7/92	5/13/92	100%																
57	Pack ALM1s in UC809s (3)	11d	5/14/92	5/29/92	100%																
58	Ship ALM1s to Mound (3)	10d	6/1/92	6/12/92	100%																
59	Pack ALM1s in UC809s (1)	19d	6/15/92	7/10/92	100%																
60	Ship ALM1s to Mound (1)	10d	7/13/92	7/24/92	100%																
61	Get UC809 Cntrs from LLNL	5d	7/27/92	7/31/92	100%																
62	Pack ALM1s in UC809s (2)	5d	8/3/92	8/7/92	100%																
63	Ship ALM1 to Mound (1)	10d	8/10/92	8/21/92	100%																
64	Ship ALM1 to Mound (1)	10d	8/24/92	9/4/92	100%																
65	Get UC809 Cntrs from LLNL	5d	9/8/92	9/14/92	100%																
66	Pack ALM1 in UC809 (1)	9d	9/15/92	9/25/92	100%																
67	Ship ALM1 to Mound (1)	10d	9/28/92	10/9/92	100%																
68	GPS Water to Waste	499.08d	9/28/92	9/26/94	99%																

Project: TRL CLEANUP PLAN
Sandia National Laboratories
D. Diemer, 5351

Critical
Noncritical

Progress
Milestone

Summary
Rolled Up

100% Complete

ID	OBJECTIVES/TASKS	Duraton	Start	Finish	% Comp.
69	Fill/Store ALM's Cntrs	135d;	8/28/92;	4/1/93;	100%
70	Develop GPS Water Handling Process	91d;	4/15/93;	8/23/93;	100%
71	Prepare Process Design	28d;	4/15/93;	5/20/93;	100%
72	Develop Conceptual Design	14d;	4/15/93;	5/4/93;	100%
73	Prepare Final Design	12d;	5/5/93;	5/20/93;	100%
74	Fab/Test System	11d;	5/21/93;	6/7/93;	100%
75	Fabricate System	7d;	5/21/93;	6/1/93;	100%
76	Test System	4d;	6/2/93;	6/7/93;	100%
77	Obtain System Approval	30d;	7/13/93;	8/23/93;	100%
78	Prepare OP	30d;	7/13/93;	8/23/93;	100%
79	Process ALM's.	45d;	10/15/93;	12/20/93;	100%
80	Package ALM's for burial	35d;	12/21/93;	2/15/94;	100%
81	Xfer to S&B-2	10d;	2/18/94;	3/1/94;	100%
82	Regenerate VERS/GPS Dryers	5d;	4/15/93;	4/21/93;	100%
83	Regenerate Mole Sieves	3d;	4/15/93;	4/19/93;	100%
84	Fil/Store Burial Cntr	1d;	4/20/93;	4/20/93;	100%
85	Xfer to S&B1 Vault	1d;	4/21/93;	4/21/93;	100%
86	Regenerate VERS/GPS Dryers	5d;	6/17/93;	6/23/93;	100%
87	Regenerate Mole Sieves	3d;	6/17/93;	6/21/93;	100%
88	Fil/Store Burial Cntr	1d;	6/22/93;	6/22/93;	100%
89	Xfer to S&B1 Vault	1d;	6/23/93;	6/23/93;	100%
90	Regenerate VERS/GPS Dryers	5d;	8/18/93;	8/25/93;	100%
91	Regenerate Mole Sieves	3d;	8/19/93;	8/23/93;	100%
92	Fil/Store Burial Cntr	1d;	8/24/93;	8/24/93;	100%
93	Xfer to S&B1 Vault	1d;	8/25/93;	8/25/93;	100%
94	Regenerate VERS/GPS Dryers	5d;	10/20/93;	10/28/93;	100%
95	Regenerate Mole Sieves	3d;	10/20/93;	10/22/93;	100%
96	Fil/Store Burial Cntr	1d;	10/25/93;	10/25/93;	100%
97	Xfer to S&B1 Vault	1d;	10/26/93;	10/26/93;	100%
98	Regenerate VERS/GPS Dryers	5d;	12/16/93;	12/22/93;	100%
99	Regenerate Mole Sieves	3d;	12/16/93;	12/20/93;	100%
100	Fil/Store Burial Cntr	1d;	12/21/93;	12/21/93;	100%
101	Xfer to S&B1 Vault	-1d;	12/22/93;	12/22/93;	100%
102	Regenerate VERS/GPS Dryers	5d;	2/22/94;	2/28/94;	100%

100% Complete

Summary

Progress	Milestone
1. Initial assessment and planning	1. Initial assessment and planning
2. Data collection and analysis	2. Data collection and analysis
3. Implementation of interventions	3. Implementation of interventions
4. Evaluation and monitoring	4. Evaluation and monitoring
5. Dissemination of findings	5. Dissemination of findings

Critical

UP PLAN

Project TRL CLE
Sandia National L
O. Diemer, 5381

TRL CLEANUP PLAN

September 1, 1994

ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
103	Regenerate Mole Sieves	3d	2/22/94	2/24/94	100%																
104	Fill/Store Burial Cntr	1d	2/25/94	2/25/94	100%																
105	Xfer to 8842	1d	2/28/94	2/28/94	100%																
106	Ship Excess ALM1's (12) to LANL-Shipper 18413	19d	2/14/94	3/10/94	100%																
107	Ship ALM1's (5) to LANL-Shipper 18514	19d	2/14/94	3/10/94	100%																
108	Regenerate VERS/GPS Dryers	5d	6/17/94	6/23/94	100%																
109	Regenerate Mole Sieves	3d	6/17/94	6/21/94	100%																
110	Fill/Store Burial Cntr	1d	6/22/94	6/22/94	100%																
111	Xfer to 8842	1d	6/23/94	6/23/94	100%																
112	Regenerate VERS/GPS Dryers	11d	9/9/94	9/28/94	93%																
113	Regenerate Mole Sieves	3d	9/9/94	9/14/94	100%																
114	Fill/Store Burial Cntr	1d	9/13/94	9/14/94	100%																
115	Xfer to 8842	9d	9/13/94	9/28/94	90%																
116	Tritium Gas to SR for Recovery	645d	1/2/92	7/25/94	100%																
117	Order Certified LP50s from SR	575d	1/2/92	4/14/94	100%																
118	Transfer to U-Bed	25d	1/2/92	2/5/92	100%																
119	Xfer from U-Bed to LP50	17d	2/8/92	2/28/92	100%																
120	Ship LP50s to SR (2)	10d	3/2/92	3/13/92	100%																
121	Transfer to U-Bed	25d	3/2/92	4/3/92	100%																
122	Xfer from U-Bed to LP50	20d	4/8/92	5/1/92	100%																
123	Ship LP50 to SR (1)	10d	5/4/92	5/15/92	100%																
124	Transfer to U-Bed	15d	5/4/92	5/22/92	100%																
125	Xfer from U-Bed to LP50	14d	5/28/92	6/12/92	100%																
126	Ship LP50s to SR (2)	10d	6/15/92	6/26/92	100%																
127	Return Uncert LP50s to SR	10d	4/1/92	4/14/92	100%																
128	Transfer to U-Bed	30d	6/15/92	7/27/92	100%																
129	Xfer from U-Bed to LP50	24d	7/28/92	8/28/92	100%																
130	Ship LP50s to SR (2)	10d	8/31/92	9/14/92	100%																
131	Transfer to U-Bed	30d	8/31/92	10/12/92	100%																
132	Xfer from U-Bed to LP50	23d	10/13/92	11/12/92	100%																
133	Ship LP50 to SR (1)	10d	11/13/92	11/30/92	100%																
134	Transfer to U-Bed	23d	11/13/92	12/17/92	100%																
135	Xfer from U-Bed to LP50	20d	12/18/92	1/22/93	100%																
136	Ship LP50 to SR (2)	10d	1/25/93	2/5/93	100%																

Project: TRL CLEANUP PLAN
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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
137	Return Uncert LP50s (9) to SR	30d	3/7/94	4/15/94	100%																
138	Obtain Certified LP50	10d	2/22/94	3/7/94	100%																
139	Transfer to U-Bed	30d	4/5/94	5/18/94	100%																
140	Xfer from U-Bed to LP50	23d	5/17/94	6/17/94	100%																
141	Ship LP50 to SR (1)	25d	6/20/94	7/25/94	100%																
142	MM Samples (66)	295d	2/8/93	4/8/94	100%																
143	Decide to Continue or Unload--"Unload"	3d	2/8/93	2/10/93	100%																
144	Develop MM Sample Handling Process	38d	2/11/93	4/1/93	100%																
145	Develop Conceptual Design	13d	2/11/93	3/1/93	100%																
146	Conduct Conceptual SAC Review	1d	3/2/93	3/2/93	100%																
147	Prepare Final Design	22d	3/3/93	4/1/93	100%																
148	Fab and Assemble System	64d	4/2/93	7/1/93	100%																
149	Obtain System Approval	101d	4/5/93	8/25/93	100%																
150	Write Generic SOP	51d	4/5/93	6/15/93	100%																
151	Write Specific OP	50d	6/16/93	8/25/93	100%																
152	Qualify Operators	2d	8/17/93	8/18/93	100%																
153	Approval to Start Process	0d	8/25/93	8/25/93	100%																
154	Unload 45 MM Samples	145d	8/28/93	3/28/94	100%																
155	Unload U-Bed (1)	2d	3/25/94	3/28/94	100%																
156	Pkg/Xfer 21 MM/U-Bed Smpls to LLNL-Shipper	16d	3/9/94	3/30/94	100%																
157	Pack Unloaded Smpls for Xfer to 8642	5d	3/29/94	4/4/94	100%																
158	Xfer to 8642 for Burial	4d	4/5/94	4/8/94	100%																
159	Mass Spec Samples (10) to Waste	103d	2/8/93	7/1/93	100%																
160	Plan Disposition	3d	2/8/93	2/10/93	100%																
161	Transfer Samples to Calorimeter GB-6	11d	3/28/93	4/9/93	100%																
162	Analyze Mass Spec Samples	11d	3/28/93	4/9/93	100%																
163	Unload Old Mass Spec Samples (10)	26d	4/9/93	5/14/93	100%																
164	Pkg unloaded smpls to ship in 7A Cntr	9d	6/15/93	6/25/93	100%																
165	Transfer to 8642 for Burial	4d	6/28/93	7/1/93	100%																
166	Long-term Study Samples (12) to Waste	209d	6/18/93	4/19/94	100%																
167	Unload One Sample	5d	3/29/94	4/4/94	100%																
168	Analyze 10 Burial Samples	34d	6/18/93	8/5/93	100%																
169	Pkg 11 unloaded samples to ship in 7A Cntr	1d	4/5/94	4/5/94	100%																
170	Prepare MW Disposal Tag	1d	4/8/94	4/8/94	100%																

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IHL CLEANUP PLAN September 1994

ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1995											
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
171	Transfer to 8842 for Burial	1d	4/7/94	4/7/94	100%												
172	Ship 1 Sample to LANL	10d	4/8/94	4/19/94	100%												
173	Accountable Tritium Reduced to <1000 Ci	0d	10/18/94	10/18/94	0%												
174	RELOCATE ACTIVE EXPERIMENTS	6/9d	1/2/92	7/29/94	100%												
175	Room 110 Expt Apparatus	22d	1/21/93	2/19/93	100%												
176	Prepare Safe Work Permit 93-3	19.5d	1/21/93	2/17/93	100%												
177	Write SWP	15d	1/21/93	2/10/93	100%												
178	Review of SWP	4d	2/11/93	2/16/93	100%												
179	Staff Briefing of SWP	0.5d	2/17/93	2/17/93	100%												
180	Draft Contam Oil fm H2 GB Bubbler	0.5d	2/17/93	2/17/93	100%												
181	Wipe H2 Glove Box	0.5d	2/18/93	2/18/93	100%												
182	Remove H2 Glove Box	0.5d	2/18/93	2/18/93	100%												
183	Package Parts	0.5d	2/18/93	2/18/93	100%												
184	Transfer to Mixed Waste Facility	3d	2/17/93	2/19/93	100%												
185	Prepare MW Disposal Tag	1d	2/17/93	2/17/93	100%												
186	ES&H Approval	1d	2/18/93	2/18/93	100%												
187	Pickup Burial Crate	1d	2/19/93	2/19/93	100%												
188	Transfer to 8842 Complete	0d	2/19/93	2/19/93	100%												
189	Room 115 Experiments	158d	1/19/93	8/30/93	100%												
190	Remove 8712 parts from GB #9	3d	3/1/93	3/3/93	100%												
191	Dispose of 8712 parts from GB #9	5d	3/4/93	3/10/93	100%												
192	Wipe MTS Tenille Test	10d	5/20/93	6/9/93	100%												
193	Disconnect Hydraulics fm MTS	5d	6/4/93	6/10/93	100%												
194	Prep MTS to Return to Migr	51d	6/11/93	8/23/93	100%												
195	Disassemble MTS	51d	6/11/93	8/23/93	100%												
196	Wipe MTS	51d	6/11/93	8/23/93	100%												
197	Ship MTS to Manufacturer to Refurbish	5d	8/24/93	8/30/93	100%												
198	Dismantle part SEM/Ship to LANL	5d	1/19/93	1/25/93	100%												
199	Remove Chilled Water Lines	1d	4/1/93	4/1/93	100%												
200	Disconnect Lines to VERS from SEM	1d	4/2/93	4/2/93	100%												
201	Wipe SEM in/next for contam	15d	3/25/93	4/14/93	100%												
202	Disconnect SEM Utilities	4d	3/28/93	4/1/93	100%												
203	Remove SEM	7d	4/2/93	4/12/93	100%												
204	Remove Line to VERS to Manifold	3d	5/25/93	5/27/93	100%												

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
205	Fab Shipping Boxes (7)	5d	3/28/93	4/1/93	100%																
206	Package SEM	12d	4/15/93	4/30/93	100%																
207	Package Research II Metallograph	5d	4/28/93	4/30/93	100%																
208	Package Sputtering Equipment	5d	4/28/93	4/30/93	100%																
209	Prepare for External Shipment	25d	4/28/93	5/28/93	100%																
210	Submit Shpg Request to 8532	2d	4/28/93	4/27/93	100%																
211	Determine Carrier	3d	4/28/93	4/30/93	100%																
212	Prep Hzd Mtl Pkg Instructions	3d	5/3/93	5/5/93	100%																
213	Prepare Shpg Papers 194307	3d	5/8/93	5/10/93	100%																
214	ES&H Approval	2d	5/11/93	5/12/93	100%																
215	Pickup Boxes	6d	5/13/93	5/20/93	100%																
216	Inspect Boxes	3d	5/21/93	5/25/93	100%																
217	Carrier Interactions Rosa NP 01720	3d	5/28/93	5/28/93	100%																
218	Carrier Interactions TriState Motor 63121	3d	5/28/93	5/28/93	100%																
219	Ship SEM/Other Equip to MD	15d	6/1/93	6/21/93	100%																
220	Room 119 South Experiments	64d	5/25/93	8/24/93	100%																
221	Prepare Bldg 916 Lab E3122	50d	5/25/93	8/4/93	100%																
222	Complete Bldg 916 Lab Mod	0d	7/30/93	7/30/93	100%																
223	Wipe all parts in lab	10d	8/2/93	8/13/93	100%																
224	Dispose of Contam Parts	10d	8/2/93	8/13/93	100%																
225	Package Parts	10d	8/2/93	8/13/93	100%																
226	Move Equipment to Bldg 916/104	7d	8/16/93	8/24/93	100%																
227	Room 119 North Experiments	232d	7/23/92	6/25/93	100%																
228	Facility Prep TPX for Removal	98d	7/23/92	12/10/92	100%																
229	Scope Job/Workup Job Reqmt	3d	7/23/92	7/27/92	100%																
230	ES&H Review-1 of Job	7d	7/29/92	8/6/92	100%																
231	Workup Engr Order E2523-A	6d	8/7/92	8/14/92	100%																
232	ES&H Review-2 of Job	10d	8/18/92	8/31/92	100%																
233	Cost Est & Approval for E2523	23d	9/30/92	10/30/92	100%																
234	Disconnect TPX Utilities	57d	9/15/92	12/4/92	100%																
235	Inspect Work/Update Drawings	4d	12/7/92	12/10/92	100%																
236	Prepare Safe Work Permit 93-2	11d	2/1/93	2/15/93	100%																
237	Write Safe Work Permit	5d	2/1/93	2/5/93	100%																
238	Review/Approve SWP	5d	2/8/93	2/12/93	100%																

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TRL CLEANUP PLAN
Septemb. , 1994

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Summary
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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
273	Review of SWP	3d	8/3/93	8/5/93	100%																
274	Staff Briefing of SWP	1d	8/6/93	8/6/93	100%																
275	Facility Prep STOX for Removal	182d	9/30/92	6/23/93	100%																
276	Cost Est & Approval of E2525	23d	9/30/92	10/30/92	100%																
277	Scope Job/Workup Job Reqmt	5d	5/11/93	5/17/93	100%																
278	Workup Engr Order E2525-A	6d	5/18/93	5/25/93	100%																
279	ES&H Review of Job	8d	5/28/93	6/7/93	100%																
280	Disconnected Utilities to STOX	10d	6/8/93	6/21/93	100%																
281	Inspect/Update dwgs	2d	6/22/93	6/23/93	100%																
282	Disassemble STOX	38d	8/6/93	9/29/93	100%																
283	Assess Contam Levels	38d	8/6/93	9/29/93	100%																
284	Package Parts	38d	8/6/93	9/29/93	100%																
285	Transfer STOX parts to ES&H/LANL	116d	10/14/93	4/5/94	100%																
286	Submit Transfer Request to ES&H	2d	10/14/93	10/15/93	100%																
287	ES&H Approval	5d	10/18/93	10/22/93	100%																
288	Pickup/Xfer Surplus parts to ES&H	6d	10/25/93	11/1/93	100%																
289	Ship STOX Parts to LANL-Spares for TPX	12d	3/18/94	4/5/94	100%																
290	Complete STOX Xfer to ES&H/LANL	0d	4/5/94	4/5/94	100%																
291	Room 125 Experiments	568d	1/2/92	4/1/94	100%																
292	Remv Peripher Equip fm GB-15	10d	1/2/92	1/15/92	100%																
293	Remv Salvage Equip fm GB-15	15d	1/16/92	2/5/92	100%																
294	Facility Prep GB-15 for Removal	24d	1/22/92	2/24/92	100%																
295	Scope Job/Workup Job Reqmt	4d	1/22/92	1/27/92	100%																
296	Workup Maint Order M2491	2d	2/13/92	2/14/92	100%																
297	ES&H Review-1 of Job	9d	1/30/92	2/11/92	100%																
298	Disconnect GB-15 Utilities	2d	2/17/92	2/18/92	100%																
299	Inspect Work/Update Drawings	4d	2/19/92	2/24/92	100%																
300	Prepare Safe Work Permit 92-1	9d	2/19/92	3/2/92	100%																
301	Write Safe Work Permit	5d	2/19/92	2/25/92	100%																
302	Review/Approve SWP	3d	2/26/92	2/28/92	100%																
303	Staff Briefing of SWP	1d	3/2/92	3/2/92	100%																
304	Discont/Cap Lines GB-15	10d	2/26/92	3/10/92	100%																
305	Remove GB-15 Lines to VERS/GPS	10d	3/11/92	3/24/92	100%																
306	Discont GB-15 Ext Pmbg	9d	3/25/92	4/8/92	100%																

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THE CLEAN UP PLAN

September, 1994

ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp.
307	Work order for boxes	3d;	3/18/92;	3/23/92;	100%
308	Fab box	10d;	3/24/92;	4/8/92;	100%
309	Packaging Parts	15d;	4/7/92;	4/27/92;	100%
310	Prepare for External Shipment	56d;	2/28/92;	5/13/92;	100%
311	Submit Ship Request to USSC	2d;	2/28/92;	2/27/92;	100%
312	Determine Carrier	3d;	2/28/92;	3/2/92;	100%
313	Prep Haz Mat Pkg Instructions 1574	3d;	3/4/92;	3/8/92;	100%
314	Prepare Ship Papers 192469	3d;	3/8/92;	3/11/92;	100%
315	ESAH Approval	5d;	3/12/92;	3/18/92;	100%
316	Pickup Box	6d;	4/28/92;	5/5/92;	100%
317	Inspect Box	3d;	5/8/92;	5/8/92;	100%
318	Carrier Interactions 62862	3d;	5/11/92;	5/13/92;	100%
319	Shipment to SR via Tristate	10d;	5/14/92;	5/28/92;	100%
320	GB-15 Pathfinder at SR	0d;	5/28/92;	5/28/92;	100%
321	Ship GB-15 from SR to LANL	5d;	5/24/93;	5/28/93;	100%
322	Prep GB-15 Racks (3) for ship to LANL	30d;	8/25/93;	10/5/93;	100%
323	Wipe GB-15 Racks for contain	5d;	9/15/93;	9/21/93;	100%
324	Transfer GB-15 Pump/Racks to Storage	10d;	3/21/94;	4/1/94;	100%
325	Clean Water Decomposition Sys	104d;	11/1/92;	4/8/93;	100%
326	Decon parts of WDS	80d;	12/16/92;	4/14/93;	100%
327	Wipe Decon parts of WDS	5d;	4/15/93;	4/21/93;	100%
328	Dissect H ₂ O LN Gas Im SHAC/D2 Sys	1d;	9/17/93;	9/17/93;	100%
329	Prepare SHAC & D2 for Removal	15d;	9/1/93;	9/21/93;	100%
330	Scope Job/Workshop Job Reqmt	1d;	9/1/93;	9/1/93;	100%
331	ESSH Review of Job	9d;	9/2/93;	9/14/93;	100%
332	Workshop of Engr Order EDOOX	2d;	9/15/93;	9/18/93;	100%
333	Dissect Elect Im SHAC & D2 Sys	1d;	9/17/93;	9/17/93;	100%
334	Inspect Work Update Drawings	2d;	9/20/93;	9/21/93;	100%
335	Prepare SHAC/D2 for moving	17d;	8/31/93;	9/22/93;	100%
336	Dispose Contain Items In 3 Vitrina o's 125	5d;	10/15/92;	10/21/92;	100%
337	Wipe 3 Contain Vitrinas o's Rm 125	3d;	2/18/93;	2/19/93;	100%
338	Dispose 3 Vitrinas o's Rm 125	1d;	2/22/93;	2/22/93;	100%
339	Prep 7 Vitrinas o's Rm 125 to move	5d;	8/23/93;	8/27/93;	100%
340	Prep 6 Rm 125 Vitrinas to move	12d;	8/31/93;	9/15/93;	100%

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
341	Prep 6 Rm 125 Cabinets to move	17d	8/30/93	9/21/93	100%																
342	Prep work bnch/ch bnch to move	2d	9/24/93	9/27/93	100%																
343	Prep leak dter/tool box to move	2d	9/23/93	9/24/93	100%																
344	Prep 2 crts/2 tbs/5 chrs to move	2d	9/23/93	9/24/93	100%																
345	Prep 6 Racks to move	16d	8/31/93	9/21/93	100%																
346	Prep Cbls/Misc to Move	19d	8/31/93	9/24/93	100%																
347	Wipe Parts to Move to IMTL	22d	8/26/93	9/24/93	100%																
348	IMTL Ready to Move In	0d	9/21/93	9/21/93	100%																
349	Prepare for Internal Move to IMTL	21d	8/23/93	9/20/93	100%																
350	Provide Move Notification	3d	8/23/93	8/25/93	100%																
351	Facilities/Matl Move Review	13d	8/26/93	9/13/93	100%																
352	Create Layout & Schedule	5d	9/14/93	9/20/93	100%																
353	Move Experiments to IMTL 941/137	5d	9/21/93	9/27/93	100%																
354	Room 129 Experiments	304d	6/1/92	8/16/93	100%																
355	Complete PCT Experiment	0d	2/15/93	2/15/93	100%																
356	Turn Off Lecture Bottle in HVAH	1d	3/1/93	3/1/93	100%																
357	Turn Off Equip. in GB, HVAH, Turbo Pump	0.25d	3/2/93	3/2/93	100%																
358	Facilities Prep GB-12 for Removal	24d	2/5/93	3/10/93	100%																
359	Cost Est and Approval	1d	2/5/93	2/5/93	100%																
360	Scope Job/Workup Job Reqmt	5d	2/8/93	2/12/93	100%																
361	Workup Engr Order E2526-A	3d	2/18/93	2/22/93	100%																
362	ESA/H Review of Job	8d	2/23/93	3/4/93	100%																
363	Disconnect Utilities to GB-12 E2526-A	1d	3/8/93	3/8/93	100%																
364	Inspect Work/Update Drgs	2d	3/9/93	3/10/93	100%																
365	Remove Instrumentation Wiring	1d	3/9/93	3/9/93	100%																
366	Remove N2 Line to Valves	1d	3/15/93	3/16/93	100%																
367	Remove 3 Alcatel Pumps/Drain Oil	0.5d	3/1/93	3/1/93	100%																
368	Check Oil/Package Pumps	1d	3/15/93	3/16/93	100%																
369	Remove GB Sample Line/Cap	1d	3/17/93	3/17/93	100%																
370	Prepare Safe Work Permit 93-6	17d	2/8/93	3/3/93	100%																
371	Write Safe Work Permit	10d	2/8/93	2/28/93	100%																
372	Review/Approve SWP	2d	2/26/93	3/2/93	100%																
373	Staff Briefing of SWP	1d	3/2/93	3/3/93	100%																
374	Disconnect /Cap Lines to CW	1d	3/3/93	3/4/93	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp.
375	Disconnect Lines to GPS	1d	3/4/93	3/5/93	100%
376	Disconnect Cap Lines to VERS	1d	3/3/93	3/4/93	100%
377	Remove Inition	1d	3/8/93	3/9/93	100%
378	Modify Room 129 Downway	14.00d	2/28/93	3/19/93	100%
379	Gat Contract for Door Mod	2d	2/28/93	3/1/93	100%
380	ES&H Review of Contract	8d	3/2/93	3/11/93	100%
381	Prepare Safe Work Permit 93-7	1d	3/12/93	3/12/93	100%
382	Write Safe Work Permit	1d	3/12/93	3/12/93	100%
383	Review/Approve SWP	1d	3/12/93	3/12/93	100%
384	Staff Briefing of SWP	1d	3/12/93	3/12/93	100%
385	Enlarge Room 129 South Door	1d	3/15/93	3/16/93	100%
386	Inspect Work/Update Drawings	2d	3/16/93	3/18/93	100%
387	Design/Fab GB Reinforcing	12d	3/1/93	3/17/93	100%
388	Reinforce PCT Experiment in GB	1d	3/17/93	3/18/93	100%
389	Disconnect GB/HVAC Vent/Lights	0.5d	3/18/93	3/18/93	100%
390	ES&H Review of GB #12 Removal	5d	3/18/93	3/25/93	100%
391	Remove GB #12 from Rm 129	1d	3/25/93	3/26/93	100%
392	Filler Tritium Monitors	1d	3/26/93	3/26/93	100%
393	Work order for crates	3d	3/4/93	3/6/93	100%
394	Fab Shpg Crate for Instron	2.5d	3/9/93	3/11/93	100%
395	Fab Shpg Crates for 3 Pumps	2.5d	3/28/93	3/30/93	100%
396	Fab Crates for GB #12 Racks (4)	2.5d	3/31/93	4/2/93	100%
397	Fab Shpg Crate for Glove Box #12	2.5d	4/2/93	4/6/93	100%
398	Package Aux Equipment	25d	3/15/93	4/19/93	100%
399	Package GB-12	2d	4/7/93	4/8/93	100%
400	Prepare GB-12 for External Shipment	18d	6/7/93	7/2/93	100%
401	Submit Shpg Request to BSC2	2d	6/7/93	6/9/93	100%
402	Determine Carrier	2d	6/9/93	6/11/93	100%
403	Prep Hnd Mtl Plg Instructions 1902	1d	6/14/93	6/15/93	100%
404	Prepare Shpg Papers 194320	2d	6/15/93	6/17/93	100%
405	ES&H Approval	6d	6/17/93	6/24/93	100%
406	Pickup Box	3d	6/24/93	6/29/93	100%
407	Inspect Box	3d	6/29/93	7/2/93	100%
408	Carrier Interactions McGill 63146	3d	6/28/93	7/2/93	100%

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1995											
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
409	Ship GB #12 to LANL	10d	7/1/93	7/10/93	100%												
410	Prepare 3 Pumps for External Shipment	27d	6/1/93	7/1/93	100%												
411	Submit Shpg Request to 6532 LO-0382	2d	6/1/93	6/10/93	100%												
412	Determine Carrier	3d	6/1/93	6/15/93	100%												
413	Prep Hdd Mtl Pkg Instructions 1305	3d	6/1/93	6/18/93	100%												
414	Prepare Shpg Papers 194450	3d	6/21/93	6/23/93	100%												
415	ESAH Approval	5d	6/24/93	6/30/93	100%												
416	Pickup Box	6d	7/1/93	7/8/93	100%												
417	Inspect Box	3d	7/12/93	7/14/93	100%												
418	Carrier Interactions ROSS NP 01750	2d	7/15/93	7/18/93	100%												
419	Ship 3 Pumps to LANL	10d	7/19/93	7/30/93	100%												
420	Prepare Fume Hood Hdr for External Shipment	21d	6/24/93	7/23/93	100%												
421	Submit Shpg Request to 6532	2d	6/24/93	6/25/93	100%												
422	Determine Carrier	3d	6/28/93	6/30/93	100%												
423	Prepare Hdd Mtl Pkg Instructions 1329	3d	7/1/93	7/8/93	100%												
424	Prepare Shpg Papers 183908	3d	7/7/93	7/8/93	100%												
425	ESAH Approval	5d	7/12/93	7/16/93	100%												
426	Pickup/Inspect Boxes	3d	7/19/93	7/21/93	100%												
427	Carrier Interactions Ross NP 1756	2d	7/22/93	7/23/93	100%												
428	Shipment of Fume Hood Hdr to LANL	1d	7/26/93	7/26/93	100%												
429	Prepare Chiller for External Shipment	6d	8/6/93	8/13/93	100%												
430	Submit Shpg Request to 6532	1d	8/6/93	8/6/93	100%												
431	Determine Carrier	1d	8/6/93	8/6/93	100%												
432	Prepare Hdd Mtl Pkg Instructions 1365	3d	8/10/93	8/12/93	100%												
433	Prepare Shpg Papers 193921	1d	8/13/93	8/13/93	100%												
434	ESAH Approval	1d	8/13/93	8/13/93	100%												
435	Pickup/Inspect Boxes	1d	8/13/93	8/13/93	100%												
436	Carrier Interactions Ross NP 01768	1d	8/13/93	8/13/93	100%												
437	Shipment of Chiller to LANL	1d	8/16/93	8/16/93	100%												
438	Complete PCT Xier to LANL	0d	8/16/93	8/16/93	100%												
439	Move Auger/Incrasp to Srg	15d	8/1/92	8/19/92	100%												
440	Experiment Relocation Complete	0d	4/5/94	4/5/94	100%												
441	Document Experiment Relocation	133d	1/24/94	7/29/94	100%												
442	Provide Draft Report	46d	1/24/94	3/28/94	100%												

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
443	Write SAND Report	87d	3/29/94	7/29/94	100%																
444	REALLOCATE EXCESS EQUIPMENT	562.5d	5/18/92	8/15/94	100%																
445	Room 102 Vault	30d	6/30/92	8/11/92	100%																
446	Remove Peripheral Equipment	1d	7/8/92	7/8/92	100%																
447	Remove Salvage Equipment	1d	7/7/92	7/7/92	100%																
448	Discont/Cap Lines	1d	7/8/92	7/8/92	100%																
449	Remove Lines to VERS/GPS	1d	7/8/92	7/8/92	100%																
450	Discont Ext Pmbg	1d	7/10/92	7/10/92	100%																
451	Disassemble GB-11	5d	7/13/92	7/17/92	100%																
452	Work order for boxes	3d	6/30/92	7/2/92	100%																
453	Fab boxes	10d	7/8/92	7/17/92	100%																
454	Package GB-11 & Aux. for Shipment	3d	7/20/92	7/22/92	100%																
455	Prepare for External Shipment of GB-11	12d	7/20/92	8/4/92	100%																
456	Submit Shpg Request to B532	2d	7/20/92	7/21/92	100%																
457	Determine Carrier	2d	7/22/92	7/23/92	100%																
458	Prepare Shpg Papers 191769	3d	7/24/92	7/28/92	100%																
459	Pickup/Inspect Boxes	2d	7/29/92	7/30/92	100%																
460	Carrier Interactions ABF 63028	3d	7/31/92	8/4/92	100%																
461	Ship GB-11 to SNL/NM	5d	8/5/92	8/11/92	100%																
462	Prepare for External Shipment of Aux Eqpt	15d	7/20/92	8/7/92	100%																
463	Submit Shpg Request to B532	2d	7/20/92	7/21/92	100%																
464	Determine Carrier	2d	7/22/92	7/23/92	100%																
465	Prepare Shpg Papers 191770	2d	7/24/92	7/27/92	100%																
466	ES&H Approval	4d	7/28/92	7/31/92	100%																
467	Pickup/Inspect Boxes	2d	8/3/92	8/4/92	100%																
468	Carrier Interactions Ross NP 17451D	3d	8/5/92	8/7/92	100%																
469	Ship GB-11 Aux Eqpt to SNL/NM	1d	8/10/92	8/10/92	100%																
470	Complete Room 102	0d	8/10/92	8/10/92	100%																
471	Room 104 Storage	12d	11/30/93	12/15/93	100%																
472	Move 5 Vidmars to Room 126	12d	11/30/93	12/15/93	100%																
473	Room 112	8d	5/23/94	6/2/94	100%																
474	Defrost Upright Freezer	5d	5/23/94	5/31/94	100%																
475	Package Upright Freezer for LANL	2d	6/1/94	6/2/94	100%																
476	Defrost Chest Freezer	5d	5/23/94	5/31/94	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995					
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
477	Package Chest Freezer for LANL	1d	8/1/94	8/2/94	100%																		
478	Room 115 Matl Characterization	423d	8/25/92	5/4/94	100%																		
479	Facilities Prep 5 Polishing Tables for Removal	174d	10/19/92	6/30/93	100%																		
480	Cost Est & Approval for E2522	9d	10/19/92	10/29/92	100%																		
481	Scope Job/Workup Job Reqmt	4d	5/19/93	5/24/93	100%																		
482	ES&H Review of Job	9d	5/25/93	6/7/93	100%																		
483	Workup Maint Order E2522A	10d	6/11/93	6/24/93	100%																		
484	Remove Electric fm 5 Pol Tbl Motors	4d	6/25/93	6/30/93	100%																		
485	Remove Peripheral Equipment fm GB-8	2d	8/25/92	8/26/92	100%																		
486	Remove Salvage Equipment fm GB-8	3d	8/27/92	8/31/92	100%																		
487	Remove Accountable Tritium Inventory	6d	9/1/92	9/9/92	100%																		
488	Certify Removal	6d	9/10/92	9/17/92	100%																		
489	Prepare Safe Work Permit 92-6	16d	9/18/92	10/9/92	100%																		
490	Write Safe Work Permit	12d	9/18/92	10/5/92	100%																		
491	Review/Approve SWP	3d	10/8/92	10/9/92	100%																		
492	Staff Briefing of SWP	1d	10/9/92	10/9/92	100%																		
493	Glove Permeation Study GB-8	15d	10/12/92	10/30/92	100%																		
494	Prepare Safe Work Permit 92-7	16d	9/18/92	10/9/92	100%																		
495	Write Safe Work Permit	12d	9/18/92	10/5/92	100%																		
496	Review/Approve SWP	3d	10/8/92	10/9/92	100%																		
497	Staff Briefing of SWP	1d	10/9/92	10/9/92	100%																		
498	Hydrogen Flow Study GB-8	120d	10/12/92	4/7/93	100%																		
499	Decon Manifold/Glove Box GB-8	228d	11/2/92	9/29/93	100%																		
500	Prepare Safe Work Permit 93-31	16d	9/30/93	10/21/93	100%																		
501	Write Safe Work Permit	12d	9/30/93	10/15/93	100%																		
502	Review/Approve SWP	3d	10/18/93	10/20/93	100%																		
503	Staff Briefing of SWP	1d	10/21/93	10/21/93	100%																		
504	Open GB-8 to Stack	33d	10/22/93	12/9/93	100%																		
505	Verify Decon	5d	12/10/93	12/16/93	100%																		
506	Facilities Prep GB-8 for Removal	70d	9/7/93	12/15/93	100%																		
507	Scope Job/Workup Job Reqmt	4d	9/7/93	9/10/93	100%																		
508	Workup Maint Order E2522B	7d	9/13/93	9/21/93	100%																		
509	ES&H Review of Job	7d	9/24/93	10/4/93	100%																		
510	Disconnect GB-8 Utilities	8d	12/8/93	12/15/93	100%																		

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
511	Prepare Safe Work Permit 94-51	37d	12/9/93	2/7/94	100%																
512	Write Safe Work Permit	32d	12/9/93	1/31/94	100%																
513	Review/Approve SWP	4d	2/1/94	2/4/94	100%																
514	Staff Briefing of SWP	1d	2/7/94	2/7/94	100%																
515	Discon/Cap Lines to VERS/GPS	3d	2/8/94	2/10/94	100%																
516	Remove GB-8	20d	2/11/94	3/10/94	100%																
517	Work order for Shpg Crate	3d	12/8/93	12/8/93	100%																
518	Fab Shpg Crate for GB-8	5d	2/25/94	3/3/94	100%																
519	Package Parts	2d	3/4/94	3/7/94	100%																
520	Prepare for External Shipment	28d	2/4/94	3/11/94	100%																
521	Submit Shpg Request to 8532	2d	2/4/94	2/7/94	100%																
522	Determine Carrier	3d	2/10/94	2/14/94	100%																
523	Prep Hzd Mtl Pkg Instructions	3d	2/15/94	2/17/94	100%																
524	Prepare Shpg Papers 18408	3d	2/18/94	2/22/94	100%																
525	ES&H Approval	5d	2/23/94	3/1/94	100%																
526	Pickup/Inspect Boxes	1d	3/8/94	3/8/94	100%																
527	Carrier Interactions	3d	3/9/94	3/11/94	100%																
528	Ship GB-8 to LANL via Gibsen Trucking	3d	3/14/94	3/18/94	100%																
529	Complete GB-8 Xfer to LANL	0d	3/18/94	3/18/94	100%																
530	Facilities Prep to Remove GB-9	69d	9/8/93	12/15/93	100%																
531	Scope Job/Workup Job Reqm	4d	9/8/93	9/13/93	100%																
532	Workup Maint Order E2522C	7d	9/14/93	9/22/93	100%																
533	ES&H Review of Job	7d	9/24/93	10/4/93	100%																
534	Disconnect GB-9 Utilities	8d	12/8/93	12/15/93	100%																
535	Decon Manifold/Glove Box GB-9	10d	9/18/93	9/29/93	100%																
536	Prepare Safe Work Permit 93-32	16d	9/30/93	10/21/93	100%																
537	Write Safe Work Permit	12d	9/30/93	10/15/93	100%																
538	Review/Approve SWP	3d	10/18/93	10/20/93	100%																
539	Staff Briefing of SWP	1d	10/21/93	10/21/93	100%																
540	Open GB-9 to Stack	33d	10/22/93	12/9/93	100%																
541	Verify Decon	5d	12/10/93	12/15/93	100%																
542	Remove External Vent Line to GB-9	1d	12/17/93	12/17/93	100%																
543	Discon/Cap Lines to VERS/GPS	3d	2/8/94	2/10/94	100%																
544	Remove GB-9	20d	2/11/94	3/10/94	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992 1993 1994 1995											
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
545	Work order for Shpg Crate	3d	12/8/93	12/8/93	100%												
546	Fab Crates for GB-9	5d	2/25/94	3/3/94	100%												
547	Package Parts	2d	3/4/94	3/7/94	100%												
548	Prepare for External Shipment	26d	2/4/94	3/1/94	100%												
549	Submit Shpg Request to 8532	2d	2/4/94	2/7/94	100%												
550	Determine Carrier	3d	2/8/94	2/10/94	100%												
551	Prep Hnd Mtl Pkg Instructions	3d	2/11/94	2/15/94	100%												
552	Prepare Shpg Papers 18408	3d	2/16/94	2/19/94	100%												
553	ES&H Approval	5d	2/21/94	2/25/94	100%												
554	Pickup/Inspect Boxes	1d	3/8/94	3/8/94	100%												
555	Carrier Interactions	3d	3/9/94	3/11/94	100%												
556	Ship GB-9 to LANL via Gibson Trucking	3d	3/14/94	3/16/94	100%												
557	Complete GB-9 Xtr LANL	0d	3/16/94	3/16/94	100%												
558	Facilities Prep to Remove Fume Hoods	17d	2/11/94	3/7/94	100%												
559	Scope/Workup Engr Order E2322-G	7d	2/11/94	2/21/94	100%												
560	ES&H Review/Approval	5d	2/22/94	2/28/94	100%												
561	Disconnect Fume Hood Utilities	5d	3/1/94	3/7/94	100%												
562	Decon Fume Hoods	50d	12/10/93	2/25/94	100%												
563	Remove/Pkg Fume Hoods (115A/115B/115C/115D)	8d	2/20/94	3/3/94	100%												
564	Remove/Pkg Fume Hood (115D)	10d	4/20/93	5/7/93	100%												
565	Prepare Fume Hood 115D for External Shipment	27d	4/21/93	5/27/93	100%												
566	Submit Shpg Request to 8532	7d	4/21/93	4/29/93	100%												
567	Determine Carrier	3d	4/30/93	5/4/93	100%												
568	Prep Hnd Mtl Pkg Instructions 1293	3d	5/5/93	5/7/93	100%												
569	Prepare Shpg Papers 194319	3d	5/10/93	5/12/93	100%												
570	ES&H Approval	5d	5/13/93	5/19/93	100%												
571	Pickup/Inspect Boxes	3d	5/20/93	5/24/93	100%												
572	Carrier Interactions Trl Sisle 63121	3d	5/25/93	5/27/93	100%												
573	Ship Fume Hood 115D to LANL	10d	5/28/93	6/1/93	100%												
574	Prepare Fume Hood 115F for External Shipment	30d	1/31/94	3/1/94	100%												
575	Submit Shpg Request to 8532	1d	1/31/94	1/31/94	100%												
576	Determine Carrier	3d	2/1/94	2/3/94	100%												
577	Prep Hnd Mtl Pkg Instructions 1466	3d	2/4/94	2/8/94	100%												
578	Prepare Shpg Papers 18401	3d	2/8/94	2/11/94	100%												

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
579	ES&H Approval	5d	2/14/94	2/18/94	100%																
580	Pickup/Inspect Boxes	1d	3/10/94	3/10/94	100%																
581	Carrier Interactions Gibson Trucking	1d	3/11/94	3/11/94	100%																
582	Ship Fume Hood 115D to LANL	2d	3/14/94	3/15/94	100%																
583	Ship Fume Hoods (115A/115B/115C) to LANL	10d	4/21/94	5/4/94	100%																
584	Facilities Prep to Remove Vac Furnace	147d	9/9/93	4/13/94	100%																
585	Scope Job/Workup Job Reqmt	4d	9/9/93	9/14/93	100%																
586	Workup Maint Order E2522D	7d	9/15/93	9/23/93	100%																
587	ES&H Review of Job	7d	9/24/93	10/4/93	100%																
588	Disconnect Furnace Utilities	6d	4/8/94	4/13/94	100%																
589	Remove Vacuum Furnace	5d	4/14/94	4/20/94	100%																
590	Ship Vacuum Furnace to Waste	10d	4/21/94	5/4/94	100%																
591	Discont Utilities Rm 115	10d	3/31/94	4/13/94	100%																
592	Remove Lines to VERS/GPS to Manifold SWP94	10d	3/18/94	3/31/94	100%																
593	Complete Room 115	0d	4/20/94	4/20/94	100%																
594	Room 119 Tritium Plasma	74d	10/7/93	1/28/94	100%																
595	Facilities Prep to Remove Fume Hoods	28d	10/15/93	11/24/93	100%																
596	Scope Job/Workup Job Reqmt	4d	10/15/93	10/20/93	100%																
597	Prepare Maintenance Order	7d	10/21/93	10/29/93	100%																
598	ES&H Review of Job	8d	11/1/93	11/10/93	100%																
599	Disconnect Fume Hood Utilities	10d	11/11/93	11/24/93	100%																
600	Decon Fume Hoods (3)	10d	11/11/93	11/24/93	100%																
601	Verify Decon	7d	11/28/93	12/7/93	100%																
602	Remove Small Hood	2d	12/8/93	12/9/93	100%																
603	Dispose of Small Hood	10d	12/10/93	12/23/93	100%																
604	Remove Fume Hood HVAH 119B (TPX)	11d	10/7/93	10/21/93	100%																
605	Prep/Transfer TPX Hood to 8842 for Burial	10d	10/22/93	11/4/93	100%																
606	Remove/Pkg Fume Hood HVAH 119A	5d	12/8/93	12/14/93	100%																
607	Remove to Keep/Hold to Ship Hood to LANL	10d	12/15/93	1/5/94	100%																
608	Prepare Safe Work Permit 93-33	4d	10/22/93	10/27/93	100%																
609	Write Safe Work Permit	2d	10/22/93	10/25/93	100%																
610	Review/Approve SWP	1d	10/26/93	10/26/93	100%																
611	Staff Briefing of SWP	1d	10/27/93	10/27/93	100%																
612	Remove Lines to VERS to Manifold	5d	10/28/93	11/3/93	100%																

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ID	OBJECTIVES/TASKS	Start	Finish	% Comp	1992	1993	1994	1995
613	Assess Contamination Levels of Ductwork	11/4/93	3d	100%				
614	Prepare Safe Work Permit 93-98	10/21/93	11d	100%				
615	Write Safe Work Permit	10/27/93	5d	100%				
616	Review/Approve SWP	10/28/93	5d	100%				
617	Staff Briefing of SWP	11/4/93	1d	100%				
618	Remove Ductwork from Furnace Hood to Ceiling	11/2/93	2d	100%				
619	Assess Contam Levels of floor	11/11/93	3d	100%				
620	Prepare Safe Work Permit 93-98	10/21/93	12d	100%				
621	Write Safe Work Permit	10/21/93	6d	100%				
622	Review/Approve SWP	10/29/93	5d	100%				
623	Staff Briefing of SWP	11/5/93	1d	100%				
624	Perform Remedial Cleanup of Floor	11/8/93	3d	100%				
625	Replace Flooring	11/11/93	49d	100%				
626	Complete Room 119	1/28/94	0d	100%				
627	Room 120 Tritium Handling	1/4/93	399d	100%				
628	Modify H2 Line	1/4/93	2d	100%				
629	Enlarge NE Door	3/16/93	1d	100%				
630	Remove GB-3	12/18/93	155d	100%				
631	Remove Tritium Inventory	2/24/94	3d	100%				
632	Remove Packaged Equip from GB-3	3/14/94	10d	100%				
633	Remove Salvage Equip from GB-3	12/18/93	15d	100%				
634	Prepare GB-3 for Removal	3/24/94	36.5d	100%				
635	Scope Job	3/24/94	1d	100%				
636	Prepare/Document Order	3/25/94	5d	100%				
637	Prepare/Review Drawings	4/7/94	4d	100%				
638	Obtain ES&H Approval	4/7/94	1d	100%				
639	Disconnect GB-3 Utilities	4/8/94	26d	100%				
640	Review Project	4/12/94	24d	100%				
641	Decont Glove Box	4/12/94	31d	100%				
642	Verify Decon	4/14/94	2d	100%				
643	Disconnect/Cap Lines GB-3	4/15/94	5d	100%				
644	Disconnect GB-3 Exd Pnbg	4/22/94	2d	100%				
645	Remove GB-3	4/28/94	3d	100%				
646	Prepare Safe Work Permit 94-55	3/15/94	16d	100%				

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
647	Write Safe Work Permit (GB-3 & GB-2)	12d	3/15/94	3/30/94	100%																
648	Review/Approve SWP	3d	3/31/94	4/4/94	100%																
649	Staff Briefing of SWP	1d	4/5/94	4/5/94	100%																
650	Remove Lines to VERS/GPS to manifold	20d	4/8/94	5/3/94	100%																
651	Work order for boxes	3d	3/24/94	3/29/94	100%																
652	Fab boxes	10d	3/29/94	4/12/94	100%																
653	Package Parts	15d	4/20/94	5/10/94	100%																
654	External Shipment Preparation	28d	4/22/94	5/27/94	100%																
655	Submit Shpg Request to 8532	2d	4/22/94	4/25/94	100%																
656	Determine Carrier	3d	4/28/94	4/28/94	100%																
657	Prep Hnd Mtl Pkg Instructions	3d	4/29/94	5/3/94	100%																
658	Prepare Shpg Papers	3d	5/4/94	5/8/94	100%																
659	ES&H Approval	5d	5/9/94	5/13/94	100%																
660	Pickup/Inspect Boxes	3d	5/20/94	5/24/94	100%																
661	Carrier Interactions	3d	5/25/94	5/27/94	100%																
662	Shipment to LANL	44d	5/31/94	8/1/94	100%																
663	Complete Xfer of GB-3 to LANL	0d	8/1/94	8/1/94	100%																
664	Facilities Prep GB-2 for Removal	28d	3/24/94	5/3/94	100%																
665	Scope Job	1d	3/24/94	3/25/94	100%																
666	Prepare/Document Order	5d	3/25/94	4/1/94	100%																
667	Prepare/Revise Drawings	4d	4/1/94	4/7/94	100%																
668	Obtain ES&H Approval	1d	4/7/94	4/8/94	100%																
669	Disconnect GB-2 Utilities	2d	4/12/94	5/3/94	100%																
670	Review Project	13d	4/14/94	5/3/94	100%																
671	Remove GB-2 Pinch Welder	5d	4/14/94	4/21/94	100%																
672	Prepare Safe Work Permit 94-55	16d	3/15/94	4/5/94	100%																
673	Write Safe Work Permit (GB-3 & GB-2)	12d	3/15/94	3/30/94	100%																
674	Review/Approve SWP	3d	3/31/94	4/4/94	100%																
675	Staff Briefing of SWP	1d	4/5/94	4/5/94	100%																
676	Remove Lines to VERS/GPS to manifold	5d	4/8/94	4/12/94	100%																
677	Work order for Shpg Crate	3d	4/21/94	4/28/94	100%																
678	Fab Crate for GB-2	10d	4/28/94	5/10/94	100%																
679	Package Parts	15d	5/10/94	6/1/94	100%																
680	Prepare for External Shipment	13d	6/1/94	6/20/94	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
681	Submit Shpg Request to 8532	2d	6/1/94	6/3/94	100%																
682	Determine Carrier	3d	6/3/94	6/6/94	100%																
683	Prepare Shpg Papers	3d	6/6/94	6/13/94	100%																
684	ES&H Approval	5d	6/13/94	6/20/94	100%																
685	Pickup Boxes	6d	6/1/94	6/9/94	100%																
686	Inspect Boxes	3d	6/9/94	6/14/94	100%																
687	Carrier Interactions	3d	6/14/94	6/17/94	100%																
688	Shipment to LANL	30d	6/17/94	8/1/94	100%																
689	Complete GB-2 Xfer to LANL	0d	8/1/94	8/1/94	100%																
690	Complete Room 120	0d	8/1/94	8/1/94	100%																
691	Room 121 Microscopy Lab	278d	7/21/92	8/27/93	100%																
692	Clean Utility Glove Box	5d	8/11/92	8/17/92	100%																
693	Prepare Utility GB for External Shipment	9d	8/18/92	8/28/92	100%																
694	Submit Shpg Request to 8532	2d	8/18/92	8/19/92	100%																
695	Determine Carrier	1d	8/20/92	8/20/92	100%																
696	Prepare Shpg Papers 175291	3d	8/21/92	8/25/92	100%																
697	ES&H Approval	1d	8/26/92	8/26/92	100%																
698	Pickup /Inspect Boxes	1d	8/27/92	8/27/92	100%																
699	Carrier Interactions Ross NP 17473	1d	8/28/92	8/28/92	100%																
700	Ship Utility GB to LANL	1d	8/31/92	8/31/92	100%																
701	Facilities Prep to Remove Hood/Remove Darkroom	275d	7/21/92	8/24/93	100%																
702	Cost Est and Approval	3d	9/30/92	10/2/92	100%																
703	Scope Job/Workup Job Reqmt	8d	7/21/92	7/30/92	100%																
704	Workup Engr Order E2520-A	15d	5/24/93	6/14/93	100%																
705	ES&H Review of Job	1d	6/7/93	6/7/93	100%																
706	Remove Darkroom/Discont Utilities	48d	6/15/93	8/20/93	100%																
707	Inspect Work/Update Dwgs	2d	8/23/93	8/24/93	100%																
708	Relocate Fume Hood HVAH 121A	3d	8/25/93	8/27/93	100%																
709	Prepare Safe Work Permit 93-17 & 18	16d	5/24/93	6/15/93	100%																
710	Write Safe Work Permit	12d	5/24/93	6/9/93	100%																
711	Review/Approve SWP	3d	6/10/93	6/14/93	100%																
712	Staff Briefing of SWP	1d	6/15/93	6/15/93	100%																
713	Remove Lines to VERS/GPS to Manifold	10d	6/16/93	6/29/93	100%																
714	Complete Room 121	0d	8/27/93	8/27/93	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
715	Rm 125 Permeation Lab	89d	8/2/93	12/6/93	100%																
716	Prepare for Internal Move to IMTL	18d	8/2/93	8/25/93	100%																
717	Provide Move Notification	3d	8/2/93	8/4/93	100%																
718	Facilities/Mtl Move Review	10d	8/5/93	8/18/93	100%																
719	Create Layout & Schedule	5d	8/19/93	8/25/93	100%																
720	Move non-contam equip to IMTL	2w	9/22/93	10/5/93	100%																
721	Facilities Prep to Remove Hood	19d	10/6/93	11/1/93	100%																
722	Scope Job/Workup Job Reqmt	3d	10/6/93	10/8/93	100%																
723	Workup Engr Order E2521-A	3d	10/11/93	10/13/93	100%																
724	ES&H Review-2 of Job	9d	10/14/93	10/26/93	100%																
725	Disconnect Room 125 Utilities	2d	10/27/93	10/28/93	100%																
726	Inspect Work/Update Dwgs	2d	10/28/93	11/1/93	100%																
727	Disconnect/Clean Fume Hood-Leave in Room	5d	10/28/93	11/4/93	100%																
728	Prepare Safe Work Permit 93-34	12d	10/6/93	10/21/93	100%																
729	Write Safe Work Permit	8d	10/6/93	10/15/93	100%																
730	Review/Approve SWP	3d	10/18/93	10/20/93	100%																
731	Staff Briefing of SWP	1d	10/21/93	10/21/93	100%																
732	Remove Lines to VERS/GPS to Manifold	30d	10/22/93	12/6/93	100%																
733	Complete Room 125	0d	12/6/93	12/6/93	100%																
734	Room 126 Component Development	38d	1/31/94	3/21/94	100%																
735	Remove Laser	15d	2/15/94	3/7/94	100%																
736	Ship Laser to LANL	10d	3/8/94	3/21/94	100%																
737	Remove Volume Measurement System	13d	2/15/94	3/3/94	100%																
738	External Shipment Preparation	30d	1/31/94	3/11/94	100%																
739	Submit Shpg Request to 8532	2d	1/31/94	2/1/94	100%																
740	Determine Carrier	3d	2/2/94	2/4/94	100%																
741	Prep Haz Mtl Pkg Instructions #1485	3d	2/7/94	2/9/94	100%																
742	Prepare Shpg Papers 18402	3d	2/10/94	2/14/94	100%																
743	ES&H Approval	5d	2/15/94	2/21/94	100%																
744	Pickup/Inspect Boxes	3d	3/4/94	3/8/94	100%																
745	Carrier Interactions Gibson Trucking	3d	3/8/94	3/11/94	100%																
746	Ship VMS/Computer to LANL	3d	3/14/94	3/16/94	100%																
747	Room 129 Trifide Mtl Lab	110d	3/1/93	6/3/93	100%																
748	Prepare Safe Work Permit 93-20	16d	3/1/93	3/22/93	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
749	Write Safe Work Permit	12d	3/1/93	3/16/93	100%																
750	Review/Approve SWP	3d	3/17/93	3/19/93	100%																
751	Staff Briefing of SWP	1d	3/22/93	3/22/93	100%																
752	Putback Utilities in Rm 129	20d	7/1/93	7/29/93	100%																
753	Remove Lines to CW/VERS/GPS to Manifold	3d	7/30/93	8/3/93	100%																
754	Complete Room 129	0d	8/3/93	8/3/93	100%																
755	Handy	136d	9/21/93	4/8/94	100%																
756	Prep 2 Cabinets to move	10d	9/21/93	10/4/93	100%																
757	Wipe Cabinet for Contam	3d	1/7/94	1/11/94	100%																
758	Prepare for Internal Move	28d	1/12/94	2/18/94	100%																
759	Provide Move Notification	3d	1/12/94	1/14/94	100%																
760	Facilities/Mat Move Review	15d	1/17/94	2/4/94	100%																
761	Create Layout & Schedule	10d	2/7/94	2/18/94	100%																
762	Pickup/der cabinets	5d	2/21/94	2/25/94	100%																
763	Obtain SRC Approval to Move GPS/VERS Manifo	5d	3/21/94	3/25/94	100%																
764	Remove GPS/VERS Manifold Past Vault	10d	3/28/94	4/8/94	100%																
765	RVERS	221d	8/1/92	6/21/93	100%																
766	Remove Peripher Equipment	2d	8/1/92	8/4/92	100%																
767	Remove Salvage Equipment	3d	8/5/92	8/7/92	100%																
768	Package Small Equip for shipping	90d	8/10/92	12/18/92	100%																
769	Prepare RVERS parts for External Shipment	5d	1/12/93	1/18/93	100%																
770	Submit Shpg Request to 8532	2d	1/12/93	1/13/93	100%																
771	Determine Carrier	1d	1/13/93	1/13/93	100%																
772	Prepare Shpg Papers 175341	1d	1/14/93	1/14/93	100%																
773	ES&H Approval	1d	1/15/93	1/15/93	100%																
774	Pickup/Inspect Boxes	1d	1/18/93	1/18/93	100%																
775	Carrier Interactions Rosa NP 16538	1d	1/18/93	1/18/93	100%																
776	Shipment of RVERS parts to LANL	1d	1/19/93	1/19/93	100%																
777	Prepare for External Shipment of RVERS parts	10d	1/18/93	1/29/93	100%																
778	Submit Shpg Request to 8532	1d	1/18/93	1/18/93	100%																
779	Determine Carrier	1d	1/19/93	1/19/93	100%																
780	Prepare Shpg Papers 040920	1d	1/20/93	1/20/93	100%																
781	ES&H Approval	1d	1/21/93	1/21/93	100%																
782	Pickup/Inspect Boxes	1d	1/22/93	1/22/93	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
783	Carrier Interactions Ross NP 16545A	1d	1/22/93	1/22/93	100%																
784	Carrier Interactions Ross NP 16553	5d	1/25/93	1/29/93	100%																
785	Shipment of RVERS parts to LANL	10d	1/25/93	2/5/93	100%																
786	Shipment of RVERS parts to LANL	1d	2/1/93	2/1/93	100%																
787	Prepare for External Shipment of RVERS tanks	2d	1/21/93	1/22/93	100%																
788	Submit Shpg Request to 8532	1d	1/21/93	1/21/93	100%																
789	Determine Carrier	1d	1/22/93	1/22/93	100%																
790	Prepare Shpg Papers 041564	1d	1/22/93	1/22/93	100%																
791	ES&H Approval	1d	1/22/93	1/22/93	100%																
792	Pickup/Inspect Boxes	1d	1/22/93	1/22/93	100%																
793	Carrier Interactions Ross NP 16546	1d	1/22/93	1/22/93	100%																
794	Shipment of RVERS tanks to LANL	1d	1/25/93	1/25/93	100%																
795	Facilities Remove RVERS Ductwork	34d	9/25/92	11/11/92	100%																
796	Scope Job/Workup Job Reqmt	11d	9/25/92	10/6/92	100%																
797	ES&H Review-1 of Job	9d	10/9/92	10/21/92	100%																
798	Workup Engr Order E2524-A	2d	10/27/92	10/28/92	100%																
799	ES&H Review-2 of Job	5d	10/29/92	11/4/92	100%																
800	Remove Ductwork to RVERS	6d	11/5/92	11/11/92	100%																
801	Remove Lines to VERS/GPS	10d	11/12/92	11/25/92	100%																
802	Contract to move room	12d	12/2/92	12/17/92	100%																
803	Move Room to Tent	20d	12/18/92	1/22/93	100%																
804	Contract to Split Room	10d	1/5/93	1/18/93	100%																
805	Prepare Safe Work Permit 93-4	18d	1/19/93	2/9/93	100%																
806	Write Safe Work Permit	12d	1/19/93	2/3/93	100%																
807	Review/Approve SWP	3d	2/4/93	2/8/93	100%																
808	Staff Briefing of SWP	1d	2/9/93	2/9/93	100%																
809	Split Room into 2 Sections	4d	2/22/93	2/25/93	100%																
810	Prepare for Ext Shipment of Room Sections	23d	3/3/93	4/2/93	100%																
811	Submit Shpg Request to 8532	2d	3/3/93	3/4/93	100%																
812	Determine Carrier	3d	3/5/93	3/9/93	100%																
813	Prepare Shpg Papers 194302	3d	3/10/93	3/12/93	100%																
814	ES&H Approval	5d	3/15/93	3/19/93	100%																
815	Carrier Interactions Gibson 62988	10d	3/22/93	4/2/93	100%																
816	Shipment of Room Sections to LANL	10d	4/15/93	4/28/93	100%																

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ID	OBJECTIVES/TASKS	Duration	Start	Finish	% Comp	1992				1993				1994				1995			
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
817	Work order for Shpg Crates	3d	2/28/93	3/2/93	100%																
818	Fab Shpg Crates for RVERS	10d	3/3/93	3/18/93	100%																
819	Package Large Parts	16d	3/17/93	4/7/93	100%																
820	External Shipment Preparation	28d	2/28/93	4/2/93	100%																
821	Submit Shpg Request to 8532	2d	2/28/93	3/1/93	100%																
822	Determine Carrier	3d	3/2/93	3/4/93	100%																
823	Prepare Shpg Papers 175342	3d	3/5/93	3/8/93	100%																
824	ES&H Approval	3d	3/10/93	3/12/93	100%																
825	Inspect Crates	5d	3/15/93	3/19/93	100%																
826	Carrier Interactions Gibson 62988A	10d	3/22/93	4/2/93	100%																
827	Ship RVERS Parts to LANL	5d	4/15/93	4/21/93	100%																
828	Prepare for External Shipment of RVERS Misc.	8d	6/8/93	6/18/93	100%																
829	Submit Shpg Request to 8532	2d	6/8/93	6/10/93	100%																
830	Determine Carrier	1d	6/11/93	6/11/93	100%																
831	Prepare Shpg Papers 104449	1d	6/14/93	6/14/93	100%																
832	ES&H Approval	2d	6/15/93	6/18/93	100%																
833	Pickup/Inspect Boxes	1d	6/17/93	6/17/93	100%																
834	Carrier Interactions Ross NP 01736	1d	6/18/93	6/18/93	100%																
835	Shipment of RVERS Misc. to LANL	1d	6/21/93	6/21/93	100%																
836	Complete RVERS Transfer to LANL	0d	6/21/93	6/21/93	100%																
837	Building 989	562.5d	5/18/92	8/15/94	100%																
838	Prepare GBs/HXRs for External Shipment	21d	5/18/92	6/18/92	100%																
839	Submit Shpg Request to 8532	2d	5/18/92	5/19/92	100%																
840	Determine Carrier	3d	5/20/92	5/22/92	100%																
841	Prepare Shpg Papers 175279	3d	5/28/92	5/28/92	100%																
842	ES&H Approval	5d	5/29/92	6/4/92	100%																
843	Pickup/Inspect Boxes	3d	6/5/92	6/9/92	100%																
844	Carrier Interactions Tri State Motor 62891	5d	6/10/92	6/18/92	100%																
845	Shipment of GBs & HXRs to SR	10d	6/17/92	6/30/92	100%																
846	Complete GBs & HXRs Xfer to SR	0d	6/30/92	6/30/92	100%																
847	Work order for boxes	3d	6/10/92	6/12/92	100%																
848	Fab boxes	3d	6/15/92	6/17/92	100%																
849	Transfer Used GB to SNL/NM	29d	5/21/92	7/1/92	100%																
850	Disassemble GB 6550448	5d	5/21/92	5/28/92	100%																

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						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
851	Package Parts	5d	6/29/92	6/4/92	100%																
852	Prepare for External Shipment	18d	6/5/92	6/28/92	100%																
853	Submit Shpg Request to 8532	2d	6/5/92	6/8/92	100%																
854	Determine Carrier	3d	6/9/92	6/11/92	100%																
855	Prepare Shpg Papers 175277	2d	6/12/92	6/15/92	100%																
856	Pickup Boxed Used GB	3d	6/16/92	6/18/92	100%																
857	Inspect Box	3d	6/19/92	6/23/92	100%																
858	Carrier Interactions Ross NP 17430	3d	6/24/92	6/28/92	100%																
859	Ship Used GB to SNL/NM	3d	6/28/92	7/1/92	100%																
860	Transfer GB-7 to SNL/NM	52d	6/1/92	8/12/92	100%																
861	Disassemble GB-7 S742850	5d	6/18/92	6/24/92	100%																
862	Package Parts	5d	6/25/92	7/1/92	100%																
863	Prepare for External Shipment	32d	6/1/92	7/15/92	100%																
864	Submit Shpg Request to 8532	2d	6/1/92	6/2/92	100%																
865	Determine Carrier	3d	6/3/92	6/5/92	100%																
866	Prepare Shpg Papers 175282	2d	6/8/92	6/9/92	100%																
867	Pickup Boxed GB-7	3d	7/2/92	7/7/92	100%																
868	Inspect Box	3d	7/8/92	7/10/92	100%																
869	Carrier Interactions Ross NP 17451B	3d	7/13/92	7/15/92	100%																
870	Ship GB-7 to SNL/NM	3d	8/10/92	8/12/92	100%																
871	Ship Remaining Equipment	10d	8/1/94	8/15/94	100%																
872	Consolidate MO15/MO16 into Bldg 969	128d	3/1/93	8/27/93	100%																
873	Excess Equipment Reallocated	0d	8/1/94	8/1/94	100%																
874	DETERMINE REMAINING TRITIUM LEVEL	422.06d	3/1/93	10/31/94	91%																
875	Develop Tritium Location Model	272d	3/1/93	3/29/94	100%																
876	Prepare Residue Analysis	212d	3/1/93	1/4/94	100%																
877	Modify/Confirm Analysis	60d	1/5/94	3/29/94	100%																
878	Measure Typical Tritium Concentration	179d	7/14/93	3/31/94	100%																
879	Determine/Document Remaining Tritium Level	210.06d	1/5/94	10/31/94	71%																
880	Provide Draft Report	60d	1/5/94	3/29/94	100%																
881	Write Report	25d	9/26/94	10/31/94	0%																

Project: TRL CLEANUP PLAN
Sandia National Laboratories
D. Diemer, 5361

Critical
Noncritical

Progress
Milestone

Summary
Rolled Up

100% Complete

TRL TRANSITION TEAM MISSION

THE BACKGROUND FOR THE TRL TRANSITION PROJECT IS:

THE TRL (BUILDING 968 COMPLEX) HAS PROVIDED A FACILITY TO STUDY TRITIUM INTERACTIONS WITH MATERIALS SINCE 1977. BASED ON SANDIA'S DECISION TO ELIMINATE ON-SITE TRITIUM RESEARCH AND DEVELOPMENT (R&D), A TRL CLEANUP TEAM WAS FORMED IN EARLY CALENDAR YEAR (CY) 1992. THE CLEANUP TEAM IS CURRENTLY CHARTERED THROUGH CY 1994 TO REDUCE THE TRITIUM QUANTITY TO <1000 CURIES, RELOCATE ACTIVE EXPERIMENTS, AND REALLOCATE EXCESS EQUIPMENT.

THE PURPOSE OF THE TRL TRANSITION TEAM IS TO:

- DEFINE AND IMPLEMENT A PROCESS TO TRANSITION THE BUILDING 968 COMPLEX SO IT MAY BE USED FOR OTHER PURPOSES

BENEFIT OF THE TRL TRANSITION IS:

- PROVIDE BENCHMARK METHODOLOGY TO TRANSITION A NON-REACTOR NUCLEAR FACILITY SO IT MAY BE USED FOR OTHER PURPOSES

TRL TRANSITION TEAM GOAL

- TRANSITION THE SNL/CA BUILDING 968 COMPLEX SO IT IS AVAILABLE FOR OTHER PURPOSES

TRL TRANSITION TEAM OBJECTIVES

- CLEANUP, REMOVE AND/OR REALLOCATE NON-SAFETY RELATED EXCESS EQUIPMENT
- OBTAIN DOE APPROVAL TO TRANSITION FROM A CATEGORY III FACILITY TO A RADIOLOGICAL FACILITY
- CLEANUP, REMOVE AND/OR REALLOCATE SAFETY RELATED EQUIPMENT
- CHARACTERIZE THE SNL/CA BUILDING 968 COMPLEX
- TRANSFER TRANSITION TECHNOLOGY

TRL TRANSITION TEAM SCOPE

- BUILDING 968 COMPLEX INCLUDES BUILDING 968, EVAPORATORS, WASTE WATER COLLECTION AND HOLDING SYSTEM, EQUIPMENT ROOM, AND CONTROLLED AREAS
- EACH OBJECTIVE OF THE TRL TRANSITION TEAM WILL BE INDIVIDUALLY DOCUMENTED
- GUIDANCE WILL BE PROVIDED FOR PROPOSED INTERIM UTILIZATION OF THE BUILDING 968 COMPLEX

TRL TRANSITION TEAM ASSUMPTIONS AND CONSTRAINTS

- THE TRL CLEANUP TEAM WILL MEET THEIR GOAL
- REGULATORY REQUIREMENTS DO NOT CHANGE
- STANDARD UTILITIES WILL BE LEFT AT NORMAL DISTRIBUTION POINTS
- UNCONTAMINATED SAFETY RELATED EQUIPMENT MAY BE LEFT IN THE BUILDING 968 COMPLEX
- AVAILABILITY WILL INCLUDE SOME SYSTEMS, SUCH AS VENTILATION, CHILLED WATER, AND UNDER FLOOR DRAINS, THAT MAY NEED TO BE MONITORED FOR A SPECIFIED LENGTH OF TIME

3/25/94

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
1	TRL TRANSITION ACTIVITIES	637d	1/14/94	6/26/96	
2	REMOVE AND/OR REALLOCATE NON-SAFETY EXCESS EQUIPMENT	407.06d	1/14/94	8/9/95	
3	Room 126 Component Development Lab	185d	4/1/94	12/16/94	
4	Remove GB-10	185d	4/1/94	12/15/94	
5	Cleanest Glove Box 10	57d	6/1/94	8/18/94	
6	Remove GB-10 Tritium Inventory	12.38d	6/1/94	6/15/94	50FS+16d
7	Remove GB-10 Peripheral Equipment	3.38d	8/4/94	8/8/94	6FS+36d
8	Remove GB-10 Salvage Equipment	12.38d	8/4/94	8/18/94	7SS
9	Facilities Prep GB-10 For Removal	78d	6/15/94	9/30/94	
10	Facility Work Order	13.5d	6/15/94	6/30/94	21
11	Disconnect GB-10 Utilities	5.63d	9/26/94	9/30/94	
12	Prepare Operating Procedures (OP)	122d	4/1/94	9/19/94	
13	Write OP	14.63d	4/1/94	4/19/94	

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
14	Review/Approve OP	1.13d	4/20/94	4/20/94	13
15	User Acknowledgment of OP	3.38d	4/21/94	4/25/94	14
16	Write a SWP	2.25d	9/16/94	9/19/94	
17	Prepare GB-10 for Removal	66d	8/25/94	11/24/94	
18	Training LANL on CDL Operations	4.5d	9/19/94	9/22/94	
19	Decon Manifolds/Glove Box -10 (CDL)	4.5d	8/25/94	8/30/94	7SS
20	Remove U-Bed from GB-10	3.38d	9/19/94	9/21/94	
21	Verify GB-10 Decon	34.88d	9/16/94	10/28/94	20FS+18d
22	Discnct/Cap Manifold Lines Between GB Sections	22.5d	10/3/94	10/28/94	21SS+2d
23	Disconnect Instrumentation Feed throughs	22.5d	10/3/94	10/28/94	22SS
24	Open GB-10 to Stack	1.13d	9/22/94	9/22/94	23
25	Remove CDL Instrumentation Rack	6.75d	10/11/94	10/18/94	24
26	Disconnect/Remove VERS, GPS, N2 Lines to GB-10	5.63d	9/26/94	9/30/94	24

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
27	Split GB-10 into Sections	32.63d	10/10/94	11/17/94	26
28	Secure Equipment in Box	5.63d	11/17/94	11/24/94	27
29	Waste Handling Activities	16.88d	10/31/94	11/18/94	28
30	Remove CDL GB-10	1.13d	11/24/94	11/28/94	29SS
31	Prepare for Material Movement	12d	11/4/94	11/21/94	
32	Fab Shipping Containers	3.38d	11/4/94	11/8/94	7SS
33	Package GB-10	5.63d	11/15/94	11/21/94	32,30
34	External Shipment Preparation GB-10	14d	11/28/94	12/15/94	
35	Submit Shpg Request to 8532	2.25d	11/28/94	11/30/94	7SS
36	Determine Carrier	1.13d	12/8/94	12/13/94	35
37	Prep Hzd Mtl Pkg Instructions	3.38d	11/28/94	11/30/94	21,36
38	Prepare Shpg Papers	3.38d	11/28/94	11/30/94	37
39	HP Approval	5.63d	12/1/94	12/7/94	38

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
40	Pickup/Inspect Boxes	2.25d	12/8/94	12/9/94	33,39
41	Carrier Interactions	3.38d	12/12/94	12/14/94	40
42	Shipment to LANL	1.13d	12/15/94	12/15/94	41
43	Remove Other Room 126 Equipment	66d	9/15/94	12/16/94	
44	Remove Pumps and Pump Rack	14.63d	9/15/94	10/3/94	30
45	Package Waste	2.25d	10/3/94	10/4/94	44
46	Room 126 Complete	0 d	12/16/94	12/16/94	
47	Room 120	299.06d	6/16/94	8/9/95	
48	Remove Glove Box 1--High Pressure Station	159d	6/21/94	1/28/95	
49	Cleanout Glove Box 1	116d	6/21/94	11/29/94	
50	Remove GB-1 Tritium Inventory	6.75d	6/21/94	6/28/94	
51	Confirm No Pressurized Gases > 1.5 Atm.	6.75d	11/1/94	11/8/94	59FS+14d
52	Remove Storage U-Beds from GB-1	1.13d	11/21/94	11/21/94	51SS

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

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Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
53	Remove GB-1 Peripheral Equipment	1.13d	11/25/94	11/28/94	52
54	Remove GB-1 Salvage Equipment	2.25d	11/28/94	11/29/94	53SS
55	Facilities Prep GB-1 For Removal	6d	8/6/94	8/15/94	
56	Facility Work Order	6.75d	8/6/94	8/15/94	61
57	Disconnect GB-1 Utilities	5.63d	8/16/94	8/22/94	
58	Prepare GB-1 for Removal	153d	6/27/94	1/25/95	
59	Decon GB-1 Manifold	12.38d	6/27/94	7/11/94	50
60	Decon Glove Box 1	12.38d	7/11/94	7/25/94	59
61	Verify GB-1 Decon	6.75d	7/25/94	8/11/94	60
62	Open GB-1 to Stack	1.13d	8/16/94	8/16/94	56SS,61
63	Disconnect/Remove VERS/GPS Lines to GB-1	5.63d	8/17/94	8/23/94	62
64	Drain Pump Oil & Hyd Fluid	5.63d	8/17/94	8/23/94	62
65	GB-1 High Pressure Station Pkg in Room	95.63d	8/24/94	12/22/94	64

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical
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Progress
Milestone

Summary
Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
66	Remove GB-1 from Room to 7A Container	1.13d	1/25/95	1/25/95	65,96
67	Transfer GB-1 to ES&H for Burial	3d	1/25/95	1/28/95	
68	Transfer Request to ES&H	1.13d	1/25/95	1/25/95	64,65
69	ES&H Approval	1.13d	1/26/95	1/26/95	68
70	Pickup/Xfer to ES&H	1.13d	1/27/95	1/27/95	69
71	Complete GB-1 Xfer to ES&H	0d	1/28/95	1/28/95	
72	Remove Glove Box 5A--Tritium Assay Station	162d	6/16/94	1/27/95	
73	Cleanout Glove Box 5A	7d	8/10/94	8/18/94	
74	Remove GB-5A Tritium Inventory	2.25d	8/10/94	8/11/94	7SS
75	Remove GB-5A Peripheral Equipment	2.25d	8/17/94	8/18/94	74
76	Remove GB-5A Salvage Equipment	3.38d	8/12/94	8/16/94	74
77	Facilities Prep GB-5A For Removal	123d	6/16/94	12/5/94	
78	Facility Work Order	1.13d	6/16/94	6/16/94	6

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

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Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
79	Disconnect GB-5A Utilities	1.13d	12/5/94	12/5/94	78,84,56
80	Prepare GB-5A for Removal	116d	8/17/94	1/25/95	
81	Decon GB-5A Manifold/GB	5.63d	8/17/94	8/23/94	76
82	Confirm No Pressurized Gases > 1.5 Atm.	1.13d	8/24/94	8/24/94	81
83	Remove Storage Beds/Ship to LANL/LLNL	1.13d	8/25/94	8/25/94	82
84	Verify GB-5A Decon	2.25d	8/26/94	8/29/94	83
85	Open GB-5A to Stack	1.13d	8/31/94	8/31/94	84
86	Discnct/Remove VERS/GPS Lines to GB-5A	6.75d	1/3/95	1/10/95	85
87	Discnct GB-5A Ext Plmbg	6.75d	1/16/95	1/23/95	86
88	Final GB-5A Assay Sta. Pkg in Room	120.38d	8/17/94	1/24/95	87
89	Remove GB-5A to 7A Container	1.13d	1/25/95	1/25/95	88
90	Transfer GB-5A to ES&H for Burial	3 d	1/25/95	1/27/95	
91	Transfer Request to ES&H	1.13d	1/25/95	1/25/95	

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL - ansition Plan

ID	Task	Duration	Start	Finish	Predecessors
92	ES&H Approval	1.13d	1/26/95	1/26/95	
93	Pickup/Xfer to ES&H	1.13d	1/27/95	1/27/95	
94	Complete GB-5A Xfer to ES&H	0 d	1/27/95	1/27/95	
95	ES&H Bury GB-1 and GB-5A	275.06d	7/20/94	8/9/95	
96	Order 7A Container	75.38d	7/20/94	10/20/94	70FS-70d
97	Arrange for Shipment to Nevada	32.63d	2/14/95	3/29/95	96SS
98	Ship Container to Nevada	117d	2/16/95	8/9/95	96,97,211FF
99	Remove Glove Box 2A--Utility GB	96d	10/6/94	2/16/95	
100	Remove Uranium Inventory	74d	10/6/94	1/17/95	
101	Inert Box	5.63d	11/15/94	11/21/94	97FS-15d
102	Prepare Safe Work Permit 95-	15d	10/6/94	10/26/94	101
103	Write Safe Work Permit	6.75d	10/6/94	10/13/94	
104	Review/Approve SWP	3.38d	10/13/94	10/18/94	103

Project: TRL Transition Plan, SNL/CA
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Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan					
ID	Task	Duration	Start	Finish	Predecessors
105	Staff Briefing of SWP	1.13d	10/26/94	10/26/94	104
106	Process Uranium to LLNL	1.13d	11/15/94	11/15/94	105
107	Ship Uranium to LLNL	3.38d	1/13/95	1/17/95	106
108	Remove Peripheral Equipment	3.38d	11/16/94	11/18/94	107
109	Remove Salvage Equipment	3.38d	11/16/94	11/18/94	108
110	Cleanout Glove Box 2A	26d	12/6/94	1/10/95	
111	Remove GB-2A Peripheral Equipment	20.25d	12/6/94	1/6/95	63
112	Remove GB-2A Salvage Equipment	5.63d	1/3/95	1/10/95	111
113	Facilities Prep GB-2A For Removal	21d	12/9/94	1/8/95	
114	Facility Work Order	10.13d	12/9/94	12/23/94	6
115	Disconnect GB-2A Utilities	3.38d	1/4/95	1/8/95	114,118
116	Prepare GB-2A for Removal	43d	11/9/94	1/6/95	
117	Decon GB-2A	4.5d	11/9/94	11/14/94	112
<div> <div>Project: TRL Transition Plan, SNL/CA</div> <div>Team Leader: Paula Painter, 8281, x2161</div> <div>Updated by: Marion Martin, 8281, x3019</div> </div> <div> <div>Critical </div> <div>Noncritical </div> </div> <div> <div>Progress </div> <div>Milestone </div> </div> <div> <div>Summary </div> <div>Rolled Up </div> </div>					
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
118	Verify GB-2A Decon	1.13d	11/14/94	11/14/94	117
119	Open GB-2A to Stack	2.25d	11/15/94	11/16/94	118
120	Disconnect GB-2A External Plumbing	4.5d	12/1/94	12/6/94	119
121	Discnct/Remove GB-2A VERS & GPS	2.25d	1/5/95	1/6/95	120
122	Remove GB-2A	1.13d	2/16/95	2/16/95	126,121
123	Prepare for Material Movement	11d	1/12/95	1/26/95	
124	Order boxes	1.13d	1/12/95	1/17/95	111
125	Fab boxes	6.75d	1/18/95	1/25/95	121
126	Package Parts	1.13d	1/26/95	1/26/95	125
127	Remove Glove Box 5--Utility GB	50d	12/1/94	2/8/95	
128	Cleanout Glove Box 5	11d	1/4/95	1/18/95	
129	Remove GB-5 Peripheral Equipment	5.63d	1/4/95	1/10/95	
130	Remove GB-5 Salvage Equipment	6.75d	1/13/95	1/18/95	129

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

Progress

Summary

Noncritical

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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
131	Facilities Prep GB-5 For Removal	7d	1/3/95	1/11/95	
132	Facility Work Order	2.25d	1/3/95	1/4/95	
133	Disconnect GB-5 Utilities	1.13d	1/11/95	1/11/95	132
134	Prepare GB-5 for Removal	35d	12/1/94	1/18/95	
135	Decon GB-5	6.75d	12/1/94	12/8/94	130
136	Verify Decon	1.13d	1/9/95	1/9/95	135
137	Open to Stack	1.13d	1/10/95	1/10/95	136,15
138	Discnct/Remove VERS Lines to GB-5	1.13d	1/9/95	1/9/95	137
139	Discnct/Remove GPS Lines to GB-5	1.13d	1/10/95	1/10/95	
140	Discnct GB-5 External Plumbing	2.25d	1/17/95	1/18/95	139,138
141	Remove GB-5	1.13d	2/8/95	2/8/95	140
142	Prepare for Material Movement	8d	1/4/95	1/13/95	
143	Order boxes	2.25d	1/4/95	1/5/95	141SS-5d

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical Progress Summary
Noncritical Milestone Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
144	Fab boxes	5.63d	1/9/95	1/13/95	143
145	Package Parts	1.13d	1/23/95	1/23/95	144,141SS
146	Facilities Prep Storage Hoods	5 d	1/25/95	1/31/95	
147	Facility Work Order	1.13d	1/25/95	1/25/95	145
148	Disconnect Utilities & Remove HVAHs	1.13d	1/31/95	1/31/95	147
149	Remove/Transfer Storage Hoods	10d	1/26/95	2/8/95	
150	Fab Crates	4.5d	1/26/95	1/31/95	
151	Package Hoods for Shipment	1.13d	2/1/95	2/2/95	150
152	Remove Storage Hoods	1.13d	2/8/95	2/8/95	151,130
153	External Shipment Preparation for GB-5, GB-2A & Storage Hoods	8 d	1/30/95	2/8/95	
154	Submit Shpg Request to 8532	1.13d	1/30/95	1/31/95	150,125,144
155	Determine Carrier	2.25d	2/1/95	2/2/95	
156	Prep Hzd Mtl Pkg Instructions	1.13d	2/1/95	2/1/95	

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
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Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
157	Prepare Shpg Papers	1.13d	2/2/95	2/2/95	156
158	HP Approval	1.13d	2/2/95	2/2/95	157
159	Pickup/Inspect Boxés	1.13d	2/6/95	2/6/95	158,151
160	Carrier Interactions	1.13d	2/7/95	2/7/95	159,155
161	Shipment to LANL	1.13d	2/8/95	2/8/95	160
162	Complete Xfer of GB-5, GB-2A & Storage Hoods to LANL	0d	2/8/95	2/8/95	
163	Remove Other Room 120 Equipment	115d	1/22/95	6/30/95	
164	Remove Pump Hood	1.13d	5/1/95	5/1/95	
165	Package Pump Hood in Oversize 7A	1.13d	5/3/95	5/3/95	164
166	Remove Hood with Sink	2d	1/22/95	1/24/95	
167	Remove Hood	1.13d	1/22/95	1/23/95	152
168	Remove Drain Lines	1.13d	1/23/95	1/23/95	167
169	Package Hood w/Sink	1.13d	1/24/95	1/24/95	167

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical Progress
Noncritical Milestone

Summary
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ID	Task	Duration	Start	Finish	Predecessors
170	Transfer Hood with Sink for Burial	44d	1/27/95	3/29/95	
171	Transfer Request to ES&H	3.38d	1/27/95	1/31/95	
172	ES&H Approval	2.25d	2/1/95	2/5/95	171
173	Remove Hood with Sink for Burial	1.13d	2/13/95	2/13/95	172
174	Pickup/Transfer to ES&H	3.38d	3/27/95	3/29/95	173
175	Complete Xfer of Hood w/Sink to ES&H	1.13d	3/29/95	3/29/95	
176	Room 120 Complete	0d	6/30/95	6/30/95	168,151
177	Room 122 Tritium Analysis	382d	1/14/94	7/4/95	
178	Remove Glove Box 6--Calorimeter GB	382d	1/14/94	7/4/95	
179	Cleanout Glove Box 6	292d	5/23/94	7/4/95	
180	Remove/Ship Gas Standards to LANL	32.63d	11/2/94	12/14/94	122FS-20d
181	Remove/Ship Heat Standards to MD	304.88d	5/23/94	7/4/95	
182	Remv Peripherl Equip fm GB-6	12.38d	9/7/94	9/21/94	112SS

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161.
 Updated by: Marion Martin, 8281, x3019

Critical
 Noncritical

Progress
 Milestone

Summary
 Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
183	Remv Salvage Equip fm GB-6	18d	9/21/94	10/12/94	182
184	Facilities Prep GB-6 For Removal	18d	10/13/94	11/7/94	
185	Facility Work Order	1.13d	10/13/94	10/13/94	183
186	Disconnect GB-6 Utilities	5.63d	10/31/94	11/7/94	185,190
187	Prepare GB-6 for Removal	42d	10/12/94	12/8/94	
188	Decon Glove Box -6	6.75d	10/12/94	10/19/94	183
189	Verify Decon	2.25d	10/20/94	10/21/94	188
190	Open to Stack	2.25d	10/28/94	10/31/94	189
191	Drain Water	1.13d	11/3/94	11/3/94	190
192	Discnct/Remove VERS & GPS Lines GB-6	12.38d	11/9/94	11/23/94	186
193	Discnct GB-6 Ext Plmbg	11.25d	11/23/94	12/8/94	192
194	Remove GB-6	6.75d	12/8/94	12/15/94	193
195	Prepare for Material Movement	18d	1/4/95	1/27/95	

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

Critical

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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
196	Order boxes	3.38d	1/4/95	1/6/95	193SS
197	Fab boxes	5.63d	1/9/95	1/13/95	196
198	Package Parts	2.25d	1/26/95	1/27/95	197,194
199	External Shipment Preparation GB-6	8 d	1/30/95	2/8/95	
200	Submit Shpg Request to 8532	2.25d	1/30/95	1/31/95	192
201	Determine Carrier	1.13d	2/1/95	2/1/95	200
202	Prep Hzd Mtl Pkg Instructions	1.13d	2/2/95	2/2/95	
203	Prepare Shpg Papers	1.13d	2/2/95	2/2/95	202SS
204	HP Approval	1.13d	2/2/95	2/2/95	203SS,198
205	Pickup/Inspect Boxes	1.13d	2/6/95	2/6/95	204
206	Carrier Interactions	1.13d	2/7/95	2/7/95	205,201
207	Shipment to LANL	1.13d	2/8/95	2/8/95	206
208	Complete Xfer of GB-6 to LANL	0 d	1/14/94	1/14/94	

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
Updated by: Marion Martin, 8281, x3019

Critical

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TRL Transition Plan					
ID	Task	Duration	Start	Finish	Predecessors
209	Remove GB-6 VERS/GPS Lines to manifold	10.13d	12/13/94	12/23/94	194
210	Remove Other Room 122 Equipment	81d	11/15/94	3/7/95	
211	Remove/Ship Mass Spec Station	23d	11/15/94	12/15/94	
212	Disassble Mass Spec	12.38d	11/15/94	12/1/94	
213	Remove Mass Spec Station	6.75d	12/5/94	12/12/94	212
214	Ship Mass Spec Station to LANL	21.38d	11/17/94	12/15/94	213
215	Transfer Volland Balance to 8275	1.13d	1/3/95	1/3/95	213,211
216	Remove Fume Hood	8d	1/27/95	2/7/95	215
217	Survey Hood	1.13d	1/27/95	1/27/95	214
218	Remove Hood	1.13d	2/6/95	2/6/95	217
219	Remove Drain Lines	1.13d	2/7/95	2/7/95	218
220	Prep Hood for Removal	3d	2/1/95	2/3/95	
221	Disconnect Hood Utilities	2.25d	2/1/95	2/3/95	217
<div> <div> Project: TRL Transition Plan, SNL/CA Team Leader: Paula Painter, 8281, x2161 Updated by: Marion Martin, 8281, x3019 </div> <div> Critical Noncritical </div> <div> Progress Milestone </div> <div> Summary Rolled Up </div> </div>					
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
222	Transfer Hood for Burial	28d	1/27/95	3/7/95	220
223	Transfer request to ES&H	23.63d	1/27/95	2/28/95	
224	ES&H Approval	2.25d	3/1/95	3/2/95	223
225	Remove hood for burial	1.13d	3/6/95	3/6/95	224
226	Pickup Transfer to ES&H	1.13d	3/7/95	3/7/95	225
227	Room 122 Complete	0 d	3/8/95	3/8/95	210
228	Other Building 968 Rooms	281d	8/26/94	9/22/95	
229	Room 129	5 d	6/5/95	6/9/95	
230	Identify & Clean Ventilation Duct Work Above Ceiling & as Required	3.38d	6/5/95	6/7/95	
231	Cleanup	1.13d	6/8/95	6/8/95	230
232	Rm 129 Complete	0 d	6/9/95	6/9/95	231
233	Room 125	2.13d	6/12/95	6/14/95	
234	Identify & Clean Ventilation Duct Work Above Ceiling, as Required	1.13d	6/12/95	6/12/95	

Project: TRL Transition Plan, SNL/CA
Team Leader: Paula Painter, 8281, x2161
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TRL Transition Plan				
ID	Task	Duration	Start	Finish
235	Cleanup	1.13d	6/13/95	6/13/95
236	Room 125 Complete	0d	6/14/95	6/14/95
237	Room 116 Monitoring Room	260d	8/26/94	8/25/95
238	Remove HPS Control Panels	11.25d	8/26/94	9/8/94
239	Remove Tritium Monitors, GPS Controls, VERS Controls & Other Remaining Equipment	141d	1/30/95	8/24/95
240	Room 116 Complete	0d	8/25/95	8/25/95
241	Room 114	7d	6/8/95	6/18/95
242	Cleanup	0d	6/18/95	6/18/95
243	Room 114 Complete	0d	6/8/95	6/8/95
244	Room 110	1d	6/8/95	6/9/95
245	Cleanup	1.13d	6/8/95	6/8/95
246	Room 110 Complete	0d	6/9/95	6/9/95
247	Room 112 Temporary Vault	196d	9/15/94	6/16/95
246				246

Project: TRL Transition Plan, SNI/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
248	Remove Remaining Hardware	1.13d	9/15/94	9/15/94	242
249	Cleanup	4.5d	6/10/95	6/15/95	248
250	Room 112 Complete	0 d	6/16/95	6/16/95	249
251	Room 115	89d	5/23/95	9/22/95	250
252	Remove Cabinets	14.63d	8/28/95	9/14/95	
253	Remove Glovebox	1.13d	5/23/95	5/23/95	
254	Remove Remaining Equipment	11.25d	8/31/95	9/14/95	
255	Identify & Clean Duct Work Above Ceiling, as Required	41.63d	7/28/95	9/22/95	
256	Cleanup Overhead Fixtures	41 d	7/28/95	9/22/95	
257	Room 115 Complete	0 d	8/31/95	9/22/95	256
258	Dispose of Tritiated Oil	94d	4/1/94	8/10/94	
259	Develop Plan	16.88d	4/1/94	4/21/94	
260	Sample Oil	2.25d	4/22/94	4/25/94	259

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

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TRL Transition Plan					
ID	Task	Duration	Start	Finish	Predecessors
261	Analyze Oil Sample	69.75d	4/26/94	7/20/94	260
262	Verify Analysis	16.88d	7/21/94	8/10/94	261
263	Other Equipment Remaining	301d	12/5/94	1/30/96	
274	REMOVE AND/OR REALLOCATE SAFETY RELATED EQUIPMENT	408d	1/15/94	8/9/95	
275	Complete Removal of Tritium from Tritium Handling Systems & Flushing of Systems with D2 or H2	13d	9/1/94	9/19/94	
276	Final VERS/GPS Mole Sieve Dryer Regeneration	14.63d	9/1/94	9/19/94	
277	Write SWP for Swamping Dryers	2.25d	9/1/94	9/2/94	
278	Review/Approve SWP	1.13d	9/3/94	9/3/94	
279	Load Dryers with Water	9d	9/6/94	9/15/94	
280	Regenerate Dryer #3	1d	9/7/94	9/7/94	279
281	Regenerate Dryer #1	1.13d	9/8/94	9/8/94	280
282	Regenerate Dryer #3	1.13d	9/9/94	9/9/94	281
283	Regenerate Dryer #2	1.13d	9/12/94	9/12/94	282
<div> <div>Project: TRL Transition Plan, SNL/CA</div> <div>Team Leader: Paula Painter, 8281, x2161</div> <div>Updated by: Marion Martin, 8281, x3019</div> </div> <div> <div>Critical </div> <div>Noncritical </div> </div> <div> <div>Progress </div> <div>Milestone </div> </div> <div> <div>Summary </div> <div>Rolled Up </div> </div>					
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
284	Regenerate Dryer #1	1.13d	9/13/94	9/13/94	283
285	Regenerate Dryer #2	1.13d	9/14/94	9/14/94	284
286	Regenerate Dryer #1	1.13d	9/16/94	9/16/94	285
287	Regenerate Dryer #3	1.13d	9/15/94	9/16/94	286
288	Regeneration of VERS/GPS Dryers Complete	0d	9/19/94	9/19/94	
289	GPS/VERS	408d	1/15/94	8/9/95	
290	Disconnect all Sources to GPS and VERS in Room 115A	254.25d	1/15/94	11/30/94	
291	Write SWP for GPS and VERS Decon & Disassembly	98d	12/2/94	4/18/95	
293	GPS Decontamination & Removal	160d	12/5/94	7/14/95	
307	Transfer GPS to ES&H for Burial	60d	5/8/95	7/28/95	
308	Transfer Request to ES&H	1.13d	6/20/95	6/20/95	
309	ES&H Approval	41.63d	5/8/95	7/4/95	
310	Remove GPS for Burial	6.75d	7/20/95	7/28/95	309

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ID	Task	Duration	Start	Finish	Predecessors
311	Pickup/Xfer to ES&H	135d	2/2/95	8/9/95	
312	Complete GPS Xfer to ES&H	1.13d	2/2/95	2/2/95	
313	Order 7A Container	47.25d	2/2/95	4/7/95	
314	Arrange for Shipment to Nevada	28.13d	6/12/95	7/18/95	313
315	Ship Container to Nevada	1.13d	8/9/95	8/9/95	314
316	VERS Decontamination & Removal	161d	12/16/94	7/28/95	
317	Decontaminat VERS Hallway Manifold with Room Air	117d	12/16/94	6/1/95	
318	Isolate VERS Hallway Manifold from VERS in 115A	1.13d	12/16/94	12/16/94	
319	Prep for Removal of VERS Manifold in Hallway	22.5d	2/1/95	3/3/95	
320	Remove VERS Manifold in Hallway for Packaging in Burial Container	30.38d	2/20/95	3/24/95	
321	Decontaminate VERS Tanks on Roof and Manifolds in Room 115A	67.5d	12/19/94	3/24/95	
322	Decontaminate the Water Recovery System	1.13d	12/21/94	12/21/94	
323	Perform Pressure Verification on Water Recovery System	1.13d	1/11/95	1/11/95	

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ID	Task	Duration	Start	Finish	Predecessors
324	Decontaminate Mole Sieve Dryers	23.63d	1/30/95	3/1/95	
325	Preform Pressure Verification on Molesieve Dryers	1.13d	3/1/95	3/1/95	
326	Open VERS Tanks & Manifolds & Mole Sieve Dryer Manifolds To Stack	4.5d	1/30/95	2/2/95	
327	Prepare Mole Sieve Dryer Skid For Packaging in Burial Containers	132.75d	1/3/95	7/3/95	
328	Remove VERS/GPS Exhaust Line on Roof for Packaging in Burial Container	45d	5/30/95	7/28/95	
329	Prepare VERS Tanks on Roof & Manifolds in Room 115A for Packaging in Burial Containers	110.25d	2/27/95	7/28/95	
330	Transfer VERS to ES&H for Burial	47d	5/25/95	7/28/95	
331	Transfer Request to ES&H	18d	5/25/95	6/20/95	
332	ES&H Approval	28.13d	5/25/95	7/4/95	
333	Remove VERS for Burial	1.13d	7/20/95	7/20/95	332
334	Pickup/Xfer to ES&H	1.13d	7/28/95	7/28/95	333
335	Complete VERS Xfer to ES&H	0d	7/28/95	7/28/95	314,334
336	ES&H Bury VERS	136d	2/1/95	8/9/95	

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TRL Transition Plan					
ID	Task	Duration	Start	Finish	Predecessors
337	Order 7A Container	31.5d	2/1/95	3/15/95	335
338	Arrange for Shipment to Nevada	1.13d	7/18/95	7/18/95	337
339	Ship Container to Nevada	1 d	8/9/95	8/9/95	338
340	Remove Airborne Radiation Monitoring Systems	392d	1/17/94	7/18/95	
341	Remove Room Air Tritium Monitors	32.63d	1/17/94	2/24/94	
342	Relocate Stack Tritium Monitors	357.75d	1/17/94	4/21/95	341SS
343	Remove Room Air Sampling System Manifold	416.25d	1/18/94	7/14/95	342
344	Remove Room Air Sampling Pumps	417.38d	1/19/94	7/18/95	343
345	Remove Stack Bubbler System (Old Sys)	2.25d	7/7/94	7/10/94	344
346	Remove Tritium Monitor Cal Cart	1.13d	3/6/95	3/6/95	
347	OBTAIN CAT III TO RADIOLOGICAL FACILITY APPROVAL	486d	1/15/94	11/27/95	
348	Develop Draft Transition Plan	66d	1/15/94	4/18/94	
349	Incorporate Safety Related Equipment List	67.5d	1/15/94	4/8/94	
<div> <div>Project: TRL Transition Plan, SNL/CA Team Leader: Paula Painter, 8281, x2161 Updated by: Marion Martin, 8281, x3019</div> <div> <div>Critical </div> <div>Noncritical </div> </div> <div> <div>Progress </div> <div>Milestone </div> </div> <div> <div>Summary </div> <div>Rolled Up </div> </div> </div>					
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
350	Provide Surplus Equipment Destination List	11.25d	4/5/94	4/18/94	349FF
351	Provide Preliminary Residual Tritium Model	74.25d	1/17/94	4/18/94	349FF
352	Define SNL/NM 7000 Tritium Verification Plan	486d	1/15/94	11/27/95	
353	Define Tritium Verification Plan	16.88d	3/29/94	4/18/94	
354	Review Tritium Recovery Procedures and Operations	34.88d	5/2/94	6/13/94	353FS+9d
355	Review Tritium Accounting Procedures	12.38d	5/23/94	6/6/94	353FS+24d
356	Review Tritium Accounting Records	22.5d	5/31/94	6/27/94	355SS+5d
357	Verify Residual Tritium Level	22.5d	5/31/94	6/27/94	356SS
358	Define Interim Utilization Plan	11.25d	3/15/94	3/28/94	349FF-15d
359	Develop Post-Transition Monitoring Plan	16.88d	3/29/94	4/18/94	349FF
360	Develop Potential Uses List	11.25d	4/5/94	4/18/94	349FF
361	Perform Resource Analysis	22.5d	3/22/94	4/18/94	349FF
362	Estimate Project Savings	11.25d	4/5/94	4/18/94	349FF

Project: TRL Transition Plan, SNL/CA
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
363	Define NEPA Considerations	16.88d	4/19/94	5/9/94	349FF,360
364	Incorporate Cleanup Team Plan	11.25d	4/5/94	4/18/94	349FF
365	Define Graded Transition Approach to DOE/KAO	1.13d	5/3/94	5/3/94	364FS+10d
366	Develop Draft TRL Transition Schedule	81d	1/15/94	4/26/94	349SS
367	Develop Preliminary Hazards Assessment	11.25d	5/10/94	5/23/94	363
368	Perform Risk Analysis or Characterization	86.63d	8/31/95	11/27/95	367,365
369	Provide Transition Plan to DOE/KAO	84.38d	1/17/94	4/29/94	349SS
370	Obtain DOE/KAO Approval	9d	11/1/94	11/10/94	369
371	AS-BUILT ENGINEERING DRAWINGS FOR BUILDING 968	195d	1/2/95	10/1/95	
372	Complete Drawings	195d	1/2/95	10/1/95	
373	PROVIDE TRL CLEANUP & TRANSITION DOCUMENTATION PACKAGE TO DOE	637d	1/17/94	6/26/96	
374	DOCUMENT CLEANUP OF EXHAUST VENTILATION DUCTWORK	33d	12/15/95	1/30/96	
375	Gather Data, Records & Drawings Associated With Exhaust Ventilation Ductwork Before & After Cleanup	5d	12/15/95	12/21/95	

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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
376	Include Survey Data	5 d	12/15/95	12/21/95	
377	Include Records & Drawings	5 d	12/15/95	12/21/95	
378	Include SWP	5 d	12/15/95	12/21/95	
379	Submit Report on Ductwork Cleanup	21 d	1/2/96	1/30/96	7
380	Write Report	5 d	1/2/96	1/8/96	5,6
381	Publish Report	15 d	1/10/96	1/30/96	9
382	CONSOLIDATE EXISTING REPORTS & CORRESPONDENCE PREPARED BY FORMER STAFF FOR INCLUSION INTO TRL	9 d	1/4/96	1/16/96	
383	Research Existing Documentation of Former Staff	6 d	1/4/96	1/11/96	
384	Find Roger Watson's Reports	4 d	1/8/96	1/11/96	
385	Find Dan Folk's Reports	4 d	1/8/96	1/11/96	
386	Find Rex Steele's Reports	4 d	1/8/96	1/11/96	
387	Find Connie Visbeck's Reports	4 d	1/8/96	1/11/96	
388	Find Joel Kuehlman's Reports	4 d	1/8/96	1/11/96	

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ID	Task	Duration	Start	Finish	Predecessors
389	Find Bill Wall's Reports	5 d	1/4/96	1/10/96	
390	Determine Appropriate Areas for Inclusion of Former Staff's Documentation Into Cleanup & Transition Documentation	2.5d	1/12/96	1/16/96	15,14,13,17,
391	DOCUMENT REALLOCATION EXPERIENCE (PDD #11)	77.06d	12/13/95	3/29/96	
392	Review Property Inventory	54d	12/13/95	2/26/96	
393	Validate Accuracy of Property Inventory	32d	12/13/95	1/25/96	
394	Collect Shippers "S" & "V" Numbered Equipment	10d	1/29/96	2/11/96	22
395	Summarize \$ Value of Reapplied Hardware	3 d	2/14/96	2/18/96	23
396	Review Data on "S" and "V" Numbered Equipment	5 d	2/20/96	2/26/96	24
397	Review Recalibration List	7 d	2/27/96	3/6/96	25
398	Obtain Recalibration List	5 d	2/27/96	3/4/96	
399	Take Reallocated Equipment off Recalibration List	2 d	3/5/96	3/6/96	27
400	Submit Report on Reallocation Experience	15.06d	3/8/96	3/29/96	
401	Write Report on Reallocation Experience	5 d	3/8/96	3/14/96	28
<div> <div>Project: TRL Transition Plan, SNL/CA Team Leader: Paula Painter, 8281, x2161 Updated by: Marion Martin, 8281, x3019</div> <div> <div>Critical </div> <div>Noncritical </div> </div> <div> <div>Progress </div> <div>Milestone </div> </div> <div> <div>Summary </div> <div>Rolled Up </div> </div> </div>					
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
402	Publish Report on Reallocation Experience	10d	3/15/96	3/29/96	30
403	DOCUMENT WASTE DISPOSAL & WASTE PACKAGING PROCESSES	575d	1/17/94	3/31/96	
404	Gather Waste Disposal Processes & Permits	21d	12/6/95	1/3/96	
405	Include Radioactive Waste	21d	12/6/95	1/3/96	
406	Include Mixed Waste	21d	12/6/95	1/3/96	
407	Include Chemical Waste	21d	12/6/95	1/3/96	
408	Review Waste Disposal Processes & Permits	5 d	1/4/96	1/10/96	34,35,36
409	Gather Waste Packaging Processes & Permits	530d	1/17/94	1/26/96	
410	Include Oversize 7A	1 d	1/17/94	1/17/94	
411	Include TRUPACK II	10d	1/12/96	1/25/96	
412	Include Oil Overpacks	10.06d	1/12/96	1/26/96	
413	Review Waste Packaging Processes & Permits	3 d	1/29/96	1/31/96	39,40,41
414	Submit Report on Waste Disposal & Waste Packaging Processes	40d	2/5/96	3/31/96	42

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ID	Task	Duration	Start	Finish	Predecessors
415	Write Report on Waste Disposal & Waste Packaging Processes	20d	2/5/96	3/3/96	37
416	Publish Report	20d	3/4/96	3/31/96	44
417	PROVIDE REUTILIZATION PLAN TO DOE (PDD #12)	330d	1/26/95	5/1/96	
418	Provide Status of Building Systems Operations	230d	2/6/95	12/23/95	
419	Check Fire Protection System	1 d	12/5/95	12/5/95	
420	Evaluate Diesel Driven Generator	1 d	12/5/95	12/6/95	
421	Evaluate Fuel Storage/Supply System	2 d	12/7/95	12/10/95	49
422	Evaluate Battery/ Charger System	1 d	12/11/95	12/11/95	50
423	Evaluate Supply Fan	0.5d	12/12/95	12/12/95	51
424	Evaluate Exhaust Fan #1	0.5d	12/12/95	12/12/95	51
425	Evaluate Exhaust Fan #2	0.5d	12/13/95	12/13/95	53
426	Evaluate Supply Duct	0.5d	12/13/95	12/13/95	53
427	Evaluate Stack	2.5d	12/14/95	12/18/95	55
<div> <div>Project: TRL Transition Plan, SNL/CA Team Leader: Paula Painter, 8281, x2161 Updated by: Marion Martin, 8281, x3019</div> <div> <div>Critical </div> <div>Noncritical </div> </div> <div> <div>Progress </div> <div>Milestone </div> </div> <div> <div>Summary </div> <div>Rolled Up </div> </div> </div>					
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ID	Task	Duration	Start	Finish	Predecessors
428	Evaluate Exhaust Duct	0.5d	12/18/95	12/18/95	56
429	Evaluate Control Dampers	0.5d	12/19/95	12/19/95	57,56
430	Evaluate Ventilation Control System-Independent Assessment from Maintenance	0.5d	12/19/95	12/19/95	58
431	Evaluate Chilled Water System (CWS)	28d	2/6/95	3/15/95	
432	Evaluate Waste Water System (WWS)	65.13d	8/15/95	11/14/95	
433	Evaluate Evaporator System (ES)	105d	6/26/95	11/17/95	
434	Verify Hook-up of LN Tank for Building HVAC System	105d	6/26/95	11/17/95	
435	Submit Report on Evaluation of Building System's Operations (PDD #9)	4 d	12/19/95	12/23/95	59
436	Document Chemical Reduction Inventory	292d	1/26/95	3/10/96	
437	Review Chemical Reduction Inventory	5 d	2/26/96	3/3/96	
438	Revise Chemical Reduction Inventory	1 d	1/26/95	1/26/95	66
439	Publish Chemical Reduction Inventory	2 d	3/7/96	3/10/96	67
440	Consolidate Revised PHA, PRC Into Reutilization Plan	283d	3/13/95	4/10/96	

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

Critical
 Noncritical

Progress
 Milestone

Summary
 Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
441	Revise PHA, PRC	15d	3/13/95	3/31/95	
442	Submit NEPA Determination for Users	7.5d	4/1/96	4/10/96	70
443	Submit Reutilization Plan. to DOE	15d	4/11/96	5/1/96	71,68
444	DOCUMENT TRANSITION FOR CATEGORY CHANGE (PDD #13) & CORRESPONDENCE INDEX	232.25d	6/23/95	5/14/96	
445	Prepare Accountable T2 Reduction Documentation	158.25d	6/23/95	1/31/96	
446	Prepare Draft Report on Accountable T2 Reduction	130.25d	6/23/95	12/22/95	
447	Provide SAND Report on Accountable T2 Reduction	20d	1/4/96	1/31/96	75
448	Revise D&D Process Flow Diagram	2d	4/25/96	4/28/96	
449	Outline Document Covering Category Change	4d	4/29/96	5/2/96	
450	Prepare Correspondence Index	4d	5/3/96	5/8/96	78
451	Submit Report on Category Change	4d	5/9/96	5/14/96	79
452	Write Document on Category Change	2d	5/9/96	5/12/96	74,77,78
453	Publish Document on Category Change	2d	5/13/96	5/14/96	81

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Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan				
ID	Task	Duration	Start	Finish
454	DOCUMENT FACILITY'S FINAL RADIOLOGICAL STATUS REPORT	618d	1/17/94	5/29/96
455	Complete Radiological Survey (PDD #10)	142d	7/17/95	1/30/96
456	Review/Redefine Necessary Processes in Radiological Characterization Plan	7.5d	2/1/96	2/12/96
457	Determine Necessary New Additions to RCP	25d	2/12/96	3/17/96
458	Document Drain System Flush, Asbestos Abatement & Environmental Survey	25d	2/12/96	3/17/96
459	Update Drawing Surveys	1d	1/17/94	1/17/94
460	Submit Report on Facility's Radiological Status Report	351d	1/25/95	5/29/96
461	Write Report on Facility's Radiological Status Report	1d	1/25/95	1/25/95
462	Publish Report on Facility's Radiological Status Report	20d	5/2/96	5/29/96
463	DOCUMENT EXPERIMENTAL DATA	323d	1/30/95	4/24/96
464	Submit Report on Experimental Data	323d	1/30/95	4/24/96
465	Write Report on Experimental Data	18d	4/1/96	4/24/96
466	Publish Report on Experimental Data	1d	1/30/95	1/30/95
Predecessors				
<div> <div>Critical</div> <div>Progress</div> <div>Milestone</div> <div>Rolled Up</div> <div>Summary</div> </div>				
<div> <div>Project: TRL Transition Plan, SNL/CA</div> <div>Team Leader: Paula Painter, 8281, x2161</div> <div>Updated by: Marion Martin, 8281, x3019</div> </div>				
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TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
467	PROVIDE STATUS ON TRL TRANSITION	613.06d	1/17/94	5/23/96	
468	Choose Authors and Topics for Bi-Monthly Report	117.06d	12/7/95	5/20/96	
469	Include Milestone & Budget Summaries on Transition Status	1 d	1/17/94	1/17/94	
470	Write Bi-Monthly Report	116.06d	12/13/95	5/23/96	97,98
471	Provide Status Reports to Key Stakeholders	99.5d	1/3/96	5/21/96	98
472	DOCUMENT INDEX OF ALL PROJECT SYSTEMS & BUILDING SYSTEMS	53d	3/13/96	5/25/96	
473	Identify All Existing Project Systems & Building Drawings	10d	3/13/96	3/26/96	
474	Submit Report on All Existing Project Systems & Building Drawings	44d	3/26/96	5/25/96	102
475	Prepare Documentation on All Existing Project Systems & Building Drawings	30d	3/26/96	5/6/96	
476	Publish Documentation on All Existing Project Systems & Building Drawings	15d	5/6/96	5/25/96	104
477	TRANSFER TRITIUM TECHNOLOGY TO ARCHIVE (PDD #4)	615d	1/17/94	5/26/96	
478	Provide Pictorial Documentation of TRL Cleanup & Transition	221d	1/17/94	11/21/94	
479	Design Content of Video Tapes for Pictorial Documentation	1 d	1/17/94	1/17/94	

Project: TRL Transition Plan, SNL/CA
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Critical

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Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
480	Video Cleanup & Transition Activities for Pictorial Documentation	1 d	11/21/94	11/21/94	108
481	Edit & Review Video Tape Drafts	1 d	11/21/94	11/21/94	109
482	Archive Pictorial Documentation	42d	2/1/96	3/31/96	110
483	Transfer Files to PC/Apple Servers	140.63d	11/10/95	5/26/96	
484	PROVIDE INDEX & ABSTRACTS OF ALL WRITTEN & VIDEO TAPED TRL CLEANUP & TRANSITION DOCUMENTATION IN A	28.88d	5/8/96	6/17/96	
485	Determine Listing of Documentation to be Included In SAND Report	3 d	5/8/96	5/12/96	
486	Research Available and Proposed Documentation	3.5d	5/14/96	5/19/96	114
487	Submit SAND Report with Index & Abstracts of All Written & Video Taped TRL Documentation in TRL Cleanup &	20.88d	5/20/96	6/17/96	115
488	Prepare SAND Report	10d	5/20/96	6/2/96	
489	Publish SAND Report	11.13d	5/31/96	6/17/96	117
490	PROVIDE TRL CLEANUP & TRANSITION DOCUMENTATION PACKAGE TO DOE	6 d	6/18/96	6/25/96	
491	Consolidate TRL Cleanup & Transition Documentation Into Documentation Package	5 d	6/18/96	6/24/96	1,73,83,92,96
492	Submit TRL Cleanup & Transition Documentation Package To DOE	1 d	6/25/96	6/25/96	120

Project: TRL Transition Plan, SNL/CA
 Team Leader: Paula Painter, 8281, x2161
 Updated by: Marion Martin, 8281, x3019

Critical Progress Summary
 Noncritical Milestone Rolled Up

TRL Transition Plan

ID	Task	Duration	Start	Finish	Predecessors
493	TRL CLEANUP & TRANSITION COMPLETE	0 d	6/26/96	6/26/96	

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Critical

Progress

Summary

Noncritical

Milestone

Rolled Up

TRL Transition Plan

Resource	% Complete	1994			
		Q1	Q2	Q3	Q4
	75%
	100%
	100%
	100%
	100%
Watson R.	100%
Fabyan W.,HP Rep.,Parker J.	100%
Fabyan W.,HP Rep.	100%
	100%
Orsbun J.	100%
Maintenance	100%
	100%
Smith J.,Giovacchini G.,Steele B.	100%

Project: TRL Transition Plan; SNL/CA
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Critical Progress Summary
Noncritical Milestone Rolled Up

APPENDIX G TRL HISTORICAL DATA AND CHARTS

Environmental Releases

Stack Effluent (Curies)

Year	HTO	HT	Total	Comments
1979	*	*	5.72	* Chemical form not evaluated
1980	*	*	25.27	
1981	*	*	42.93	
1982	*	*	201.63	
1983	74.2	21.2	95.40	
1984	145.6	18.5	164.10	
1985	389.3	128.1	517.40	
1986	614.7	128.6	743.30	
1987	573.0	1258.5	1831.50	
1988	1035.4	542.6	1578.00	
1989	658.8	180.3	839.10	
1990	243.9	50.8	294.70	22.7 via Evaporator
1991	352.1	113.4	465.50	1.4 via Evaporator
1992	133.7	130.0	263.70	
1993	132.4	55.3	187.70	
1994	91.2	4.1	95.3	
1995	73.0	1.06	74.06	
totals			7425.31	

Environmental Releases
Waste Water Effluent to Sewage
Volume / Activity

Year	Gallons	Millicuries
1979	8,900	3.7
1980	13,400	3.5
1981	25,400	155
1982	32,300	301
1983	37,700	375
1984	26,000	380
1985	25,000	2,000
1986	4,000	25
1987	24,300	234
1988	27,300	471
1989	24,815	290
1990	36,000	200
1991	32,525	125
1992	34,950	61
1993	41,570	68
1994	17,778	58.6
1995	26,390	23.9
totals	438,328	4,775

TRL Dose Assessment

TRL Personnel Tritium Dosimetry - 1982 - 1995

Millirems

Year	Max. Ind.	Total Man	Average	Comments
1982	70	183	30	
1983	79	148	49	
1984*	1620	3040	152	Max. Ind. single event
1984	234	1420	75	Excludes single event above
1985	347	2270	65	
1986	229	1330	67	
1987	178	580	42	
1988	218	1652	63	
1989	232	2465	46	
1990	262	1056	30	
1991	111	458	11	
1992	53	222	11	
1993	63	257	17	
1994	69	190	15	
1995	42	134	15	
totals		13985		total inc. 1984*

TRL Personnel Tritium Dosimetry - 1979 - 1981

Millirems

Year	# Personnel 10 - 100	# Personnel 101- 500
1979	4	1
1980	4	1
1981	6	0

Data taken from a compilation of positive quarterly exposure assignments.

Chilled Water System
Activity Microcuries per Liter

Year	Maximum	Minimum	Comments
1986	37	2.5	
1987	12,471	37	
1988	23,500	11,535	
1989	18,740	5,340	
1990	5,480	35	
1991	145	0.8	
1992	89	0.3	
1993	1,190	1.1	
1994	1,510	0.7	
1995	0.7	0.0	System Released March 6

Waste Water Evaporator Operation
Volume / Activity

Year	Gallons	Curies	Comments
1990	7,400	22.7	Added to stack data
1991	26,025	1.4	Added to stack data
1992	30,000	0.65	New stack monitor location.
1993	20,500	1.92	
1994	13,524	4.39	
1995	0	0	System Decommissioned
totals	97,449	31.06	

INTERNAL DOSIMETRY

Exposures (1982 - 1995)

millirems

Total Dose Assignment 82 -95 = 13,851 millirems
1984* includes Single Event Exposure of
1620 millirems

TRL ENVIRONMENTAL RELEASES

Stack Discharges to Air

Environmental Release 79 - 95 = 7,426 Curies

TRL ENVIRONMENTAL RELEASES

Waste Water Discharges to Sewage

Environmental Release 79 -95 = 4,775 Millicuries

TRL ENVIRONMENTAL RELEASES

Waste Water Discharges to Sewage

Environmental Release 79 - 95 = 438,328 Gallons

TRL ENVIRONMENTAL RELEASES

Chilled Water System & Waste Water Evaporator

microcuries / liter

100,000

10,000

1,000

100

10

1

0.1

Waste Water Evaporator Totals
31.06 Curies in 97,450 Gallons

APPENDIX H **HISTORICAL T₂ INVENTORY INFORMATION (GRAMS)**

	1977	1978	1979	1980	1981	1982	1983	1984	1985
JAN	-	4.83	29.94	29.26	27.74	31.49	51.88	100.65	137.41
FEB	-	4.81	29.81	29.13	27.01	30.96	51.68	100.28	136.88
MAR	-	4.79	30.02	28.99	26.91	30.85	75.50	99.76	172.46
APR	-	4.77	29.88	28.86	26.81	30.71	75.61	99.39	170.85
MAY	-	4.75	29.74	28.73	26.63	30.23	75.31	98.95	169.95
JUN	-	5.07	29.61	28.61	26.60	30.09	75.02	95.30	171.57
JULY	0.92	5.38	29.47	28.48	26.10	29.94	110.57	94.53	169.84
AUG	1.02	30.34	29.23	28.34	29.09	29.39	102.86	94.15	165.72
SEPT	1.11	30.20	29.10	28.21	28.87	53.57	102.47	92.29	200.85
OCT	1.10	30.39	29.67	28.09	28.76	52.55	102.03	139.00	200.46
NOV	1.10	30.25	29.54	28.01	28.50	52.35	101.66	138.67	199.43
DEC	1.09	30.08	29.40	27.94	28.40	52.20	101.23	137.95	196.75
Average	1.06	15.47	29.62	28.55	27.62	37.86	85.49	107.58	174.35
	1986	1987	1988	1989	1990	1991	1992	1993	1994
JAN	195.87	171.08	127.57	101.17	143.02	121.79	50.44	14.51	7.74
FEB	195.36	170.30	126.73	100.80	141.88	121.04	50.07	13.49	7.72
MAR	187.08	169.56	117.97	100.37	139.94	120.82	40.06	12.77	6.82
APR	186.14	168.79	116.90	96.93	137.04	120.41	40.00	11.77	3.25
MAY	185.32	169.31	116.43	96.54	136.07	119.88	27.75	10.96	3.23
JUN	179.05	172.02	115.94	96.48	133.71	119.91	21.67	9.41	3.22
JUL	177.01	131.94	115.48	96.68	133.15	120.44	21.50	7.92	1.47
AUG	176.21	131.14	115.00	148.83	124.17	120.82	20.80	7.56	1.47
SEPT	175.41	126.28	114.52	144.77	123.42	73.10	20.50	7.54	1.45
OCT	174.61	125.74	114.95	144.16	122.93	73.05	20.43	7.61	-
NOV	173.82	125.19	101.43	143.57	122.65	51.54	19.88	7.59	-
DEC	173.16	125.37	102.54	143.90	122.11	51.66	20.02	8.39	-
Average	181.59	148.89	115.46	117.85	131.67	101.21	29.43	9.96	4.04

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