Docket # 030-06869

UniTech Services Group
A SUBSIDIARY OF UNIFIRST CORPORATION

RECEIVED
SEP 0 8 2008
DNMS

4 September 2008

Mr. Robert Evans, PE, CHP
Senior Health Physicist
US Nuclear Regulatory Commission, Region IV
612 East Lamar Boulevard, Suite 400
Arlington, TX 76011-4125

RE: Final Status Survey Report – NRC License No. 53-13668-01

Dear Mr. Evans:

Enclosed is the referenced report for UniTech's facility in Honolulu, HI. Based on the results of decommissioning activities as documented in the enclosed report, UniTech requests termination of the referenced license. The facility meets the requirements for release of the site for unrestricted use pursuant to 10 CFR §20.1402.

Please contact me at your earliest convenience if you have any questions regarding this matter. Thank you for your assistance and cooperation.

Sincerely,

UniTech Services Group, Inc.

Glenn Roberts
Certified Health Physicist

cc: Mike Fuller, Manager, Health Physics and Engineering

295 Parker Street • P.O. Box 51957 • Springfield, MA 01151 • tel: (413) 543-6911 • fax: (413) 543-6989 • e-mail: usg@unitech.ws • http://www.unitech.ws

UNITECH SERVICES GROUP, INC.

FINAL STATUS SURVEY REPORT

HONOLULU FACILITY

NRC LICENSE NO. 53-13668-01

FINAL STATUS SURVEY REPORT – HONOLULU LOCATION
NRC LICENSE NO. 53-13668-01

TABLE OF CONTENTS

TABLE OF CONTENTS

ATTACHMENTS

1.0 INTRODUCTION AND BACKGROUND

1.1 Executive Summary

This report describes the decommissioning of the UniTech Services Group, Inc. (UniTech) nuclear laundry facility, located at 3050 Ualena Street, Suite C, Honolulu, Hawaii. The facility is licensed by the United States Nuclear Regulatory Commission (NRC) under Radioactive Materials License No. 53-13668-01. This report also constitutes the Final Status Survey (FSS) Report and supports termination of the license and release of the property for unrestricted use.

1.2 Site Description

The property involves a section of a single large warehouse-type building of approximately 3,150 square feet (292 m^2). The facility is located in an industrial area; the nearest residential area being a few hundred yards away, upwind of the prevailing direction of the trade winds. There is no unpaved exposed land (soil) area in close proximity to the building. The nature of construction is concrete floor on grade, front and rear walls of concrete block to 12 feet in height with steel sheet metal above, two side walls of steel sheet metal construction, and a steel interior ceiling with an asphalt shingle exterior roof surface. The only remaining physical divisions within the building include an office and sanitary restroom totaling approximately 300 square feet. The areas where radioactive materials had been present are physically separated from other areas by concrete block walls and/or other barriers. Facility drawings are provided in Attachment 1.

The building includes a few below grade features of importance in the decommissioning process. There are two (2) 8-feet deep waste water pits of 142.5 square feet in area. There is a 2-feet wide trench, twenty-three (23) feet in length with a sloped bottom. The trench is sloped from approximately 16 inches in depth to approximately 24 inches in depth, which provided for waste water drainage from wash equipment into the larger of the two pits. There is also a small recessed area which housed a floor scale, hereinafter referred to as the floor scale pit. The floor scale pit is approximately 16 inches deep and 14.5 square feet in area. All of these structures are poured concrete. There are also two floor drains serviced by a single connecting pipe that emptied into the shallow end of the trench. The total length of the floor drain pipe is approximately 24 feet.

1.3 Operating History

The facility was initially granted a license in 1974 and began operation shortly thereafter. The laundry has been licensed under the name of corporate predecessors of UniTech, most recently Interstate Nuclear Services Corporation, or INS Corp. The laundry has always been under the same ownership and management.

The laundry has only processed laundry from one customer, The US Navy. The laundry received from the Navy has been subject to rigorous radiological controls. It has been UniTech's experience that the laundry received from Naval Shipyard customers contains far less radioactive material than other typical commercial nuclear laundry. For example, the Navy has always controlled contamination in units of picocuries per 100 cm^2 (in naval terms, micro-micro curies per 100 cm^2) and Naval laundry has had no appreciable dose rate on contact.

NOTE: The following operating history and radiological conditions are based on reviews of records and personnel knowledge of employees employed by the company over the past 20 years.

Historically, many laundry shipments have been below the DOT threshold for transport as radioactive materials. Some shipments have been classified as UN2910, Radioactive Materials, excepted package – limited quantity of material. Laundry shipments have been returned to the Navy as DOT exempt, non-radioactive for transport. The primary nuclide processed has been Co-60. Other radionuclides identified on shipping papers have included Ni-63, Mn-54, Co-58, Fe-55, and Zn-65. Only Ni-63 has been confirmed to be present based on past analysis, performed in 1997 and 2007, of wastewater sediment.

Processing of laundry involved detailed receipt surveys, sorting, washing, drying, radiological monitoring of the protective clothing, packaging for return shipment, and additional monitoring of the packages.

Effluent water has been processed and filtered in accordance with the license. As more fully described in the license, water discharged from the washers flowed through a trough into a large pit. From there, the water was pumped through cartridge filters (nominal 1.0 micron rating) into a smaller pit where it was held until sampled and then disposed to the sanitary sewer. Discharges have been a small fraction of allowable regulatory limits for discharge to the sanitary sewer. Concentrations have typically been 2-3% of limits. Over the past several years, annual discharges have been below 50 µCi of total radioactive material.

Effluent air has been processed through a wet lint collector in accordance with the license. Discharge samples have often been below analytical detection limits. When activity has been identified, it has been on the order of 1% of effluent limits.

Up until the mid 1990's, the Navy accepted return of wastes associated with the laundry operations. In the mid 1990's the Navy requested UniTech retain sediment from the wastewater treatment system. Over 10+ years, the facility only accumulated approximately ½ of one 30-gallon drum of such sediment (i.e. approximately 3 cubic feet in volume).

1.4 Historical Radiological Conditions

In-house inventories of radioactive materials have been a very small fraction of possession limits, typically much less than 0.01%.

Actual radiological contamination levels during operations have indicated that the entire facility was maintained below levels specified in the license as non-contaminated; less the 20 / 200 dpm per 100 cm^2, alpha / beta-gamma, respectively. The foregoing statement not only applies to all areas of the facility but also applies to routine surveys of wash equipment and air and water processing systems. Fixed contamination surveys have typically been in the range of instrument background and contamination has not been identified above the levels specified in the license for non-contaminated areas. Alpha contamination, both fixed and removable, has not been identified.

Radiation measurements in the facility have been low. Routine general area surveys were performed using a Ludlum model 19 micro-R meter on its lowest scale. General area radiation readings throughout the facility have been essentially indistinguishable from background levels, including on washers and driers and the wet lint collector air handling unit. The only elevated readings observed were on contact, or in very close proximity to the wastewater filter housings, at ground level (on contact with the metal plates) above the waste water pits, and on the one half-drum of sediment from wastewater processing. The highest readings have been on the drum of sediment which has not exceeded 50 uR/hr on contact. Perimeter thermoluminescent detectors (TLDs), exchanged on a quarterly basis, throughout the facility have recorded no measurement above the minimum sensitivity of the devices in use (i.e., 10 mRem).

Notwithstanding routinely measured contamination levels, the facility was conservatively designated for contamination control purposes as non-contaminated, potentially contaminated, and contaminated. No open packages of radioactive material where ever allowed in the non-contaminated area.

The contaminated zone was limited to the washroom. This included the area where packages would be opened and laundry sorted, washed, and dried.

The potentially contaminated zone included the area where dried clothes would be handled for monitoring, folding and repackaging. It also housed the HP lab and maintenance area. Minimal storage of UniTech's own protective clothing and supplies also occurred in this area.

The remaining areas of the facility were designated as non-contaminated. This included the office area, facility restroom, and an inside parking area for the transport vehicle.

In 2005, UniTech expanded the office area into the former maintenance area in the production room. While the space was located in a designated potentially contaminated area, no radioactive materials had been handled in this small room. The area received a thorough 100% total contamination scan using the same instrument (Ludlum model 2224) used during the decommissioning project, and removable contamination measurements were obtained on a 1 square meter grid. This survey is consistent with the method used to release tools and equipment during the decommissioning project.

2.0 PROJECT ADMINISTRATION

2.1 Organization

The decommissioning project was completed under the supervision of the decommissioning Radiation Safety Officer, Corporate Health Physicist, Glenn Roberts. Employees performing decommissioning activities were those listed in the license as supervisory users with the exception of three UniTech employees working under their supervision. All decommissioning employees and site visitors were provided employee training as specified in Appendix D of the license. Resumes and training for individuals listed in the license have been previously provided in current licensing documents.

2.2 Radiation Protection & ALARA

All decommissioning work was performed under existing UniTech radiation safety procedures as described in Appendix D and other sections of the license. Area designations, corresponding boundaries, protective clothing requirements, and radiological controls were consistent with good health physics practice throughout the project. There were no measureable worker exposures and no personnel injuries throughout the project. UniTech's ALARA program was in effect during decommissioning activities. Routine radiation and contamination surveys were conducted within the facility as during operation, until the particular area of the facility was fully decontaminated and verified by survey to permit reclassification.

During decommissioning activities, levels of loose contamination throughout operational areas were below instrumentation detection levels. Total and removable contamination assays from the waste water pits immediately after removal of the bulk sediment, but prior to decontamination efforts in accordance with ALARA, indicated that the pits contained no residual contamination above the screening value criteria, the Derived Concentration Guideline Levels (DCGLs)[1]. It may be noted, however, that the bulk sediment removed from the

[1] NUREG 1757, Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees, Volume 1, Appendix B.

wastewater pits exhibited radiation levels approaching 0.3 mR/hr on contact when it was consolidated and packaged for disposal as low level radioactive waste (LLRW).

Airborne concentration levels were measured throughout the project up until the commencement of Final Status Surveys. Gross activity measurements were attributed to Co-60, the most restrictive nuclide processed at the facility. Few results were above the instrumentation's Minimal Detectable Activity (MDA). The highest positive reading was almost 15,000 times below the Derived Air Concentration for Co-60. In accordance with UniTech's ALARA policy, HEPA filtration was procured and used during sediment removal and pit decontamination.

2.3 Data Quality Control - Documentation & Review

Survey packages were the primary method of controlling and tracking the survey results. Survey records were maintained in survey packages developed for each area. Individual measurements are identified by date, survey area, measurement type, instrument model and serial number and calibration due date. The survey packages also contain survey drawings and grid identification, field notes as applicable, and signatures of those performing and reviewing the surveys. The decommissioning RSO, Glenn Roberts, reviewed records as they were generated on a continual basis. All records are systematically organized and complete.

Final Status Surveys records were reviewed, independent of the performer, and organized by the decommissioning RSO from the raw data. FSS records were then again reviewed against the raw data and signed by the performer. In preparation for final data analysis and drafting of the Final Status Survey Report (FSSR), a final review was performed and documented by the decommissioning RSO shortly after the data was collected.

All instrument calibration records are complete. All instrumentation was checked with a radiation source prior to use each day. A final check of instrumentation occurred subsequent to the last FSS measurement. Instrument checks included verification of an expected instrument response to the radiation source, as determined subsequent to calibration.

All radiological survey records were maintained on-site throughout the project's operational phases. At the conclusion of the project, records were transferred to the office of the decommissioning RSO. Subsequent to license termination, records will be archived at the UniTech corporate records vault. While UniTech generally maintains such records indefinitely, UniTech shall maintain the decommissioning records in accordance with all applicable regulations.

3.0 DECOMMISSIONING ACTIVITIES

3.1 Overview of Decommissioning Timeline

UniTech notified the NRC in writing on August 16, 2007 of its intent to decommission the facility and presented its view the project may proceed without license amendment. In response to NRC questions, UniTech provided information in support of classification of the effort as a Group 2 decommissioning project and the project proceeded accordingly. While a preliminary site visit occurred in August 2007, the project commenced in earnest in late October 2007. Decommissioning efforts by UniTech continued during trips of approximately 2-weeks in duration occurring approximately every 2 months, until the FSS was conducted in July 2008.

No significant or unexpected issues were identified during the decommissioning process and the job proceeded as planned. Simply due to delays in scheduling travel around other commitments of the team members, the timeline identified in UniTech's letter dated August 16, 2007, was extended approximately 2 months.

3.2 Description of Major Decommissioning Tasks

A site visit occurred in August 2007, during which UniTech performed its annual radiation safety program review. The visit also served as preliminary decommissioning visit and particular attention was devoted to facility survey data to serve as a basis of planning the decommissioning project. A survey of the roof was conducted, as a routine radiological survey if not routinely conducted on the roof, to determine if decommissioning attention would be required. Measurements indicated no results outside the range of normal background. Two samples were collected from the dirt and other material (largely asphalt shingle granules) accumulated in rain gutters. The samples were analyzed by gamma spectroscopy and the results were negative with the exception of the identification Pb-210 in one sample. The laboratory has indicated that the Pb-210 result was a false positive as other key gamma energy lines for Pb-210 were not present in the spectra. Pb-210 has never been identified as licensed material at the facility. Another sample was collected from the sediment in the waste water equalization pit. Prior to sample collection, the sediment was mixed to ensure a representative sample was obtained. Although only limited nuclides had been received at this facility, UniTech conservatively analyzed for its entire standard waste characterization suite of analyses; H-3, C-14, Fe-55, Ni-63, Sr-89/90, Tc-99, I-129, gamma spectroscopy, and alpha spectroscopy for Th, U, Np, Pu, Am, and Cm. U-238, identified at 0.1 pCi/g, was consistent with naturally occurring radioactivity for the wastewater sediment material (essentially dirt) sampled. The only other two nuclides, Co-60 (58.6%) and Ni-63 (33.3%), constituted the bases for the project DCGLs.

The first decommissioning trip involved the survey and release of all supplies and materials that 1) were not required for completion of the project, 2) were amenable to surface survey and release, and 3) not expected to be contaminated. UniTech segregated all materials, such as used protective clothing, that were not amenable to surface survey, for disposition by a licensed radioactive waste processor. Materials judged to be potentially contaminated, such as brooms and mops, were also segregated for transfer to a licensed waste processor. UniTech's ALARA release criteria for removable contamination was less than 20 / 200 dpm 100 cm^2 alpha / beta-gamma, respectively. For total contamination and micro-R measurements, UniTech's ALARA release criterion was nothing distinguishable from background levels. No removable contamination above the ALARA criteria was identified. There were only a few items[2] identified during this process which exceeded the total contamination ALARA criterion which were conservatively segregated and then transferred to a licensed waste processor. Released items included tools, maintenance and cleaning supplies, boxes of new materials, tables, drums, miscellaneous hardware, internal dividing walls and doors.

The second decommissioning trip involved the survey and free release of an internal wall, demolition of the same, and packaging of the bulk equipment, including washer, driers, wet lint collector, and all items segregated for transfer to a license waste processor during the first decommissioning trip. The internal wall was primarily concrete cinder block with one wood section, which was designed to be removable to facilitate the installation or removal of large equipment. The top row of concrete block was poured solid flush with the upper surface, thereby precluding the potential for internal contamination. 100% of block wall surfaces were surveyed and released for unrestricted disposition. The wall was then demolished. Two (2) twenty foot intermodal containers were procured and all other aforementioned items were secured within the containers.

The third decommissioning trip focused on the decontamination of the pits, trench, and scale pit. The wastewater treatment system was disassembled and two of the 8 filters were relocated and assembled in a temporary arrangement to enable the processing of water generated during pit cleaning. Floor level steel plates were removed from the pits and placed in the intermodal containers for transfer to a licensed waste processor. A temporary handrail was constructed in accordance with OSHA requirements and good work practices. Fresh air was pumped into the pits for a minimum of 15 minutes and oxygen levels were measured prior to entry. As a conservative practice, air was also drawn out of the pits and through a portable HEPA filter. Air samples were collected and analyzed prior to personnel entry into the pits. In addition, personnel air samples were collected during all pit entries. Another (high volume) air pump was used to sample air in the HEPA filter discharge. The sediment from the pits was removed and placed in heavy plastic bags. The bags were securely sealed and placed in the

[2] The few items involved the wheels of washroom laundry carts, reading 100-200 cpm above background with a pancake GM probe. All such wheels, including ones with no discernable counts above background, were conservatively segregated for transfer to a licensed LLRW processor.

intermodal containers. Surveys performed in support of work activities indicated that residual contamination in the pits was below the screening value DCGLs established for release of the facility. Notwithstanding, pit work continued to be conducted in personnel protective clothing (coveralls, gloves, and rubber boots) and was removed at an established contamination control line in accordance with ALARA. The pits were in excellent condition. There were no cracks, penetrations, or evidence of loss of the containment integrity of the concrete. A heavy rubberized coating was largely intact, although some blistering and bubbling was observed; all such areas were scraped and all loose coating removed. Large sections of the intact rubber coating were also removed to demonstrate that the underlying concrete met screening levels DCGLs. The trench and pits were thoroughly pressure-washed. The water was processed through the filter banks, sampled, analyzed, and discharged to the sanitary sewer. The opening in the sanitary sewer discharge drain and vent line, located just off the floor at the Northeast corner of the smaller pit, was also pressure washed and surveyed. Some final status surveys were performed on the ledge between the pit and front (east) wall to enable the construction of a temporary walkway to allow access to electrical panels. (Note: The project $DCGL_W$ was established at the beginning of the project and is discussed in the following section.) NRC representatives were on-site and conducted inspection activities for several days during this phase of the project and made independent measurements and observations.

During the fourth decommissioning trip, samples were obtained below the concrete floor of the pits and trench, the floor drain line was cleaned, all radioactive waste materials were shipped offsite to licensed LLRW processors, and FSSs were completed.

A concrete core drill was used to obtain samples of earth below both pits. The pit bottoms were approximately 8" thick, made of concrete, and showed no signs of deterioration. A core through the trench was 31 inches in depth, at which point a sample of a "lava rock like" material was obtained. A commercial drain line "snake" was procured and used to remove material from the interior surfaces of the drain line. The drain line, approximately 24 feet in length, lies under the surface of the concrete facility floor at the end of the trough. The material removed from the drain line was collected for subsequent analysis. All potentially contaminated equipment and materials were shipped for transfer to licensed LLRW processors. There were three shipments in total. Due to the logistics of shipping radioactive materials by vessel and rail, all of the wastewater sediment was placed in three (3) metal drums and shipped by air as UN2910, Radioactive material, excepted package – limited quantity of material. The two (2) 20-foot intermodal containers were below the DOT definition of radioactive material and were transported as exempt shipments. Final Status Surveys were completed. A soil sample was collected from the nearest soil area, approximately 125 feet from the facility near a tree at the entrance to the 3050 Ualena Street commercial suite of businesses. Results of all samples and FSSs are presented in subsequent sections of this report.

4.0 FINAL STATUS SURVEY PLAN

4.1 Derived Concentration Guideline Levels (DCGLs)[3]

UniTech based its $DCGL_W$ on representative sampling of the sediment from the wastewater equalization pit; the results of which indicated Co-60 at 58.6% and Ni-63 at 33.3%. Since Ni-63 is a low energy beta emitter, it is not readily identified with significant efficiency using most handheld instrumentation. Accordingly, the application of MARSSIM equation 4-4 is not appropriate. Use of the equation would establish a DCGL higher than that of Co-60 even though Ni-63 would not contribute significantly to the detector recorded count or count rate. UniTech applied the methodology of MARSSIM equation 4-1 for use of Co-60 as surrogate. The result when considering Co-60 and Ni-63 reduces the $DCGL_W$ (from 7,100 dpm/100 cm^2 for Co-60 alone) to 7,084 for the two nuclides combined. The slight reduction in the $DCGL_W$ is readily understood when one considers the $DCGL_W$ of Ni-63 alone, 1,800,000 dpm/ 100 cm^2. As previously discussed, U-238 was identified but is not attributed to licensed material at this facility. Nonetheless, if U-238 is considered in the surrogate equation, the $DCGL_W$ is calculated to be 5,939 dpm/ 100 cm^2. UniTech established a conservative project gross beta-gamma total surface contamination $DCGL_W$ of 6000 dpm/ 100 cm^2.

Based on historic information and detailed radiochemistry analysis, there is no need to establish a formal average derived concentration contamination guideline, $DCGL_W$, for alpha radiation. Notwithstanding, alpha surveys were performed and are presented to demonstrate that there is no alpha radiation distinguishable from background present at the facility. Total gross alpha radiation was evaluated to 60 dpm / 100 cm^2.

UniTech did not develop a $DCGL_{EMC}$[4] and evaluated the results of all surveys based on the $DCGL_W$.

While removable contamination is not formally part of the MARSSM specified final status survey, UniTech included the collection such data in its Final Survey Plan (FSP). The $DCGL_W$ for removable beta-gamma contamination is 600 dpm/ 100 cm^2, 10% of the total contamination $DCGL_W$.

[3] $DCGL_W$ is a MARSSIM term that specifies acceptable criteria release of a facility for unrestricted use. The regulatory basis incorporates conservative assumptions and considers the resulting dose of 25 mrem/yr from all surfaces if the facility being contaminated, on ***average***, at the $DCGL_W$.
[4] $DCGL_{EMC}$ is a MARSSIM term that specifies the Elevated Measurement Comparison value; essentially the upper limit for discrete areas of residual contamination that exceeds the $DCGL_W$.

4.2 ALARA Goals

UniTech also established an ALARA goal for total contamination measurements at 10% of the $DCGL_W$. Hence, UniTech has documented that the facility is acceptable for unrestricted use by demonstrating that every measurement is below the $DCGL_W$ of 6000 dpm/ 100 cm^2 and that the ALARA criteria is satisfied because the average of all measurements is below 10% of the $DCGL_W$, or 600 dpm/ 100 cm^2.

ALARA goals for removable contamination were established at 20 and 200 dpm / 100 cm^2 for alpha and beta-gamma, respectively.

4.3 Summary of $DCGL_W$ and ALARA Goals

Radiation	DCGLw		ALARA Goal[1]	
	Total	Removable	Total	Removable
Alpha[1]	60	20	20	5
Beta-Gamma	6000	600	600	200

[1]ALARA goals shall be evaluated based on the average of all measurements.
[2]The term $DCGL_w$ is not technically correct for alpha radiation in accordance with this DP, but is included here for brevity.

4.4 Area Classification

Generally UniTech conservatively assigned area classifications more conservatively than required given the levels of contamination present. For example, results of UniTech's measurements in the pits and trench did not indicate contamination above the $DCGL_W$; however, UniTech designated the pits and trench as a Class 1 area and surveyed 100 percent of the surfaces. While office area and support areas could have been considered non-impacted, UniTech designated those areas as Class 3.

Class 1 Areas – The equalization and discharge pits, trench, and scale pit were designated as Class 1 areas, as well as the floor immediately surrounding these features. UniTech also included the lower two (2) meters of the east and south walls adjacent to the two pits.

Class 2 Areas – The remainder of the entire floor within operational areas, whether designated as contaminated or potentially contaminated, and the lower two (2) meters of walls within these areas, were designated as Class 2 areas.

Class 3 Areas – The remainder of the entire facility was designated as Class 3 areas. This included the all interior walls above two (2) meters, the ceiling, roof, and interior parking area, rest room, and office, including the mezzanine deck above.

4.5 Survey Types and Frequency

UniTech selected a more prescriptive survey frequency based on grids than would be required by MARSSIM. The following table presents UniTech's approach.

Area	Scan	Surface (Total) Contamination Measurement	Removable Contamination Measurement
Class 1	100 %	1 m^2 grid, 1 data point per grid	1 m^2 grid, 1 data point per grid
Class 2	50%	1 m^2 grid, 1 data point in 50% of the grids[1)]	1 m^2 grid, 1 data point in 50% of the grids[1)]
Class 3	10%	1 m^2 grid, 1 data point in 10% of the grids[2)]	1 m^2 grid, 1 data point in 10% of the grids[2)]

Notes:
1) Grid selection was systematic, alternating grids.
2) Grid selection was randomly generated. Additional points were added to ensure proper coverage.

Some areas included additional biased measurements locations as determined by the Decommissioning RSO. For example, the Equalization (EQ) Pit included 3 biased samples on the wall directly below the area where the laundry wash water flowed from the trench into the EQ Pit. Both pits included biased samples in the small sump wells. Additionally, the roof survey included biased smear sample locations in the prevailing downwind direction of the discharge point and the ceiling survey included biased smear sample locations of the upper surface of the reflectors on facility lights. The biased data is not distinguished for statistical evaluation and is included in the summaries presented.

4.6 Number of Data Points

Although survey frequency far exceeds that required by MARSSIM, a calculation of the MARSSIM approach is presented for thoroughness and completeness. The selection of each input parameter is chosen to conservatively increase the calculated number of data points.

Since the essential measurement is gross beta-gamma activity, the calculation proceeds with the Wilcoxon Rank Sum (WRS) test method. The gross beta-gamma $DCGL_W$ has been established at 6000 dpm / 100 cm^2. An efficiency of 10% (lower than either instrument used for FSSs) correlates to 600 cpm / 100 cm^2. The lower boundary of the grey region (LBGR) is selected at 3-sigma above the concrete background, 242 cpm.[5] A standard deviation of 16 cpm was observed on a series of 31 gross concrete counts in the equalization pit. This is

[5] UniTech procedures require long background counts sufficient to ensure 20 alpha counts in order to achieve proper statistical confidence. In this example, a concrete background of 200 cpm, higher than either of the twoLudlum Model 2224 instruments used for FSSs, was chosen, with a standard deviation of 14.

consistent with there being little to no residual contamination. The overall resulting standard deviation is 21 cpm. The relative shift is now calculated as follows:

Relative shift = (DCGL – LBGR) / σ_T = (600 – 242) / 21 = 17

In accordance with the note below Table 5.1 of MARRSIM, P_r is 1.0.

Considering a 95% confidence level to eliminate a Type I (false positive) error and a 99% confidence level to eliminate a Type II (false negative) error, equation 5-1 of MARSSIM requires 21 data points. Adding another 20% and rounding up results in 26 data points required per survey unit. UniTech met or exceeded this number of data points in each survey unit.

4.7 Background Reference Areas

UniTech chose to remove a floor tile in the non-contaminated area and use the concrete below for its concrete background determination. The only other material selected for a surface specific background was the asphalt shingle roof, where a background was determined on the roof of an adjacent warehouse space with identical roofing material about 30 meters upwind from our facility. For all other surfaces, the intrinsic backgrounds of the instruments were conservatively used in evaluation of FSS results. Other surfaces included cinder block, metal, floor tile, drywall, and plywood.

5.0 INSTRUMENTATION

5.1 Floor Scanning

UniTech used an instrument for floor scanning comprised of a large area gas flow proportional detector coupled with a multi-channel analog alarming rate meter. The Ludlum (manufactured for Hydro-Nuclear Services) model 43-62 detector, with a total active area of 9" x 36", has 6 separate zones. Each zone requires an individual high voltage power supply and is connected to individual signal detection circuits. The zones are equal in size and shape. The Lambda SCRAM electronics module supplied each detector zone with high voltage and monitored count rates for all channel signals.

The SCRAM can be used in two modes.

- In the routine operating (floor monitoring) mode, the SCRAM analog meter indicates the alarm set point for all channels. The alarm set point is established by the operator by adjusting a potentiometer. Whenever any channel exceeds the set point, the SCRAM provides an audible alarm as well as illuminated display of the channel(s) that caused the alarm.

- In the individual channel mode, used for calibration and correlation of channel response (CPM) to operational challenges with a test source, the meter indicates the count rate of a particular operator-selected channel.

Each channel incorporates an illuminated indication when that channel's CPM response has exceeded the alarm set point. This feature is useful for localizing contamination by identification of the particular zone(s) which alarmed. Further, the electronics included a low count rate alarm which would sound if there was 1) high voltage failure, 2) damage to the mylar window resulting in gas leakage, or 3) an anode wire was broken.

The floor monitor was equipped with an adjustable speed motorized control unit, which regulated the speed at which the unit traversed the floor. Uniform traverse speed is desirable for reliable scanning and alarm set point establishment and to minimize analytical errors which might have been introduced by manual operation at irregular speeds. During floor monitoring the motor control unit was set at relative dial indication of "60" on a scale of 0 to 100 which was determined to establish a floor speed of 2.28 inches per second. Given the 9 inch dimension of the detector, in the traverse direction, a residence time of 3.95 seconds is provided for each discrete area of floor. The floor-to-detector distance was set as low as practical, approximately 1 cm.

All 6 detector zones were calibrated individually. During a previous calibration, a voltage-count rate plateau had been established to determine the optimum high voltage setting. All channels demonstrated good agreement to each other relative to background count rates and efficiency response.

In addition to the "bench" calibration, the floor monitor was subject to an *operational challenge* at the $DCGL_W$. A 100 cm^2 electroplated Tc-99 source (SN 98TC1004201) was used with a 4π activity of 27,200 dpm.[6] An area, hereinafter *equivalent area*, was calculated which would produce 5000 and 6000 dpm. The calculated areas were established by placing a thin steel plate with an appropriately sized aperture over the source. When the same thickness of steel completely shielded the source, the SCRAM response was consistent with background count rates. The test involved each of the six (6) channels traversing the source ten (10) times at the established speed setting with an alarm set point of 1200 cpm. At 5000 dpm equivalent area, on average each channel alarmed eight (8) out of ten (10) trials. At the 6000 dpm equivalent area, all but one channel alarmed ten (10) out of ten (10) trails (channel #5 alarmed nine (9) out of (10) trials).

---

[6] Tc-99 is a well suited surrogate for Co-60, having similar beta energy and intensity; hence similar beta efficiency. The difference in gamma emissions for the two nuclides has negligible effect on the overall efficiency of detection in gas flow proportional detectors. Furthermore, electroplated sources ideally involve a uniform mono-molecular deposition of radioactive material which supports the subsequent calculations.

It is also worth mentioning a related challenge of this same instrument and detector which was performed during a past decommissioning project. The Agreement State authority had established in their decommissioning regulations a limit for fixed contamination of 0.25 mrem per hour at one (1) centimeter from surfaces. In support of similar operational trials, the dose rate from the Tc-99 source used during the Honolulu decommissioning was determined as 0.075 mR/hr at one (1) centimeter measured with a BICRON model RSO-5 air-vented ionization chamber. Based on the 6000 dpm equivalent area, the Floor Monitor would reliably alarm at 16.5 μR/hr at the established instrument settings.

As previously mentioned, the floor monitor detector is 36 inches in width. Monitoring guide lines were established at 30 inches apart, providing sufficient overlap to eliminate the possibility of edge effects resulting in an unmonitored strip or missed contamination.

5.2 Total (Fixed) Contamination Measurements

Total fixed contamination measurements were conducted with Ludlum model 2224 equipped with model 43-89 detectors. This instrument-detector combination provided for simultaneous alpha and beta-gamma detection and discrimination in both the rate meter and scaler modes. Scaler measurements for fixed contamination involved 1 minute count times. Backgrounds were dependent upon the type of material being monitored as discussed in section 4.6 of this report.

5.3 Fixed Contamination Scan Measurements

All surfaces with the exception of floor surfaces were surveyed for fixed contamination using Ludlum model 2224 equipped with model 43-89 detectors. Addition detail on this instrument is provided above. In addition, a very limited number of "frisks" for fixed contamination involved a pancake GM probe Ludlum Model 44-9 with a Ludlum model 177 ratemeter.

5.4 Removable Contamination – Smear Measurements

Smears for removable contamination were counted in a Ludlum model 2929 with a 43-10-1 alpha beta sample counter. This instrument-detector combination allows for simultaneous discrimination between alpha and beta emissions. All FSS surveys for removable contamination were performed with this instrument; however, material release surveys and radiological measurements for health physics support of work activities during the project also involved a Scintillation Alpha Counter (Eberline SAC-4) and Beta Counter (Eberline BC-4).

5.5 Micro-R Dose Rate Measurements

Micro-R measurements were conducted with a Ludlum model 19. This instrument incorporates an internal sodium Iodide (NaI) scintillation detector with minimum sensitivity in the single digit μR range.

5.6 Gamma Spectroscopy and Radiochemistry Analysis

All gamma spectroscopy and radiochemical analysis was performed by Eberline Analytical Corporation in Oak Ridge, TN.

5.7 Calibration Certificates

All instrument calibration certificates are retained with the decommissioning documentation. Copies of calibration certificates shall be maintained as part of the supporting decommissioning paperwork; while originals may be transferred with instrumentation. Calibration of all instrumentation was current at the time of use.

5.8 Instrument Quality Control

All instrumentation was checked for reliable and consistent response to a known source of radiation at least daily prior to use and after the last FSS was conducted. The acceptability determination for reliability was dependent on whether the instrument was designated as a scaler or rate meter. Scaler instruments were more rigidly controlled with computerized statistical evaluations. Rate meters generally required ±20% agreement relative to a response measured with the same source and geometry subsequent to the most recent calibration.

For scalers, background measurements were conducted daily and evaluated through computerized statistical control evaluations. The background for rate meters was typically determined with each use.

Consistent with good health physics practices, the mechanical condition of each instrument was checked to ensure there was no obvious damage, and each instrument's mechanical zero adjustment (for analog instruments), if present, was checked prior to each use. For all instruments operating on a battery supply, battery condition was verified prior to each use.

5.9 Source Certificates

Source calibration certificates showing traceability to the National Institute of Standards and Technology (NIST) are on file as part of the decommissioning documentation. Copies of source certificates shall be maintained as part of the supporting decommissioning paperwork; while originals may be transferred with sources. All calibrations were performed with NIST traceable sources.

Instrument quality control tests, discussed in sub-section 4.8, above, for instruments including the floor monitor, were also performed with NIST traceable sources. Rate meters were also source checked with a NIST traceable source, although UniTech procedures require only a daily response check.

6.0 SURVEY RESULTS

6.1 Statistical Evaluation of Facility Surveys

The results and statistical evaluation of building surveys are summarized in this section. The statistical summary is appropriate only for removable and fixed contamination "scaler" measurements. Summaries are provided by survey unit. However, since no maximum individual measurement result [$\mathbf{C_{max}}$] exceeds the $DCGL_W$ further statistical evaluations are not required in accordance with MARSSIM Table 8.2, Summary of Statistical Tests. In addition, no average of measurements [$\mathbf{C_{ave}}$] exceeds the established ALARA goal. As Minimum Detectable Activity ("MDA") values are used in the calculations (in lieu of zero), reported averages values, and maximums values, in some cases, are conservatively biased high.

As presented in the following tables, the standard deviation is the customary standard deviation (SD) used in describing the variance of a sample group.

$$Std.Dev. = \sqrt{\frac{(\overline{X} - X_i)^2 + \cdots + (\overline{X} - X_n)^2}{n-1}}$$

The data quality parameter μ_α is a test of confidence in the survey data, and includes considerations of the number of data points taken and the standard deviation of the measurements. Further explanation and detail regarding this data quality parameter are available in NUREG-5849, Manual for Conducting Radiological Surveys in Support of License Termination, particularly Section 8.0, Interpretation of Survey Results, Equation 8-13.[7]

$$\mu_\alpha = \overline{X} + t_{1-\alpha}df \frac{s_x}{\sqrt{n}}$$

where, $t_{1-\alpha}df$ is the 95% confidence level from Appendix B, Table B-1 of NUREG-5849 for n-1 degrees of freedom.

$\overline{X}$ is the calculated mean of the data set.

s_x is the standard deviation.

n is the number of data points.

[7] It is recognized the NUREG-5849 is not incorporated into MARSSIM. However, the evaluation is included for informational purposes only.

Class 1 Equalization Pit - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm² α [C_{ave}]	14	Passed
α Max.	≤ 60 dpm/100cm² α [C_{max}]	23	Passed
βγ Ave.	≤ 600 dpm/100cm² βγ [C_{ave}]	240	Passed
βγ Max.	≤ 6000 dpm/100cm² βγ [C_{max}]	396	Passed
# of Measurements		56	
α Standard Deviation		3.3	
μ_α - α	≤ 60 [C_{max}]	15	Passed
βγ Standard Deviation		29	
μ_α - βγ	≤ 6000 dpm/100cm² βγ [C_{max}]	247	Passed

Class 1 Equalization Pit - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm² α [C_{ave}]	3.1	Passed
α Max.	≤ 20 dpm/100cm² α [C_{max}]	5.0	Passed
βγ Ave.	≤ 200 dpm/100cm² βγ [C_{ave}]	71	Passed
βγ Max.	≤ 600 dpm/100cm² βγ [C_{max}]	110	Passed
# of Measurements		56	
α Standard Deviation		0.52	
μ_α - α	≤ 20 [C_{max}]	3.3	Passed
βγ Standard Deviation		8.2	
μ_α - βγ	≤ 600 dpm/100cm² βγ [C_{max}]	73	Passed

Class 1 Discharge Pit - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm² α [C_{ave}]	12	Passed
α Max.	≤ 60 dpm/100cm² α [C_{max}]	23	Passed
βγ Ave.	≤ 600 dpm/100cm² βγ [C_{ave}]	255	Passed
βγ Max.	≤ 6000 dpm/100cm² βγ [C_{max}]	415	Passed
# of Measurements		37	
α Standard Deviation		7.2	
μ_α - α	≤ 60 [C_{max}]	14	Passed
βγ Standard Deviation		84	
μ_α - βγ	≤ 6000 dpm/100cm² βγ [C_{max}]	279	Passed

Class 1 Discharge Pit - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm² α [C_{ave}]	3.1	Passed
α Max.	≤ 20 dpm/100cm² α [C_{max}]	5.0	Passed
βγ Ave.	≤ 200 dpm/100cm² βγ [C_{ave}]	70	Passed
βγ Max.	≤ 600 dpm/100cm² βγ [C_{max}]	110	Passed
# of Measurements		37	
α Standard Deviation		7.1	
μ_α - α	≤ 20 [C_{max}]	5.1	Passed
βγ Standard Deviation		17	
μ_α - βγ	≤ 600 dpm/100cm² βγ [C_{max}]	75	Passed

Class 1 Trench, Scale Pit, Ledge, Walls - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm² α [C_{ave}]	12	Passed
α Max.	≤ 60 dpm/100cm² α [C_{max}]	29	Passed
$\beta\gamma$ Ave.	≤ 600 dpm/100cm² $\beta\gamma$ [C_{ave}]	274	Passed
$\beta\gamma$ Max.	≤ 6000 dpm/100cm² $\beta\gamma$ [C_{max}]	1255	Passed
# of Measurements		53	
α Standard Deviation		5.3	
μ_α - α	≤ 60 [C_{max}]	13	Passed
$\beta\gamma$ Standard Deviation		153	
μ_α - $\beta\gamma$	≤ 6000 dpm/100cm² $\beta\gamma$ [C_{max}]	309	Passed

Class 1 Trench, Scale Pit, Ledge, Walls - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm² α [C_{ave}]	3.2	Passed
α Max.	≤ 20 dpm/100cm² α [C_{max}]	5.0	Passed
$\beta\gamma$ Ave.	≤ 200 dpm/100cm² $\beta\gamma$ [C_{ave}]	69	Passed
$\beta\gamma$ Max.	≤ 600 dpm/100cm² $\beta\gamma$ [C_{max}]	79	Passed
# of Measurements		53	
α Standard Deviation		0.53	
μ_α - α	≤ 20 [C_{max}]	3.3	Passed
$\beta\gamma$ Standard Deviation		1.4	
μ_α - $\beta\gamma$	≤ 600 dpm/100cm² $\beta\gamma$ [C_{max}]	70	Passed

Class 2 Floors - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm^2 α [C_{ave}]	17	Passed
α Max.	≤ 60 dpm/100cm^2 α [C_{max}]	17	Passed
βγ Ave.	≤ 600 dpm/100cm^2 βγ [C_{ave}]	267	Passed
βγ Max.	≤ 6000 dpm/100cm^2 βγ [C_{max}]	581	Passed
# of Measurements		112	
α Standard Deviation		0	
μ_α - α	≤ 60 [C_{max}]	17	Passed
βγ Standard Deviation		73	
μ_α - βγ	≤ 6000 dpm/100cm^2 βγ [C_{max}]	278	Passed

Class 2 Floors - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm^2 α [C_{ave}]	3	Passed
α Max.	≤ 20 dpm/100cm^2 α [C_{max}]	3	Passed
βγ Ave.	≤ 200 dpm/100cm^2 βγ [C_{ave}]	69	Passed
βγ Max.	≤ 600 dpm/100cm^2 βγ [C_{max}]	69	Passed
# of Measurements		112	
α Standard Deviation		0	
μ_α - α	≤ 20 [C_{max}]	3	Passed
βγ Standard Deviation		0	
μ_α - βγ	≤ 600 dpm/100cm^2 βγ [C_{max}]	69	Passed

Class 2 Walls - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm^2 α [C_{ave}]	8.1	Passed
α Max.	≤ 60 dpm/100cm^2 α [C_{max}]	33	Passed
βγ Ave.	≤ 600 dpm/100cm^2 βγ [C_{ave}]	225	Passed
βγ Max.	≤ 6000 dpm/100cm^2 βγ [C_{max}]	394	Passed
# of Measurements		44	
α Standard Deviation		6.3	
μ_α - α	≤ 60 [C_{max}]	9.7	Passed
βγ Standard Deviation		42	
μ_α - βγ	≤ 6000 dpm/100cm^2 βγ [C_{max}]	236	Passed

Class 2 Walls - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm^2 α [C_{ave}]	3.2	Passed
α Max.	≤ 20 dpm/100cm^2 α [C_{max}]	5.0	Passed
βγ Ave.	≤ 200 dpm/100cm^2 βγ [C_{ave}]	69	Passed
βγ Max.	≤ 600 dpm/100cm^2 βγ [C_{max}]	79	Passed
# of Measurements		44	
α Standard Deviation		0.64	
μ_α - α	≤ 20 [C_{max}]	3.4	Passed
βγ Standard Deviation		1.5	
μ_α - βγ	≤ 600 dpm/100cm^2 βγ [C_{max}]	67	Passed

Class 3 Floors - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 $dpm/100cm^2$ α [C_{ave}]	17	Passed
α Max.	≤ 60 $dpm/100cm^2$ α [C_{max}]	17	Passed
βγ Ave.	≤ 600 $dpm/100cm^2$ βγ [C_{ave}]	232	Passed
βγ Max.	≤ 6000 $dpm/100cm^2$ βγ [C_{max}]	429	Passed
# of Measurements		30	
α Standard Deviation		0	
μ_α - α	≤ 60 [C_{max}]	17	Passed
βγ Standard Deviation		37	
μ_α - βγ	≤ 6000 $dpm/100cm^2$ βγ [C_{max}]	243	Passed

Class 3 Floors - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 $dpm/100cm^2$ α [C_{ave}]	3	Passed
α Max.	≤ 20 $dpm/100cm^2$ α [C_{max}]	3	Passed
βγ Ave.	≤ 200 $dpm/100cm^2$ βγ [C_{ave}]	69	Passed
βγ Max.	≤ 600 $dpm/100cm^2$ βγ [C_{max}]	69	Passed
# of Measurements		30	
α Standard Deviation		0	
μ_α - α	≤ 20 [C_{max}]	3	Passed
βγ Standard Deviation		0	
μ_α - βγ	≤ 600 $dpm/100cm^2$ βγ [C_{max}]	69	Passed

Class 3 Walls - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 20 dpm/100cm^2 α [C_{ave}]	15.8	Passed
α Max.	$\leq$ 60 dpm/100cm^2 α [C_{max}]	26	Passed
$\beta\gamma$ Ave.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	228	Passed
$\beta\gamma$ Max.	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	913	Passed
# of Measurements		35	
α Standard Deviation		5.9	
μ_α - α	$\leq$ 60 [C_{max}]	18	Passed
$\beta\gamma$ Standard Deviation		153	
μ_α - $\beta\gamma$	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	271	Passed

Class 3 Walls - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 5 dpm/100cm^2 α [C_{ave}]	3.1	Passed
α Max.	$\leq$ 20 dpm/100cm^2 α [C_{max}]	5.0	Passed
$\beta\gamma$ Ave.	$\leq$ 200 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	69	Passed
$\beta\gamma$ Max.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	70	Passed
# of Measurements		35	
α Standard Deviation		0.34	
μ_α - α	$\leq$ 20 [C_{max}]	3.2	Passed
$\beta\gamma$ Standard Deviation		0.17	
μ_α - $\beta\gamma$	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	69	Passed

Class 3 Ceiling - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 20 dpm/100cm² α [**C_{ave}**]	18	Passed
α Max.	≤ 60 dpm/100cm² α [**C_{max}**]	18	Passed
βγ Ave.	≤ 600 dpm/100cm² βγ [**C_{ave}**]	154	Passed
βγ Max.	≤ 6000 dpm/100cm² βγ [**C_{max}**]	154	Passed
# of Measurements		33	
α Standard Deviation		0	
μ_α - α	≤ 60 [**C_{max}**]	18	Passed
βγ Standard Deviation		0	
μ_α - βγ	≤ 6000 dpm/100cm² βγ [**C_{max}**]	154	Passed

Class 3 Ceiling - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	≤ 5 dpm/100cm² α [**C_{ave}**]	3.1	Passed
α Max.	≤ 20 dpm/100cm² α [**C_{max}**]	5.0	Passed
βγ Ave.	≤ 200 dpm/100cm² βγ [**C_{ave}**]	69	Passed
βγ Max.	≤ 600 dpm/100cm² βγ [**C_{max}**]	69	Passed
# of Measurements		39	
α Standard Deviation		0.32	
μ_α - α	≤ 20 [**C_{max}**]	3.1	Passed
βγ Standard Deviation		0	
μ_α - βγ	≤ 600 dpm/100cm² βγ [**C_{max}**]	69	Passed

Class 3 Roof - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 20 dpm/100cm^2 α [C_{ave}]	21	Passed
α Max.	$\leq$ 60 dpm/100cm^2 α [C_{max}]	21	Passed
$\beta\gamma$ Ave.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	182	Passed
$\beta\gamma$ Max.	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	182	Passed
# of Measurements		32	
α Standard Deviation		0	
μ_α - α	$\leq$ 60 [C_{max}]	21	Passed
$\beta\gamma$ Standard Deviation		0	
μ_α - $\beta\gamma$	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	182	Passed

Class 3 Roof - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 5 dpm/100cm^2 α [C_{ave}]	3.0	Passed
α Max.	$\leq$ 20 dpm/100cm^2 α [C_{max}]	5.0	Passed
$\beta\gamma$ Ave.	$\leq$ 200 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	70	Passed
$\beta\gamma$ Max.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	87	Passed
# of Measurements		43	
α Standard Deviation		0.30	
μ_α - α	$\leq$ 20 [C_{max}]	3.1	Passed
$\beta\gamma$ Standard Deviation		3.1	
μ_α - $\beta\gamma$	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	70	Passed

Class 3 Office & Restroom - Total

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 20 dpm/100cm^2 α [C_{ave}]	17	Passed
α Max.	$\leq$ 60 dpm/100cm^2 α [C_{max}]	18	Passed
$\beta\gamma$ Ave.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	169	Passed
$\beta\gamma$ Max.	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	282	Passed
# of Measurements		37	
α Standard Deviation		4.7	
μ_α - α	$\leq$ 60 [C_{max}]	18	Passed
$\beta\gamma$ Standard Deviation		35	
μ_α - $\beta\gamma$	$\leq$ 6000 dpm/100cm^2 $\beta\gamma$ [C_{max}]	179	Passed

Class 3 Office & Restroom - Removable

Data Parameter	Limit or Goal	Survey Result	Flag
α Ave.	$\leq$ 5 dpm/100cm^2 α [C_{ave}]	3.1	Passed
α Max.	$\leq$ 20 dpm/100cm^2 α [C_{max}]	5.0	Passed
$\beta\gamma$ Ave.	$\leq$ 200 dpm/100cm^2 $\beta\gamma$ [C_{ave}]	70	Passed
$\beta\gamma$ Max.	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	95	Passed
# of Measurements		37	
α Standard Deviation		0.46	
μ_α - α	$\leq$ 20 [C_{max}]	3.2	Passed
$\beta\gamma$ Standard Deviation		4.3	
μ_α - $\beta\gamma$	$\leq$ 600 dpm/100cm^2 $\beta\gamma$ [C_{max}]	71	Passed

6.2 Scanning Results

With the exception of the facility floors outside of the office and restroom, all grid locations where total and removable contamination was measured were scanned with a Ludlum model 2224 instrument as identified in section 5.3. This instrument was used on all walls, roof, and ceiling locations, as well as the office and restroom floor grids. All beta-gamma results were less than 100 cpm / 100 cm^2 above background, corresponding to static measurement of approximately 1000 dpm / 100 cm^2 above background. All alpha results were less than or equal to 1 cpm per 100 cm^2 as discerned by the distinguishable alpha audio signal. Scanning was performed at a maximum probe movement rate of 2 inches per second.[8]

The Class 2 and Class 3 (with the exception of the office and restroom) floors were scanned as described in section 5.1 with the Lambda SCRAM and gas flow detector. Greater than 80% of the floor was scanned with the alarm setting of 1200 cpm. Floor areas scanned at this setting included 100% of the former washroom, the parking area for the van, and approximately 7.5 feet (3 passes) toward the west wall of the floor behind the demolished concrete wall which segregated the washroom and production room. The remainder of production room was scanned at 50% at this setting.[9] During the scanning process, a few (four or five) false positive alarms were experienced due to the tight tolerance established above background (800 cpm maximum for each individual channel) and the alarm setting of 1200 cpm. Each false positive alarm was determined to be such by resurveying with the floor monitor and investigation with a Ludlum model 2224, as appropriate.

A Ludlum Model 177 with pancake GM probe and an Eberline 520 with a sidewall GM probe were used to conduct a total contamination survey inside the sewer drain line subsequent to pressure washing. Neither instrument indicated any response distinguishable from background.

6.3 Micro-R Survey Results

A micro-R survey was performed throughout the facility using a Ludlum model 19. The survey involved a slow walk over at an approximate spacing of 1 meter. Results were observed at waist level; however, numerous measurements were taken at floor level consistent with the waist level readings. Results were all indistinguishable from background, 2-3 μR/hr. The background was determined

[8] Refer to MARSSIM methodology, Section 6.7.2, for additional detail. We consider an interval of 2 seconds, a worst case background of 200 cpm, select d′ at 1.38, and determine that the MDCR is 107 cpm. With surveyor, instrument, and surface efficiencies of 0.5, 0.1, and 0.5, respectively, a Scan MDC of 3023 dpm / 100 cm^2 is calculated.

[9] 100% of the production room was scanned with an alarm setting of 1600 cpm. This was completed before the operational challenge was conducted, resulting in the lower alarm setting of 1200. See Section 5.1 for additional detail.

in the neighboring commercial property to the west. A micro-R survey was also performed on the roof of the facility; the results were all in the range of 1-2 μR/hr. The roof survey was performed at an approximate spacing of 2 meters.

6.4 Gamma Spectroscopy and Radiochemistry Results

Five samples pertinent to the decommissioning project were collected and submitted for isotopic radiochemistry analysis. All samples were analyzed for Ni-63 and for gamma emitting radionuclides by gamma spectroscopy. Results of analysis are attached and are summarized below.

Four (4) samples are similar in nature and are discussed together. These 4 samples involved the two soil samples from the below the EQ and Discharge Pits, the "lava rock/concrete like" materials from below the trench, and soil sample collected from the entrance to the commercial property. The results of all samples are negative for Co-60 and Ni-63.[10] While it is not always the case with environmental soil samples, it is worth noting the same six (6) naturally occurring nuclides have been identified above the MDA in all 4 samples, and at approximately the same concentration. The results of the samples collected from below the pits and trench demonstrate that the structures maintained their integrity and had not allowed licensed radiological contaminants to migrate through the structures and into the environment.

The final sample was from the materials removed from the interior surfaces of the floor drain. It should be recognized the entire volume of removed material was submitted for analysis and the drain line is now substantially free of loose debris. This sample was analyzed in duplicate by the laboratory.[11] Both fractions of this sample indicated the presence of Co-60 with good agreement at 1.55 and 1.72 pCi/g. This value is below 50% of the Soil Screening Value of 3.8 pCi/g. While the laboratory has assured UniTech that the one Ni-63 result (the duplicate analysis was negative) is a false positive[12], UniTech compares the result of 6.99 pCi/g to the Soil Screening Value of 2100 pCi/g and calculates a sum-of-the-ratios for both nuclides to be 0.46. For context, it is worth briefly mentioning that the pathway assumptions for the development of the Soil Screening Values are not applicable to any residual contamination inside such a pipe because even while they would predict a small exposure, the actual exposure would be many orders of magnitude lower- i.e. inconsequential. Further, the greatest amount and extent of contamination is no longer present due to the aggressive nature of the

[10] The 4 samples are also negative for Cs-137. NOTE: For gamma spectroscopy, Eberline provides results for Co-60 and Cs-137 whether or not results are greater than the MDA. This is done for quality control. All other radionuclides are only reported if the result exceeds the MDA.
[11] Eberline analyzes one sample from each batch in duplicate. The "Sample Type" for such samples is "DUP" and "DO". This is another quality control aspect. The laboratory selects which sample to be analyzed in duplicate.
[12] A copy of the email from the laboratory manager is included.

sample collection methodology. Notwithstanding, UniTech shall grout[13] the pipe to fix residual contamination, in any, in place.

7.0 CONCLUSION

It is concluded that the facility is essentially free of residual licensed radioactive materials and any incidental contamination if far below the requirements for license termination and release of the facility for unrestricted use. The dose to future occupants from residual licensed radioactive material remaining on the premises is expected to be far less than 1 milli-Rem per year, and indeed probably too low to calculate no matter how the space is used or what manner of human activity might be prognosticated. Furthermore, residual contamination, if any, is ALARA. Accordingly, the license should be terminated and is hereby requested.

8.0 REFERENCES USED

Code of Federal Regulations, Title 10, Energy

NUREG-1575: Multi-Agency Radiation Survey and Site Investigation Manual (MARSSMS), Revision 1, August 2000

NUREG-1757, Consolidated NMSS Decommissioning Guidance: Decommissioning Process for Materials Licensees, September 2003.

US NRC document: Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of licenses for Byproduct, Source, or Special Nuclear Material, April 1993.

Implementing the MARSSIM Approach for Design and Conduct of Radiological Surveys, Oak Ridge Associated Universities (Training Manual), May 2006.

NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, June 1992.

Decommissioning Health Physics: A Handbook for MARSSIM Users, Albequist, Eric W., Institute of Physics Publishing, 2001.

Atoms, Radiation, and Radiation Protection, 2nd ed., Turner, James, E., Ph.D., CHP, John Wiley & Sons, Inc., 1995.

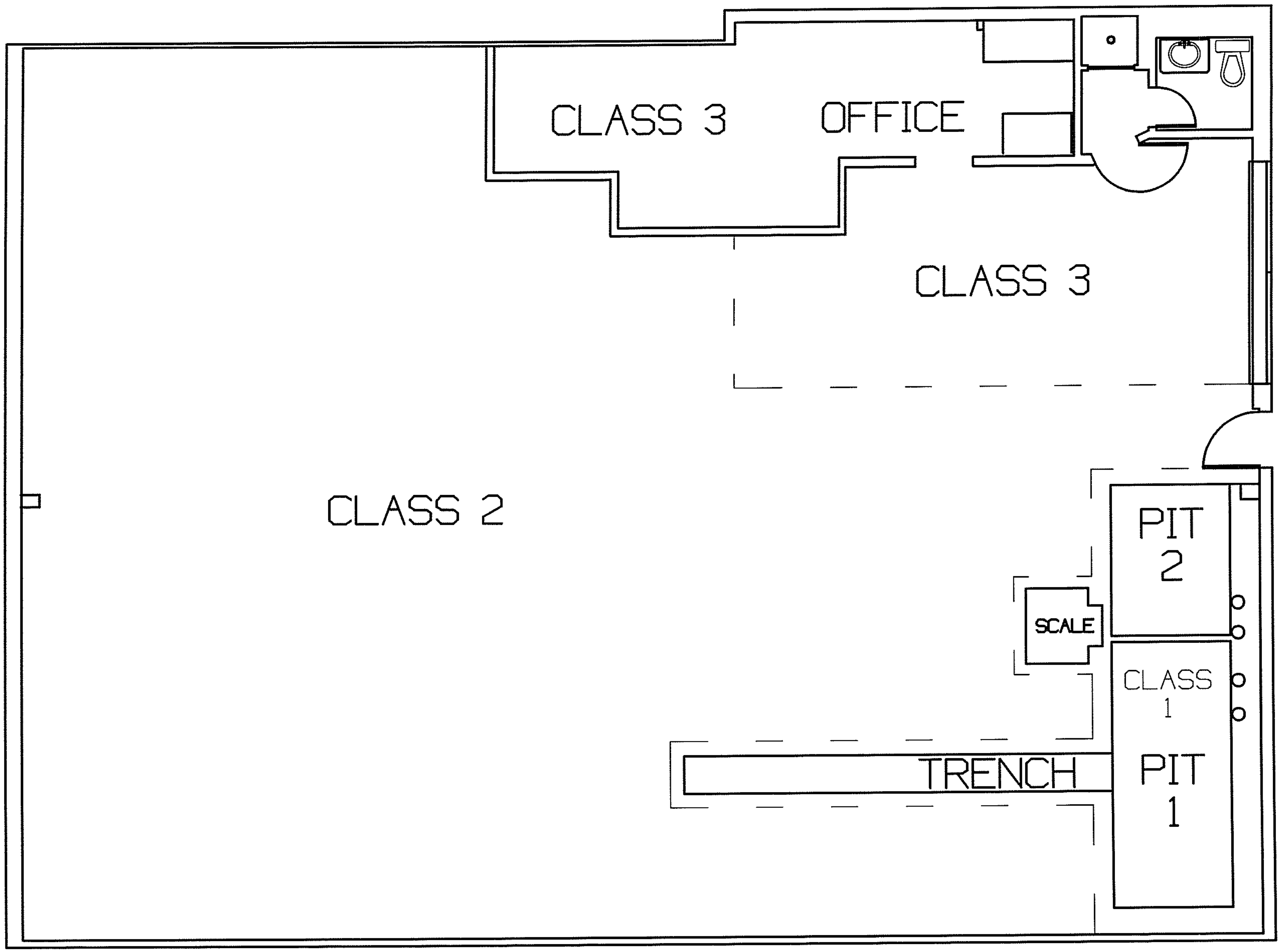
[13] "Grouting" is a technique that fills the pipe with liquefied cement that hardens in place and prevents any further access to or use of the pipe. It further prevents any migration of materials into or out of the pipe itself.

ATTACHMENT 1

Arial View and Facility Drawings

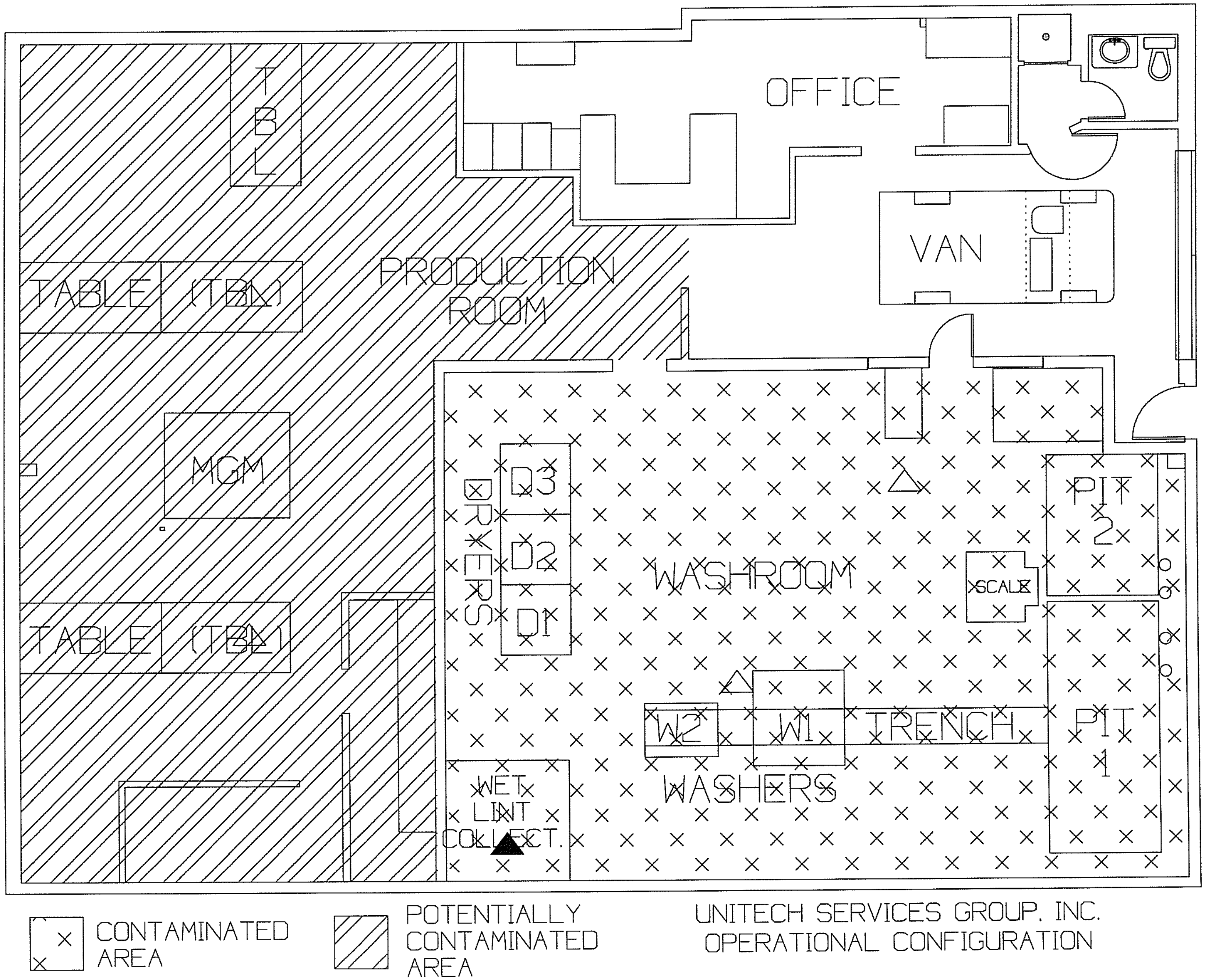
AERIAL VIEW SHOWING THE 3050 UALENA STREET COMMERCIAL SUITE

AERIAL VIEW SHOWING SUITE C OF 3050 UALENA STREET, UNITECH SERVICES GROUP, INC.



UNITECH SERVICES GROUP, INC.
3050 UALENA STREET
DECOMMISSIONING AREA CLASSIFICATIONS

C:\General Cadd 6\Gxd\Backup\HONOLULU\151 DP Area Classes.gxd -- 09/03/2008 -- 11:40 AM -- Scale 1 : 96.000

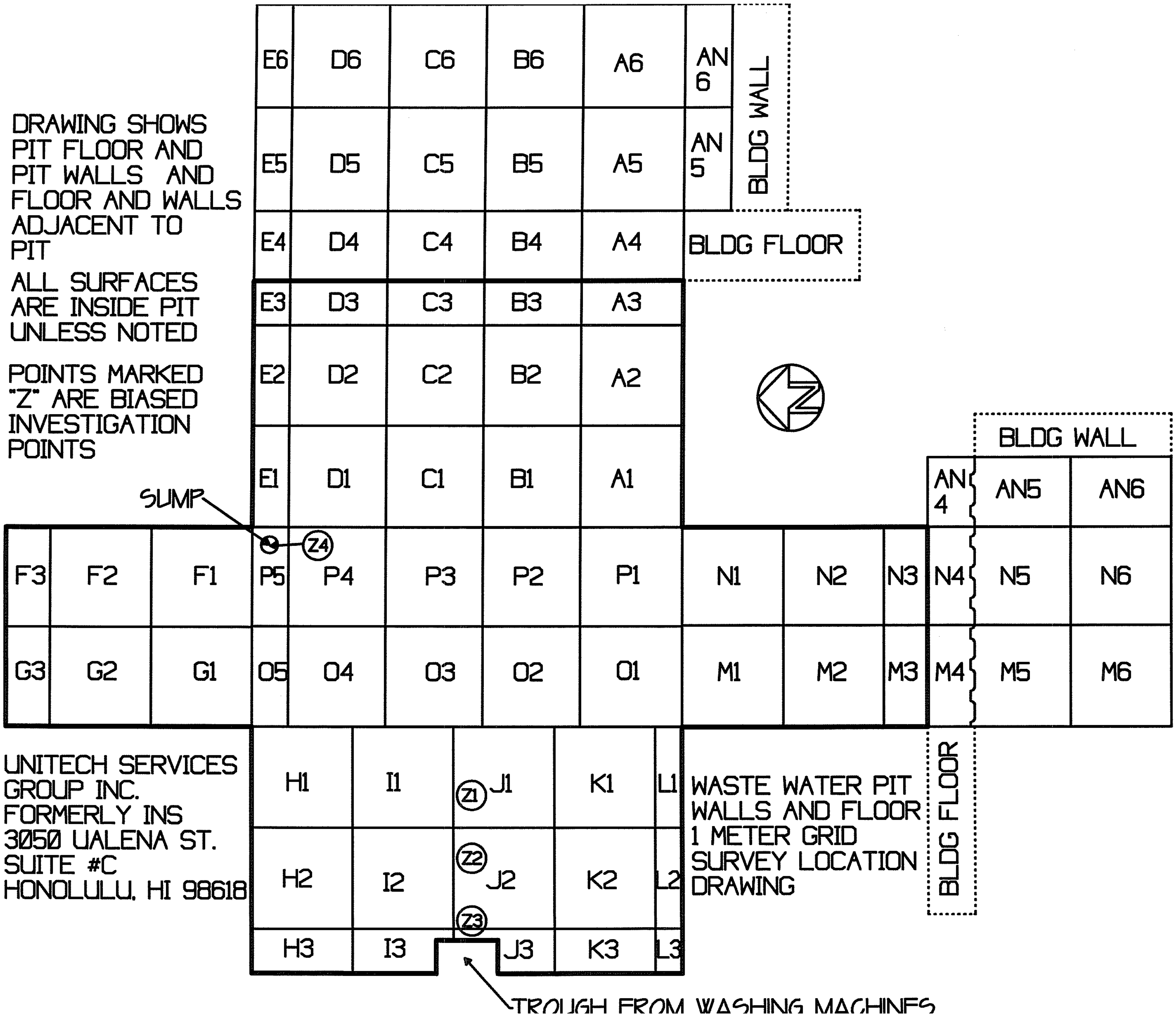


UNITECH SERVICES GROUP, INC.
OPERATIONAL CONFIGURATION

C:\General Cadd 6\Gxd\Backup\HONOLULU\151_2007.gxd -- 09/03/2008 -- 10:47 AM -- Scale 1 : 96.000

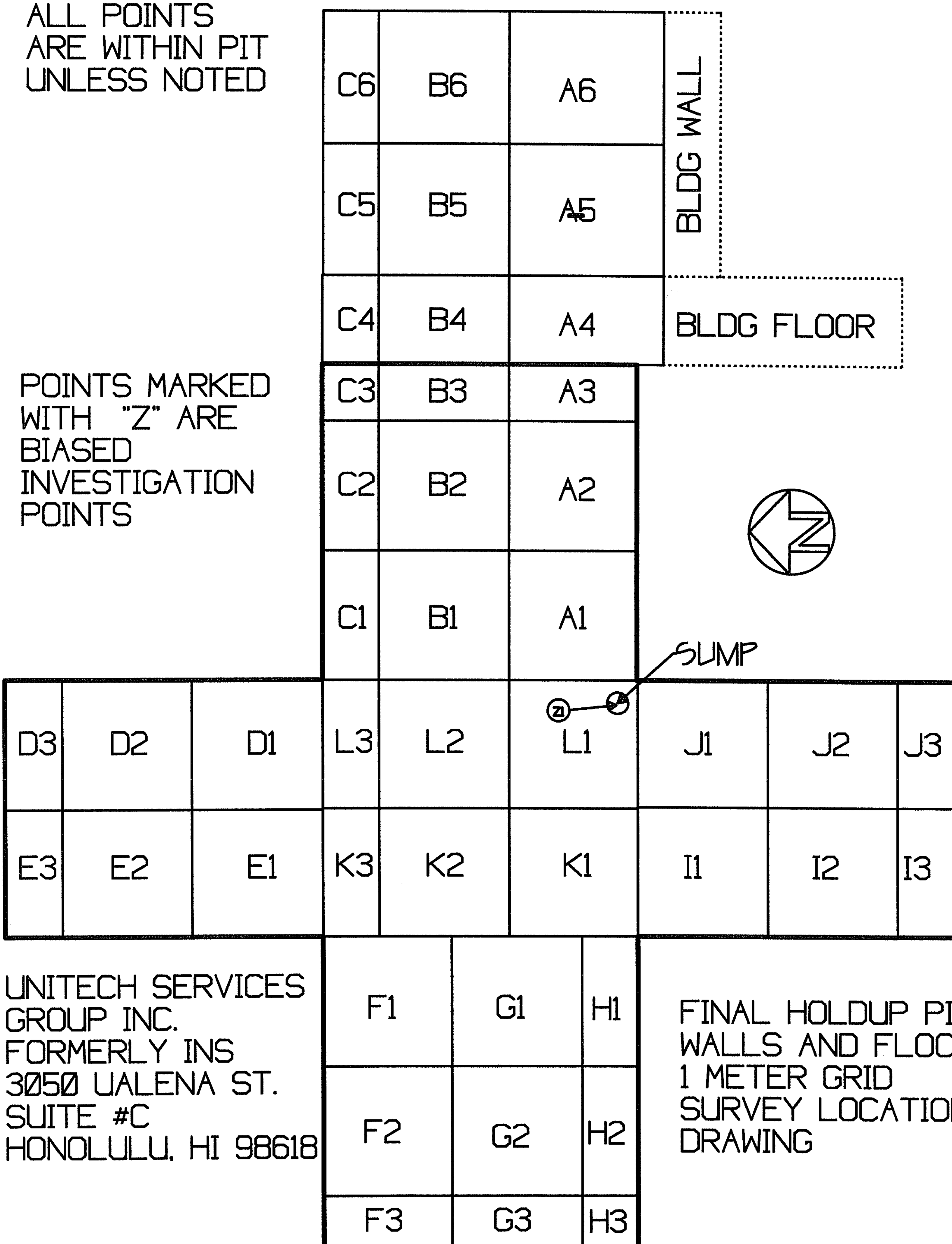
ATTACHMENT 2

Decommissioning Grid Maps


DRAWING SHOWS PIT FLOOR AND PIT WALLS AND FLOOR AND WALLS ADJACENT TO PIT
ALL SURFACES ARE INSIDE PIT UNLESS NOTED
POINTS MARKED "Z" ARE BIASED INVESTIGATION POINTS
SUMP
E6 D6 C6 B6 A6 AN 6
E5 D5 C5 B5 A5 AN 5
BLDG WALL
E4 D4 C4 B4 A4
BLDG FLOOR
E3 D3 C3 B3 A3
E2 D2 C2 B2 A2
E1 D1 C1 B1 A1
N
BLDG WALL
AN 4 AN5 AN6
Z4
F3 F2 F1 P5 P4 P3 P2 P1 N1 N2 N3 N4 N5 N6
G3 G2 G1 O5 O4 O3 O2 O1 M1 M2 M3 M4 M5 M6
H1 I1 Z1 J1 K1 L1
H2 I2 Z2 J2 K2 L2
Z3
H3 I3 J3 K3 L3
BLDG FLOOR
UNITECH SERVICES GROUP INC. FORMERLY INS 3050 UALENA ST. SUITE #C HONOLULU, HI 98618
WASTE WATER PIT WALLS AND FLOOR 1 METER GRID SURVEY LOCATION DRAWING
TROUGH FROM WASHING MACHINES

ALL POINTS
ARE WITHIN PIT
UNLESS NOTED

POINTS MARKED
WITH "Z" ARE
BIASED
INVESTIGATION
POINTS

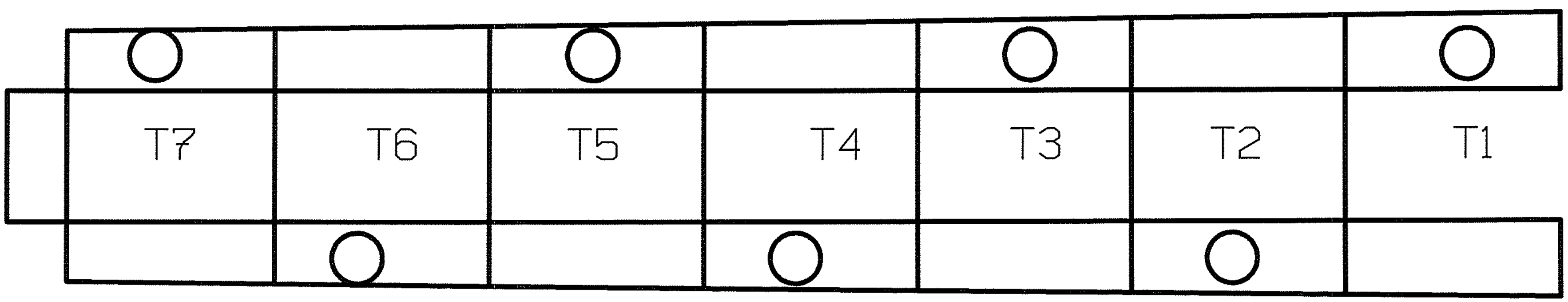


UNITECH SERVICES
GROUP INC.
FORMERLY INS
3050 UALENA ST.
SUITE #C
HONOLULU, HI 98618

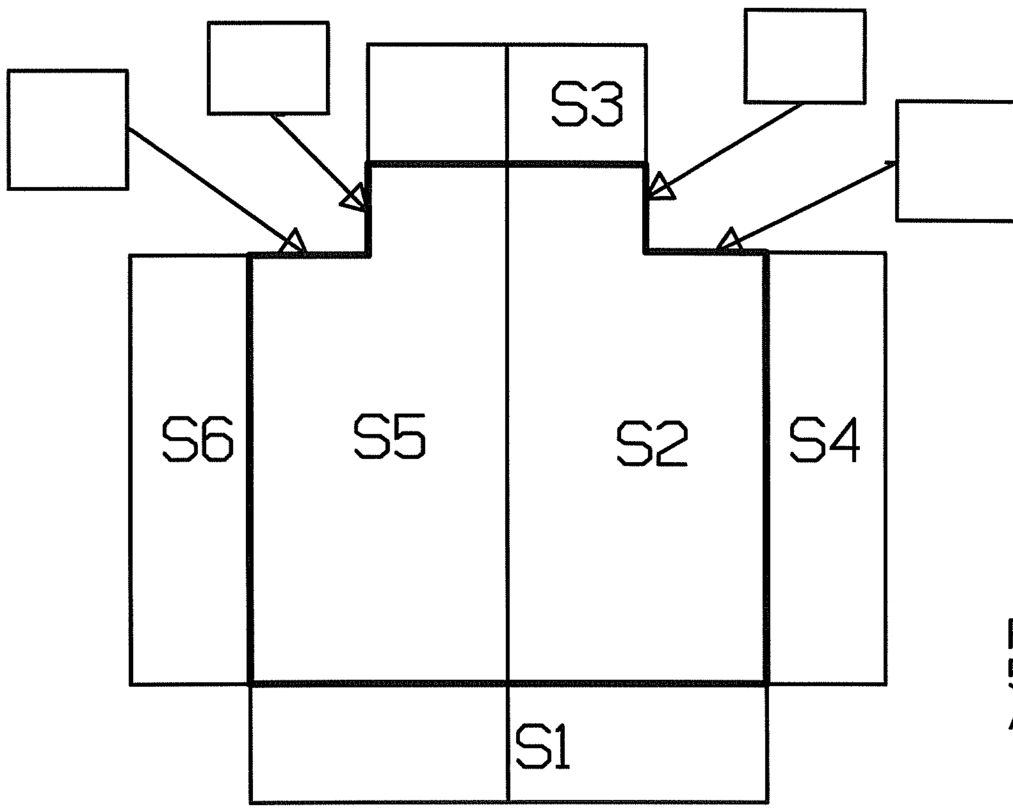
FINAL HOLDUP PIT
WALLS AND FLOOR
1 METER GRID
SURVEY LOCATION
DRAWING

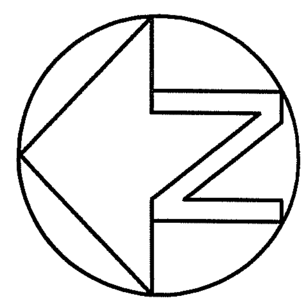
C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\holduppitwithgrid.gxd -- 07/09/2008 -- 06:36 PM -- Scale 1 : 36.0000

UNITECH SERVICES GROUP, INC.
FORMERLY INS
3050 UALENA ST.
SUITE C.
HONOLULU, HI 98618



WASHER TRENCH. POINT SURVEY MEASUREMENTS TAKEN AT EACH GRID CENTER AND ON PIT WALLS WHERE INDICATED BY A CIRCLE

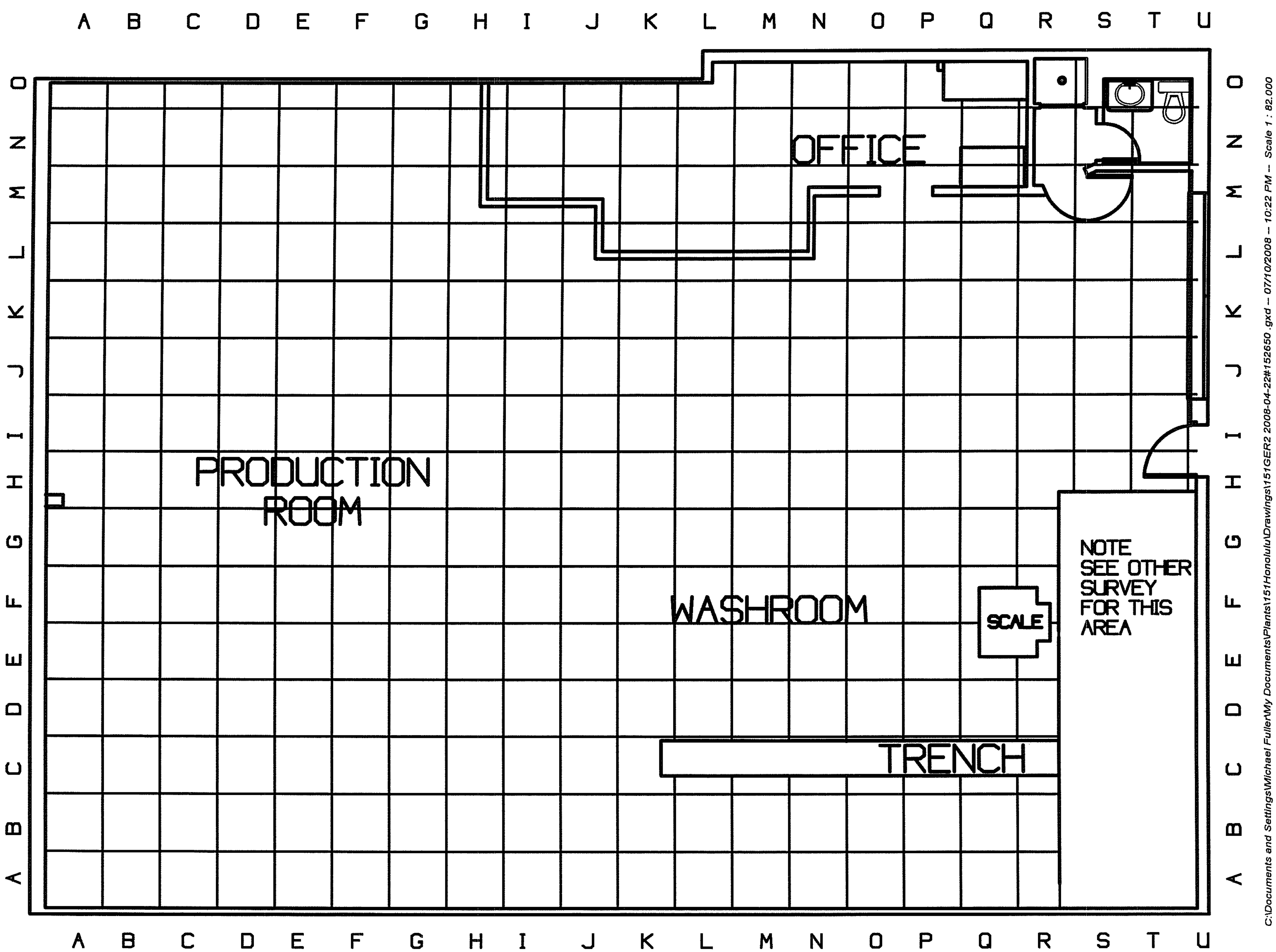




PIT DIMENSIONS
50 x 50 x 11 INCHES
APPROXIMATE

UNITECH SERVICES
GROUP INC.
FORMERLY INS
3050 UALENA ST.
SUITE #C
HONOLULU, HI 98618

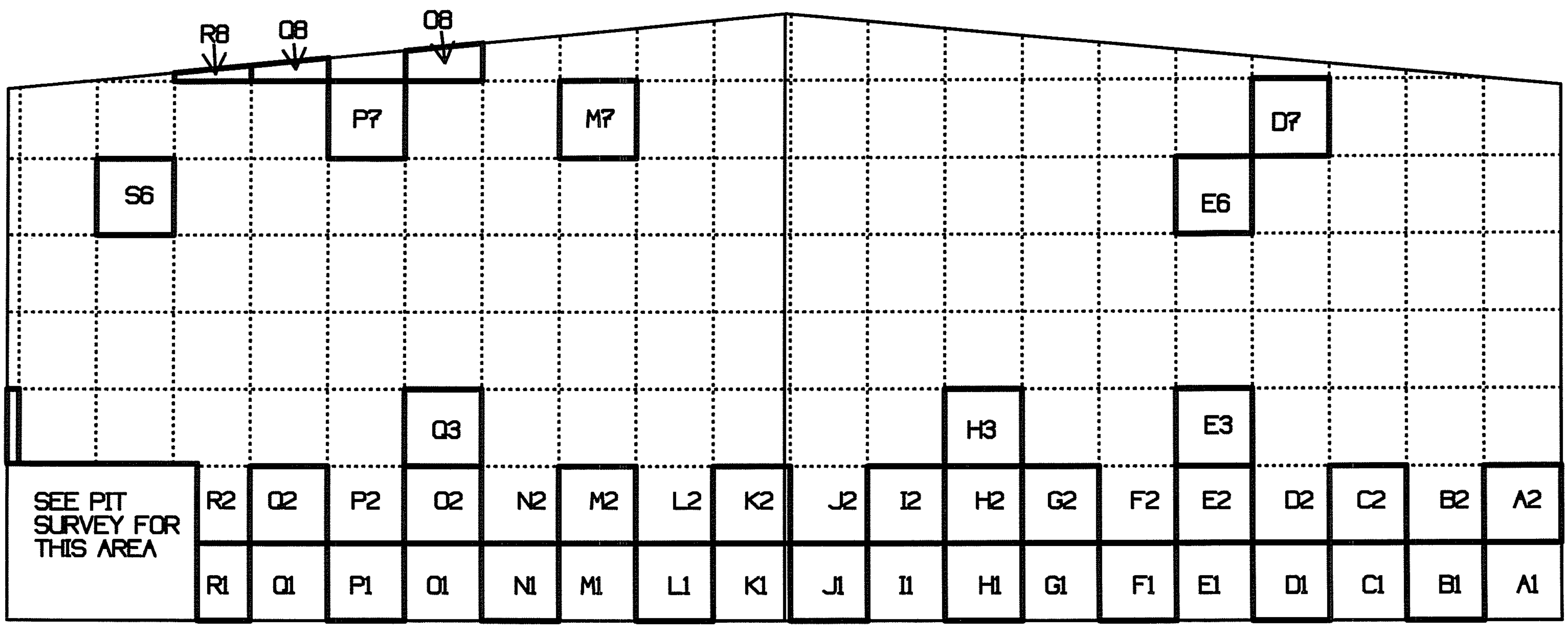
SCALE PIT FLOOR
AND WALLS 1 METER
GRID SURVEY
LOCATION
DRAWING



UNITECH SERVICES GROUP, INC., FORMERLY INS, 3050 UALENA ST., HONOLULU, HI 98316

UNITECH SERVICES GROUP INC.
FORMERLY INS
3050 UALENA ST.
HONOLULU, HI 98618

SUVEYS BELOW 2 METERS ARE 50% COVERAGE.
SURVEYS ABOVE 2 METERS ARE 10% COVERAGE WITH
SURVEY POINTS SELECTED AT RANDOM
AREAS SURVEYED ARE INDICATED WITH BOLD LINES

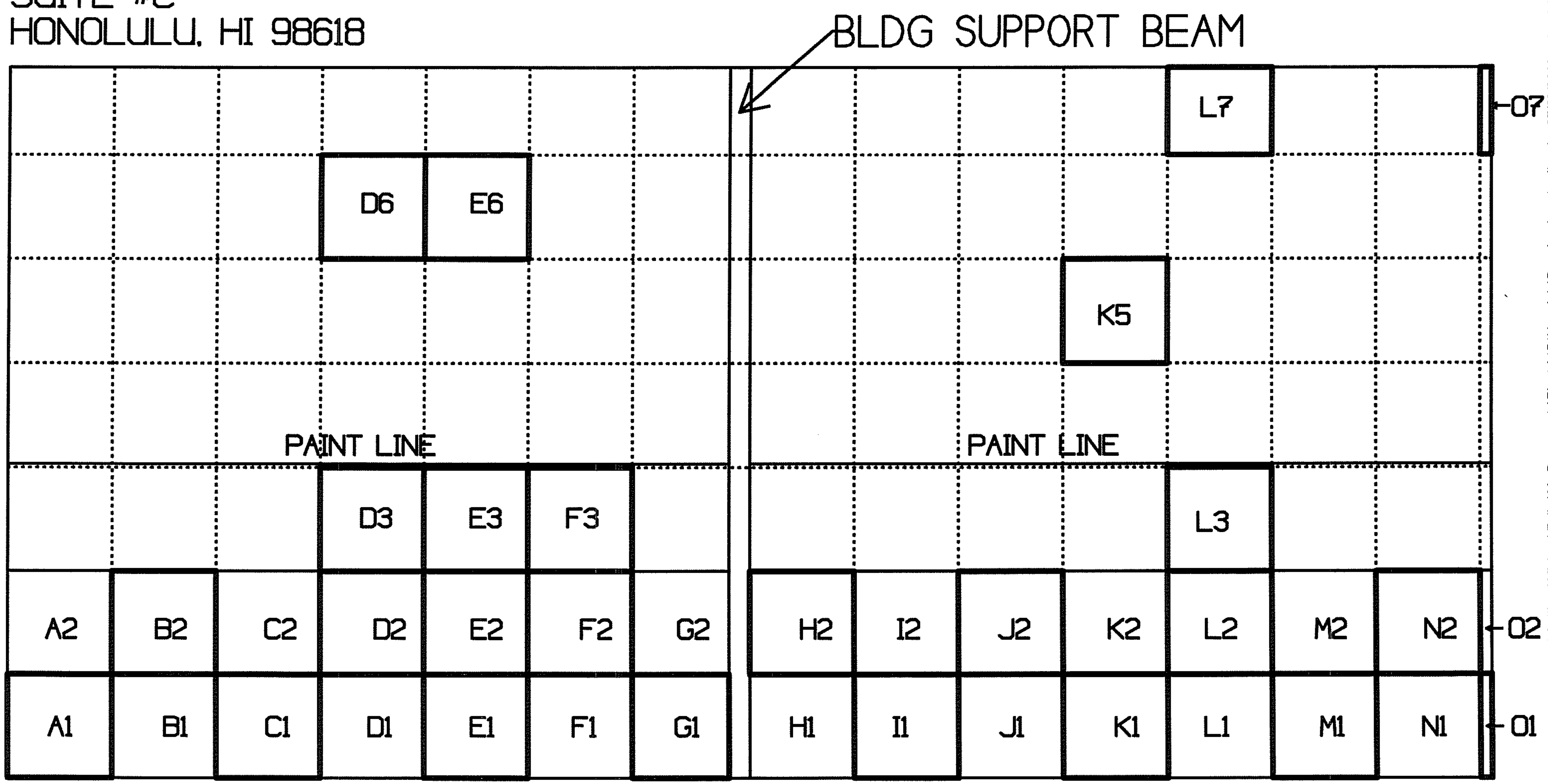


BUILDING INTERIOR SOUTH WALL

C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\SOUTHWALL.gxd -- 07/10/2008 -- 01:48 PM -- Scale 1 : 75.000

UNITECH SERVICES GROUP INC
FORMERLY INS
3050 UALENA ST.
SUITE #C
HONOLULU, HI 98618

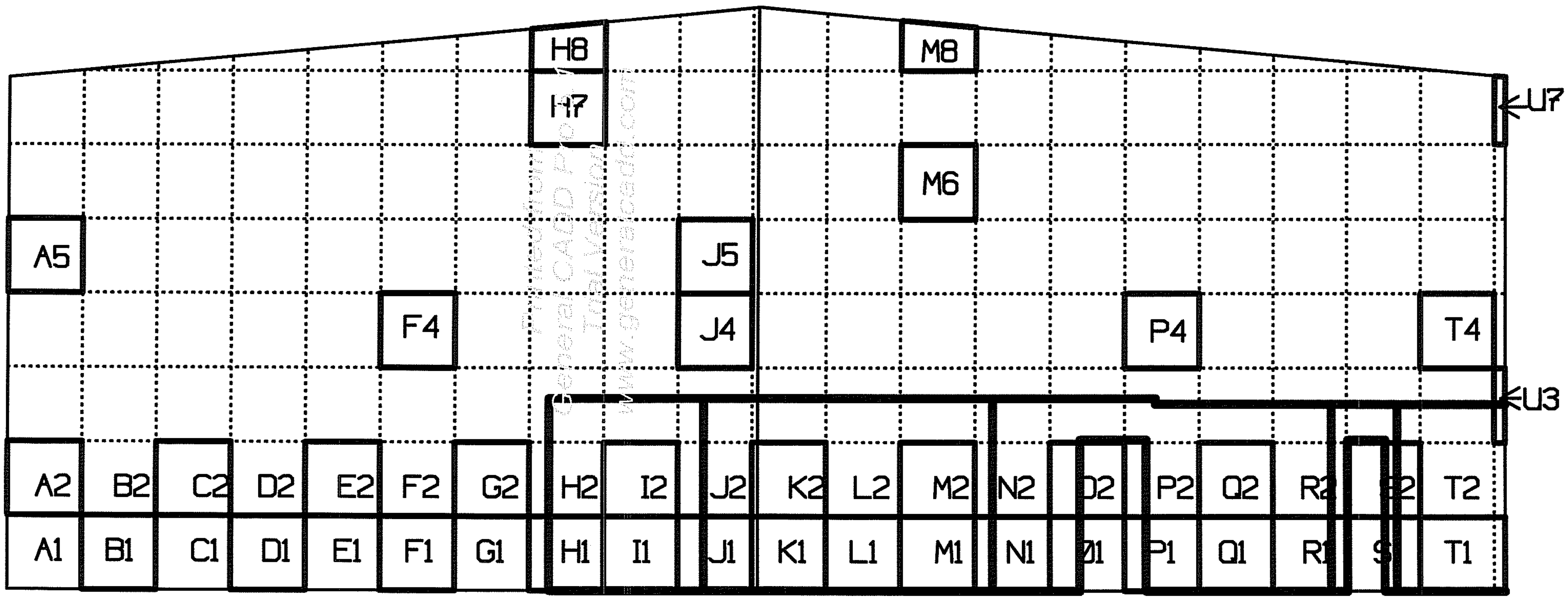
MONITORED GRIDS SHOWN IN BOLD SQUARES
AREA BELOW 2 METERS 50% COVERAGE
AREA ABOVE 2 METERS 10% COVERAGE
SELECTED AT RANDOM



C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\westwall.gxd -- 07/09/2008 -- 11:13 PM -- Scale 1 : 55.000

UNITECH SERVICES GROUP INC.
FORMERLY INS
3050 UALENA ST.
HONOLULU, HI 98618

SUVEYS BELOW 2 METERS ARE 50% COVERAGE.
SURVEYS ABOVE 2 METERS ARE 10% COVERAGE WITH
SURVEY POINTS SELECTED AT RANDOM
AREAS SURVEYED ARE INDICATED WITH BOLD LINES

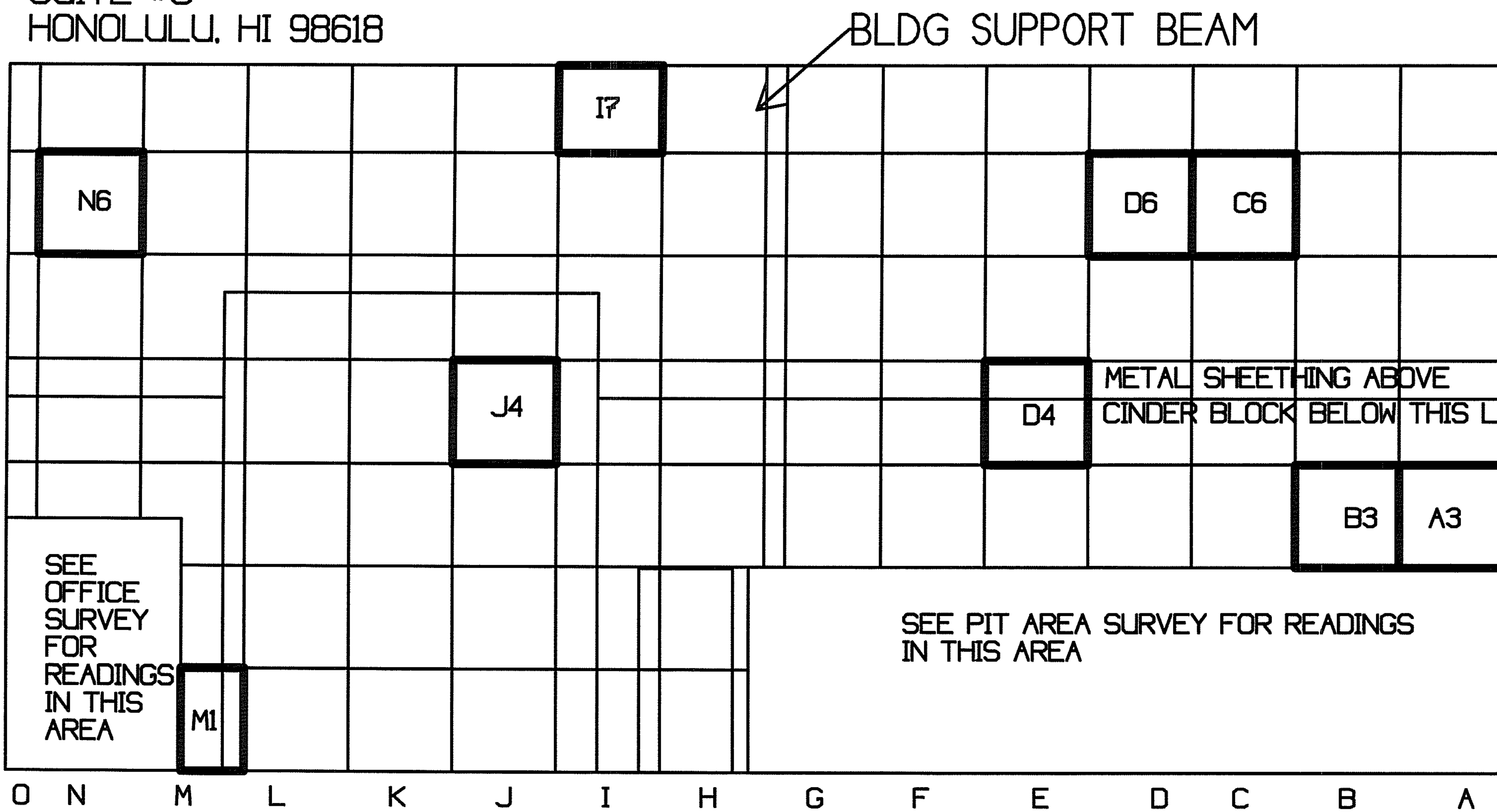


BUILDING INTERIOR NORTH WALL

C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\SOUTHWALL.gxd -- 07/10/2008 -- 08:54 PM -- Scale 1 : 78.000

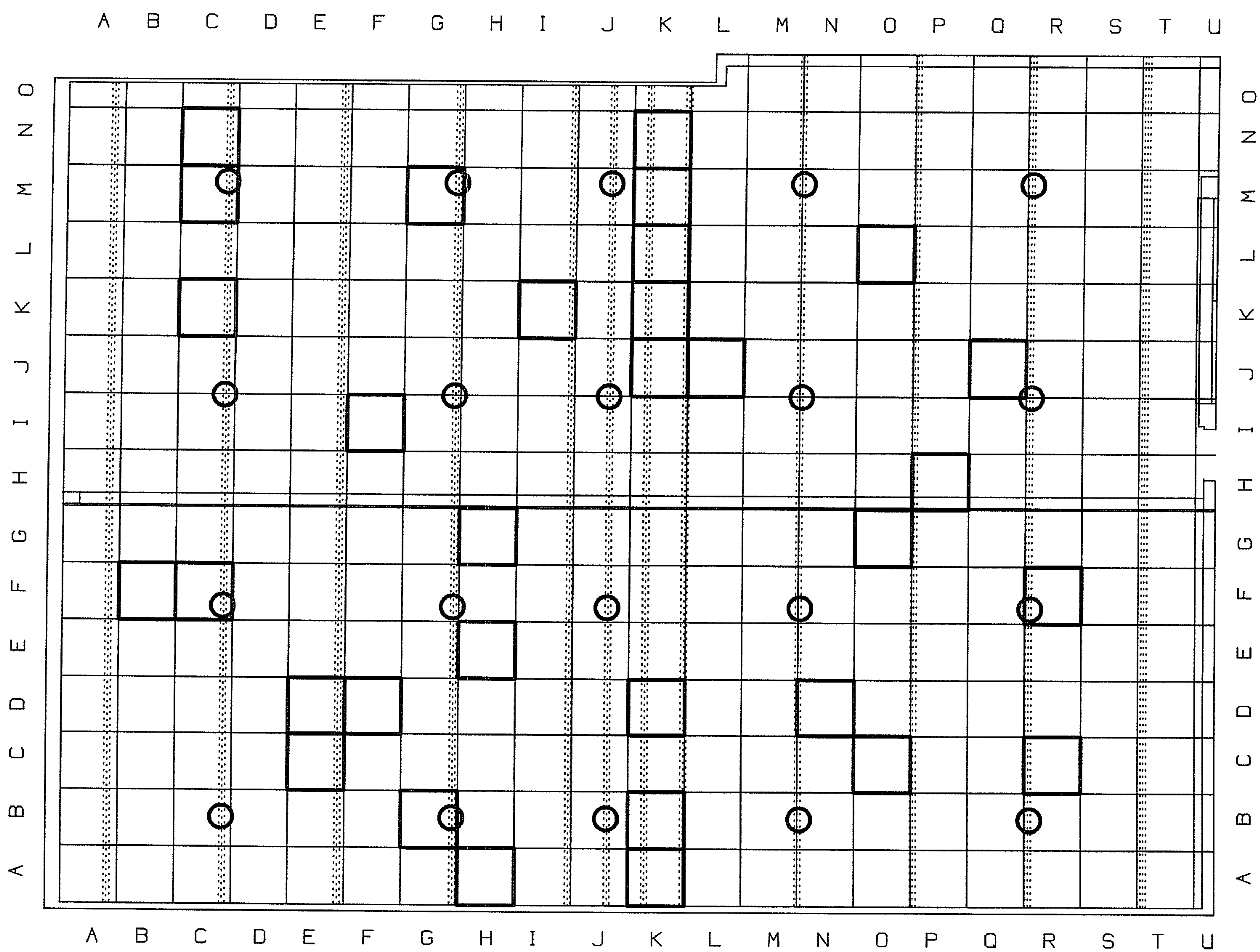
UNITECH SERVICES GROUP INC
FORMERLY INS
3050 UALENA ST.
SUITE #C
HONOLULU, HI 98618

MONITORED GRIDS SHOWN IN BOLD SQUARES
SELECTED AT RANDOM



EAST WALL SHOWING TRUCK AND PERSONNEL DOOR

C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\eastwall.gxd – 07/13/2008 – 00:11 AM – Scale 1 : 55.000

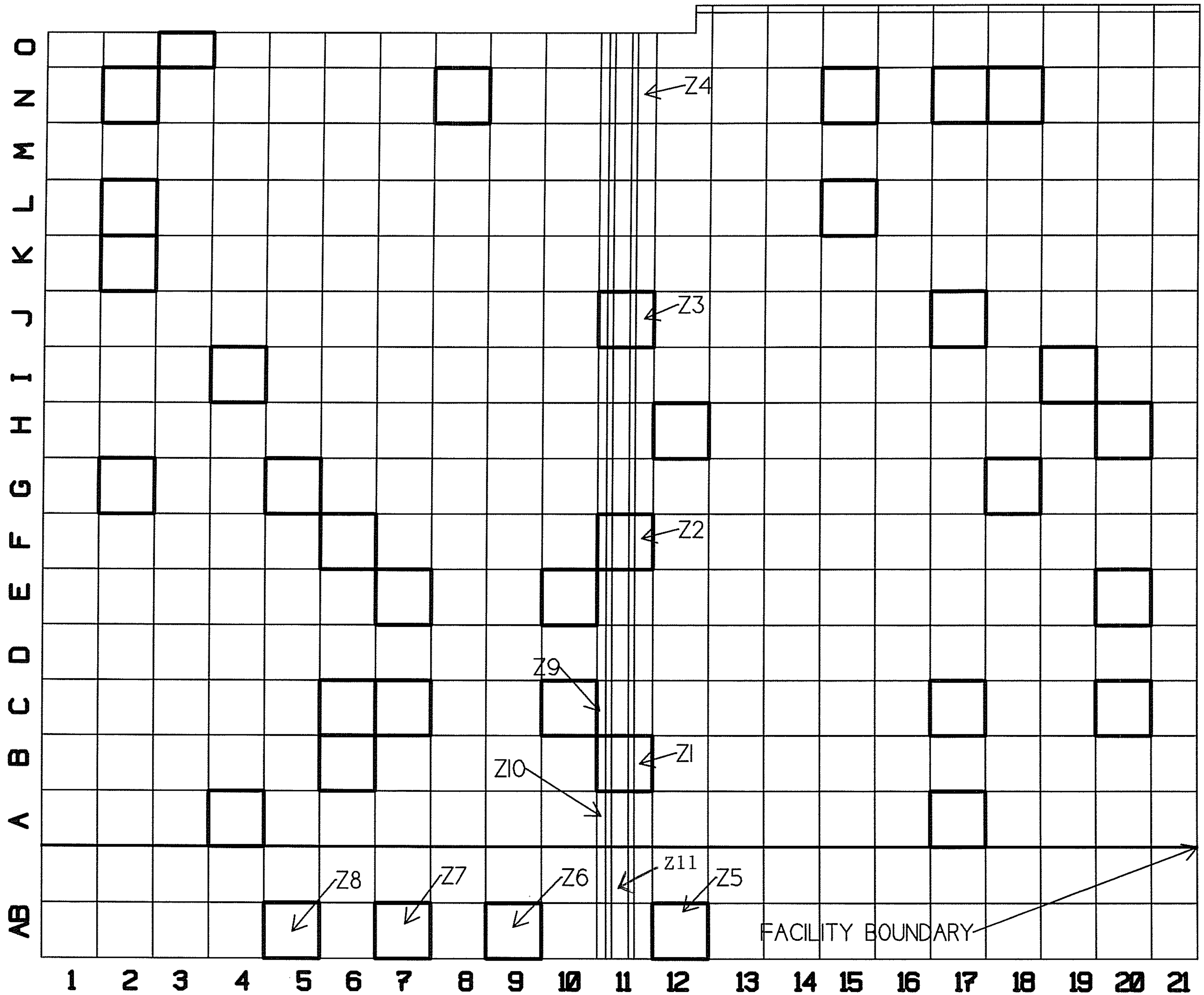


UNITECH SERVICES GROUP, INC., FORMERLY INS, 3050 UALENA ST., HONOLULU, HI 98316

NOTE: GRIDS WITH HEAVY OUTLINE SELECTED FOR SURVEY AT RANDOM TO COVER 10 PERCENT OF GRIDS.
SEVERAL GRIDS WERE ADDED FOR CONSERVATISM

CELLS ARE IDENTIFIED IN DOCUMENTATION BY VERTICAL GRID LETTER (A - U) FIRST.
FOLLOWED BY HORIZONTAL GRID (A-O) LETTER

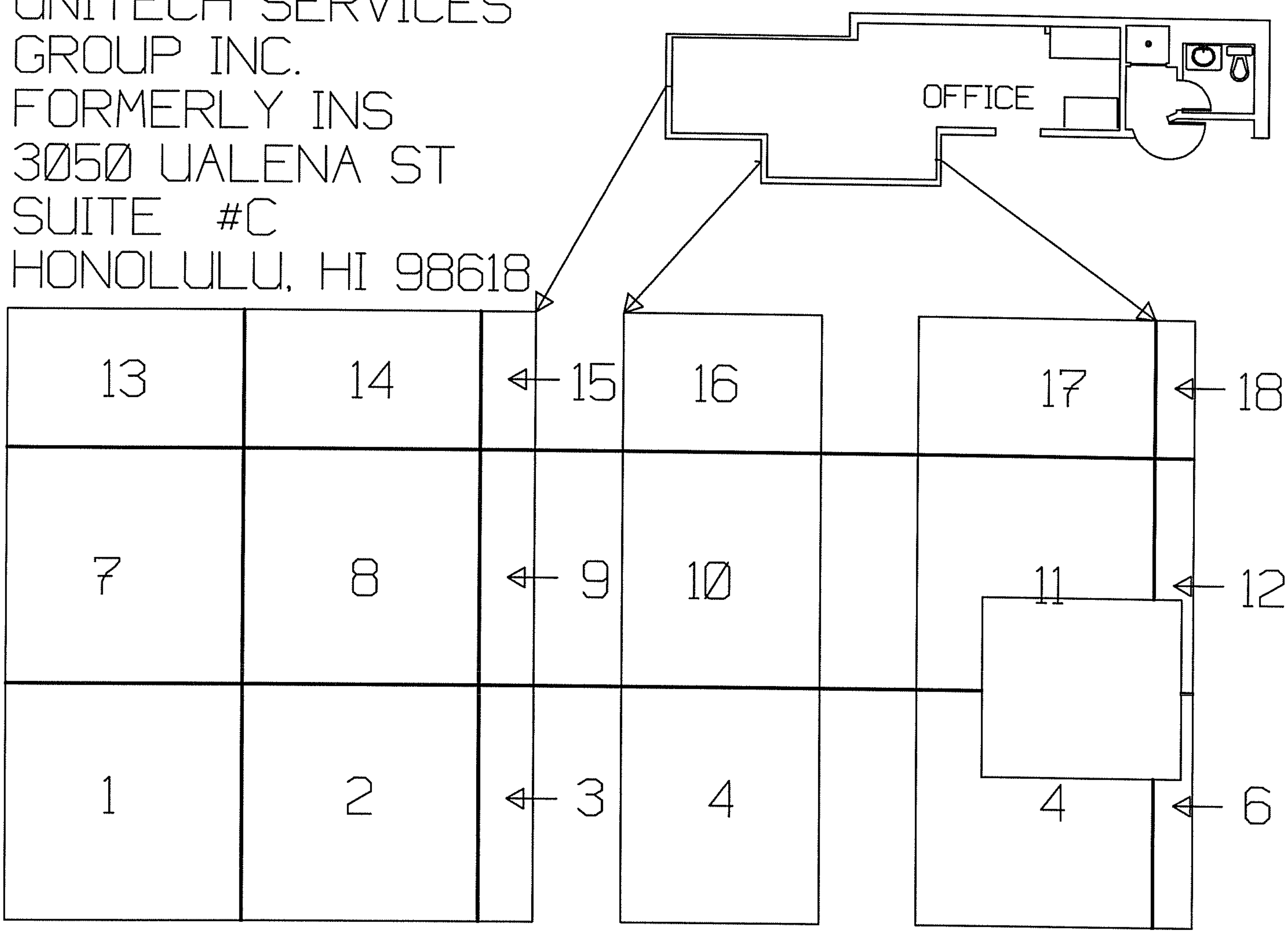
C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\ceilingGRID.gxd -- 07/12/2008 -- 11:56 PM -- Scale 1 : 90,000



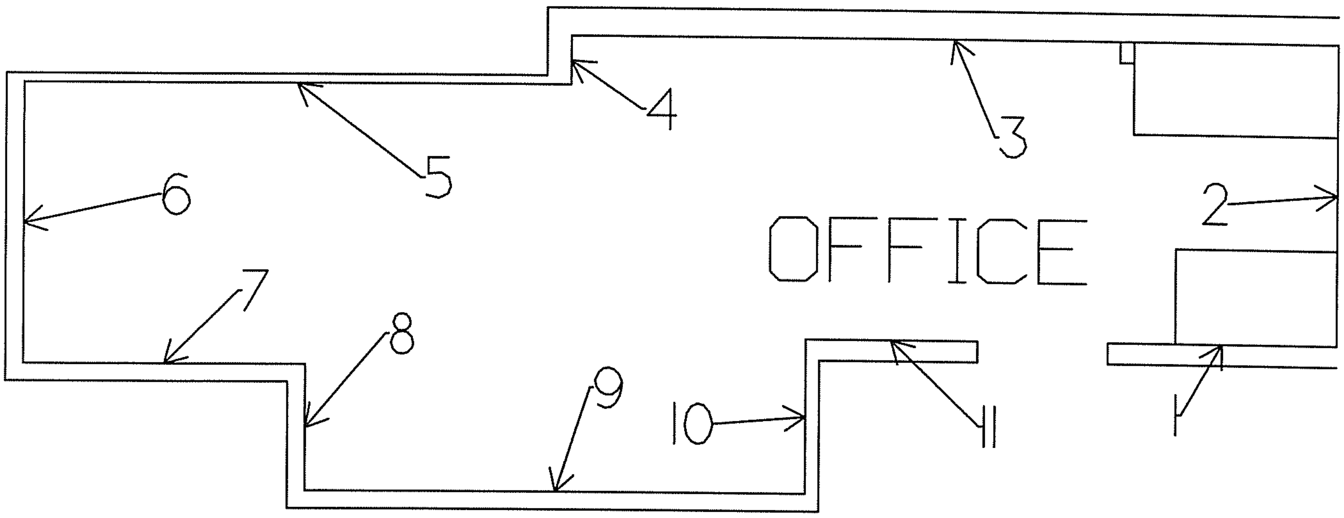
UNITECH SERVICES GROUP, INC.; FORMERLY INS; 3050 UALENA ST. HONOLULU, HI 98316
NOTE: GRIDS WITH HEAVY OUTLINE SELECTED AT RANDOM TO COVER 10 PERCENT OF GRIDS. SEVERAL GRIDS WERE ADDED FOR CONSERVATISM

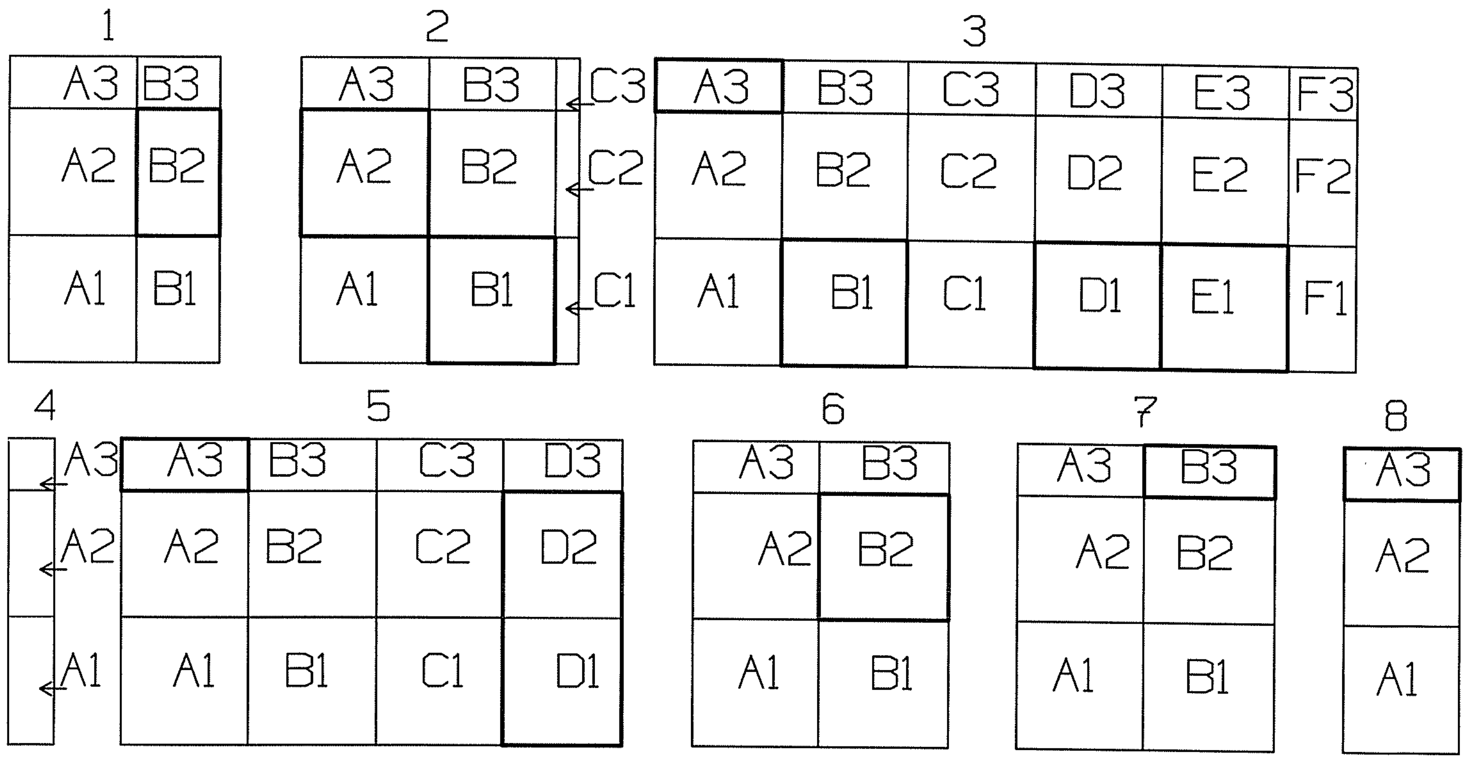
C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\roof.gxd -- 07/12/2008 -- 03:33 PM -- Scale 1 : 95,000

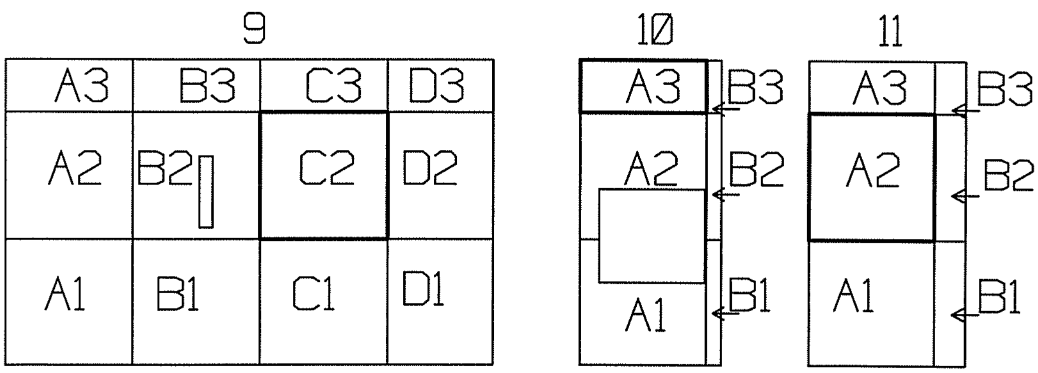
UNITECH SERVICES
GROUP INC.
FORMERLY INS
3050 UALENA ST
SUITE #C
HONOLULU, HI 98618



OFFICE AREA EXTERIOR EAST WEST FACING WALLS



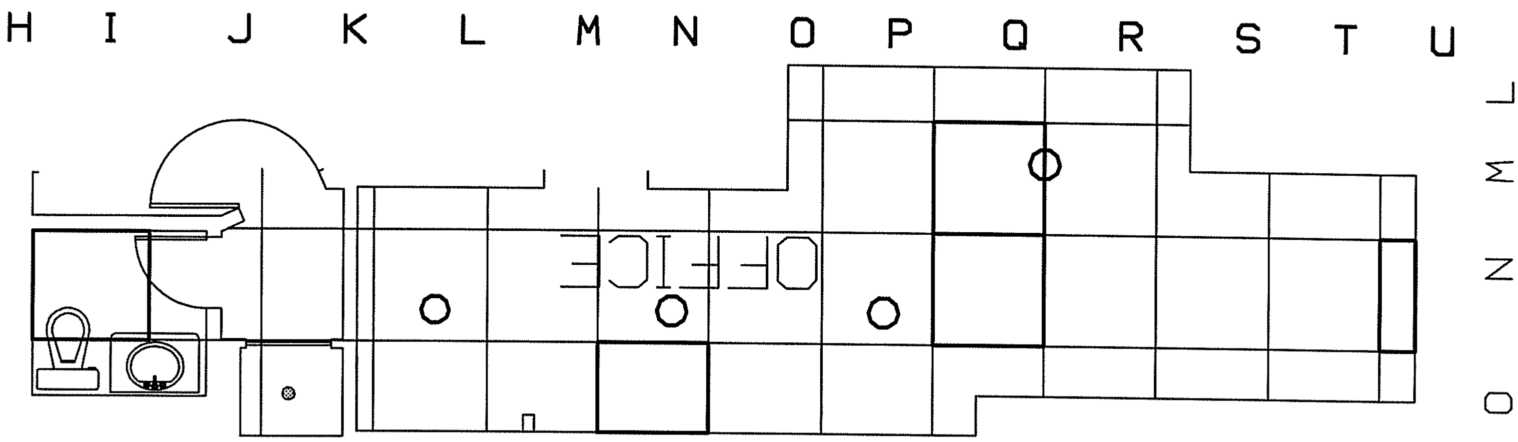




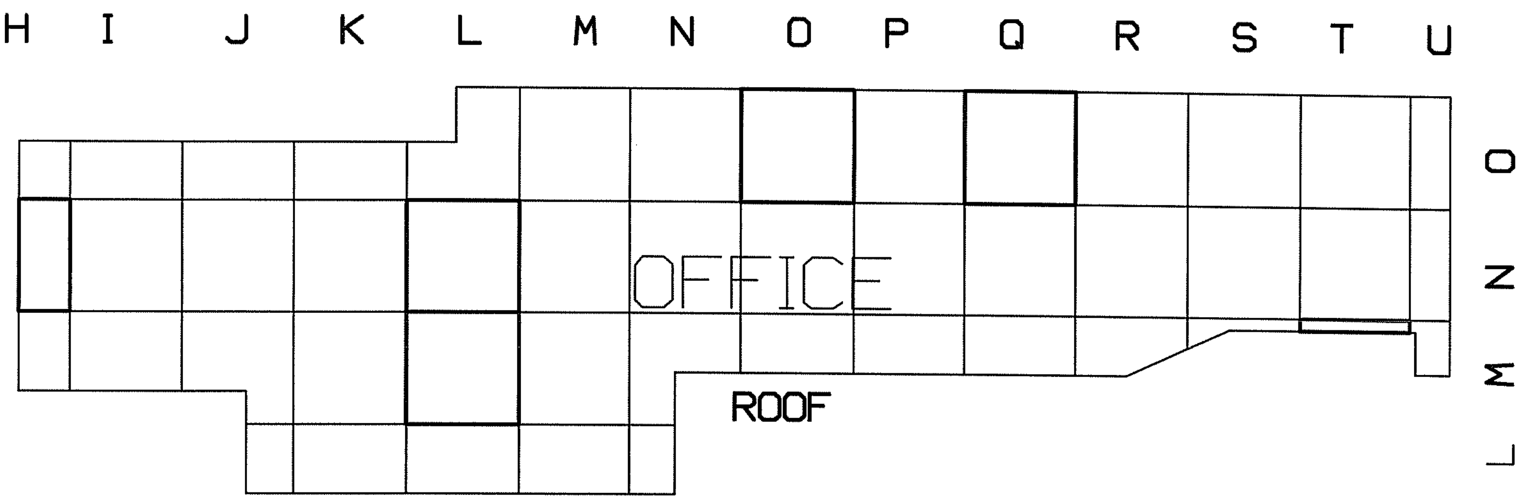
UINTECH SERVICES
GROUP INC
FORMERLY INS
3050 UALENA ST.
SUITE #C
HONLULU, HI 98316

NOTE: GRIDS WITH HEAVY OUTLINE SELECTED FOR SURVEY AT RANDOM TO COVER 10 PERCENT OF GRIDS. SEVERAL GRIDS WERE ADDED FOR CONSERVATISM

C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\OFFICEINTWALLS.gxd -- 07/13/2008 -- 00:02 AM -- Scale 1 : 63.000



CEILING

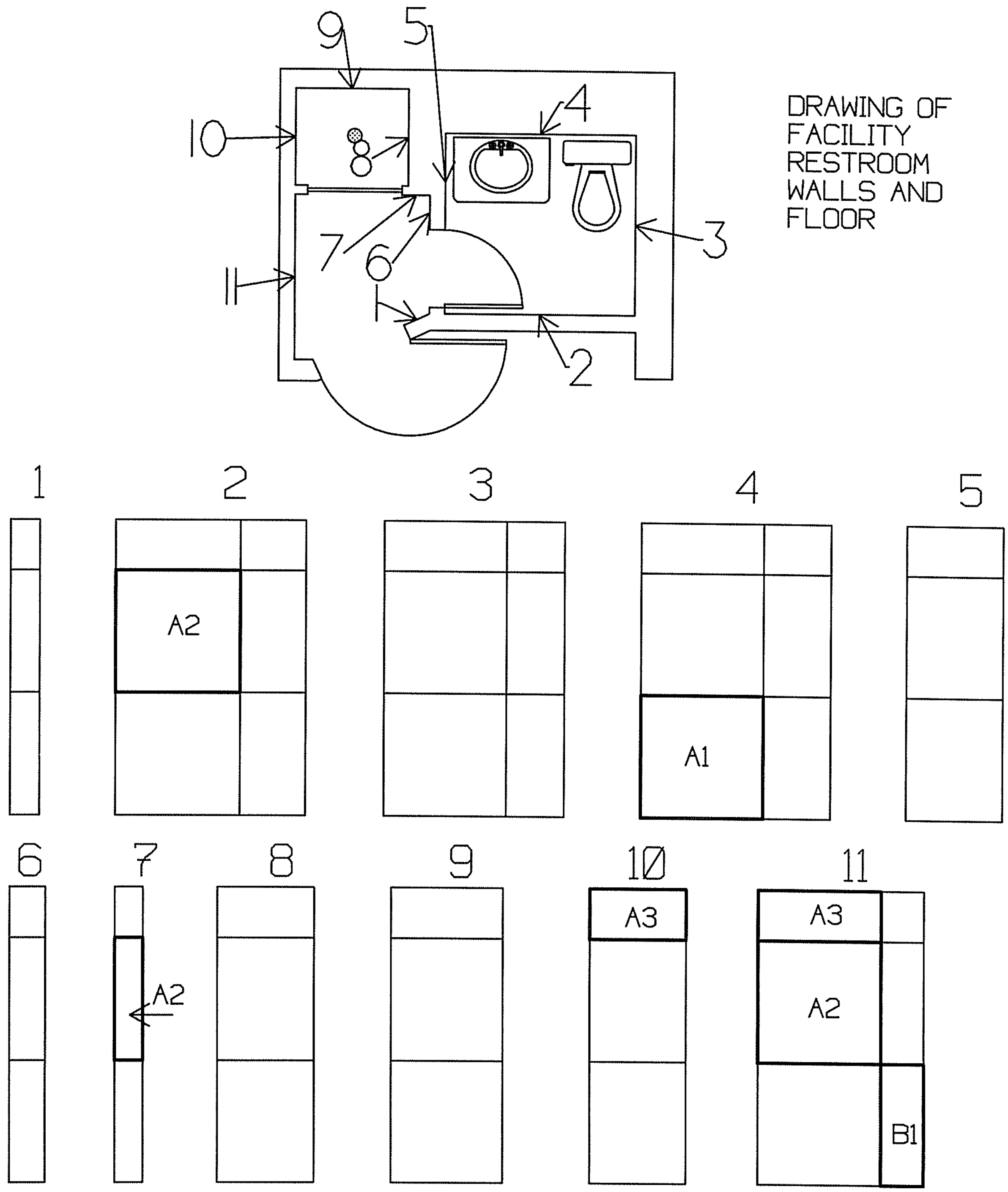


ROOF

UNITECH SERVICES GROUP INC., FORMERLY INS. 3050 UALENA ST.
HONOLULU, HI 98316

NOTE: GRIDS WITH HEAVY OUTLINE SELECTED FOR SURVEY AT RANDOM TO COVER 10 PERCENT OF GRIDS. SEVERAL GRIDS WERE ADDED FOR CONSERVATISM

C:\Documents and Settings\Michael Fuller\My Documents\Plants\151Honolulu\Drawings\officeROOFANDCEILING.gxd -- 07/11/2008 -- 10:28 PM -- Scale 1 : 65.000



DRAWING OF FACILITY RESTROOM WALLS AND FLOOR

UNITECH SERVICES GROUP, INC., 3050 UALENA ST., HONOLULU HI 98316
NOTE: GRIDS WITH HEAVY OUTLINE SELECTED FOR SURVEY AT RANDOM TO COVER 10 PERCENT OF GRIDS. SEVERAL GRIDS WERE ADDED FOR CONSERVATISM

ATTACHEMENT 3

Gamma Spectroscopy and

Radiochemistry Results

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-27685

August 18, 2008

Glenn Roberts
Unitech Services Group
401 North Third Avenue
Royersford, PA 19468

CASE NARRATIVE
Work Order # 08-07074-OR

SAMPLE RECEIPT

This work order contains two solid and three soil samples received 07/17/08. These samples were analyzed for Nickel-63 and by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
151-2008-01	08-07074-04	151-2008-04	08-07074-07
151-2008-02	08-07074-05	151-2008-07	08-07074-08
151-2008-03	08-07074-06		

ANALYTICAL METHODS

Nickel-63 was performed using Method ASTM 3500-Ni Modified. Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

NICKEL-63

Samples demonstrated non-detect equivalent results for Nickel-63 activity. Results for the Nickel-63 method blank demonstrated non-detect equivalent activity. Results for the Nickel-63 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Nickel-63 laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated non-detect equivalent to slightly positive results for Cobalt-60 activity. Samples demonstrated non-detect equivalent results for Cesium-137 activity. Samples demonstrated slightly positive results for Actinium-228, Potassium-40, Lead-212 and Thallium-208 activity. Samples demonstrated background equivalent to slightly positive results for Bismuth-214 and Lead-214 activity. Results for the Cobalt-60 and Cesium-137 method blank demonstrated non-detect equivalent activity.

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

Results for the Cobalt-60 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cesium-137 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 8/18/2008

Eberline Analytical
Final Report of Analysis

Report To:

Glenn Roberts
Unitech Services Group
401 North Third Avenue
Royersford, PA 19468

Work Order Details:

SDG: 08-07074
Purchase Order: H-7001
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
08-07074-01	LCS	KNOWN	07/17/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	2.96E+03	1.21E+02			pCi/g
08-07074-01	LCS	SPIKE	07/17/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	2.72E+03	2.08E+01	4.86E+01	6.57E+00	pCi/g
08-07074-02	MBL	BLANK	07/17/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	0.00E+00	3.64E+00	3.64E+00	6.22E+00	pCi/g
08-07074-03	DUP	151-2008-01	07/10/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	0.00E+00	3.78E+00	3.78E+00	6.46E+00	pCi/g
08-07074-04	DO	151-2008-01	07/10/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	6.99E+00	3.87E+00	3.87E+00	6.38E+00	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	-2.28E+00	3.61E+00	3.61E+00	6.25E+00	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	0.00E+00	3.86E+00	3.86E+00	6.60E+00	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	-2.05E+00	3.24E+00	3.24E+00	5.61E+00	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	8/8/2008	08-07074	Nickel-63	ASTM 3500-Ni Modified	-2.40E+00	3.79E+00	3.79E+00	6.56E+00	pCi/g
08-07074-01	LCS	KNOWN	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	1.25E+02	3.34E+00			pCi/g
08-07074-01	LCS	KNOWN	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	7.69E+01	2.14E+00			pCi/g
08-07074-01	LCS	SPIKE	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	1.28E+02	6.39E+00	6.39E+00	5.09E-01	pCi/g
08-07074-01	LCS	SPIKE	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	8.00E+01	5.68E+00	5.68E+00	4.37E-01	pCi/g
08-07074-02	MBL	BLANK	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	2.13E-03	1.17E-02	1.17E-02	2.59E-02	pCi/g
08-07074-02	MBL	BLANK	07/17/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	2.50E-03	1.39E-02	1.39E-02	2.82E-02	pCi/g
08-07074-03	DUP	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	1.72E+00	1.29E-01	1.29E-01	7.16E-02	pCi/g
08-07074-03	DUP	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	-1.78E-03	3.51E-02	3.51E-02	6.38E-02	pCi/g
08-07074-03	DUP	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	2.74E+00	7.16E-01	7.16E-01	4.05E-01	pCi/g
08-07074-04	DO	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	1.55E+00	1.21E-01	1.21E-01	6.02E-02	pCi/g
08-07074-04	DO	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	-7.84E-03	3.38E-02	3.38E-02	6.06E-02	pCi/g
08-07074-04	DO	151-2008-01	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	2.96E+00	6.86E-01	6.86E-01	3.86E-01	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Actinium-228	LANL ER-130 Modified	8.76E-01	1.93E-01	1.93E-01	2.03E-01	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Bismuth-214	LANL ER-130 Modified	2.24E-01	1.03E-01	1.03E-01	1.14E-01	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	3.08E-02	3.89E-02	3.89E-02	8.25E-02	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	-2.20E-03	3.83E-02	3.83E-02	7.14E-02	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	2.89E+00	8.52E-01	8.52E-01	5.15E-01	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-212	LANL ER-130 Modified	1.25E+00	8.99E-01	8.99E-01	8.15E-02	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-214	LANL ER-130 Modified	2.77E-01	9.84E-02	9.84E-02	1.10E-01	pCi/g
08-07074-05	TRG	151-2008-02	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Thallium-208	LANL ER-130 Modified	7.96E-01	1.49E-01	1.49E-01	1.94E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:

Glenn Roberts
Unitech Services Group
401 North Third Avenue
Royersford, PA 19468

Work Order Details:

SDG: 08-07074
Purchase Order: H-7001
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Actinium-228	LANL ER-130 Modified	1.01E+00	3.22E-01	3.22E-01	3.46E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Bismuth-214	LANL ER-130 Modified	4.28E-01	2.25E-01	2.25E-01	2.37E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	5.56E-02	7.18E-02	7.18E-02	1.48E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	2.45E-02	7.04E-02	7.04E-02	1.32E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	3.74E+00	1.30E+00	1.30E+00	1.13E+00	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-212	LANL ER-130 Modified	1.02E+00	2.34E-01	2.34E-01	1.55E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-214	LANL ER-130 Modified	4.79E-01	2.19E-01	2.19E-01	2.93E-01	pCi/g
08-07074-06	TRG	151-2008-03	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Thallium-208	LANL ER-130 Modified	6.01E-01	2.04E-01	2.04E-01	3.42E-01	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Actinium-228	LANL ER-130 Modified	8.06E-01	1.69E-01	1.69E-01	2.06E-01	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Bismuth-214	LANL ER-130 Modified	2.76E-01	1.02E-01	1.02E-01	1.26E-01	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	7.19E-03	3.33E-02	3.33E-02	6.74E-02	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	1.48E-02	4.18E-02	4.18E-02	7.44E-02	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	2.35E+00	6.91E-01	6.91E-01	5.99E-01	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-212	LANL ER-130 Modified	7.77E-01	1.08E-01	1.08E-01	8.36E-02	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-214	LANL ER-130 Modified	3.32E-01	8.47E-02	8.47E-02	1.17E-01	pCi/g
08-07074-07	TRG	151-2008-04	07/10/08 00:00	7/17/2008	7/21/2008	08-07074	Thallium-208	LANL ER-130 Modified	5.00E-01	1.33E-01	1.33E-01	1.54E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Actinium-228	LANL ER-130 Modified	9.90E-01	3.68E-01	3.68E-01	5.65E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Bismuth-214	LANL ER-130 Modified	7.42E-01	2.97E-01	2.97E-01	4.72E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Cobalt-60	LANL ER-130 Modified	7.45E-02	6.05E-02	6.05E-02	1.49E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Cesium-137	LANL ER-130 Modified	6.11E-02	8.51E-02	8.51E-02	1.65E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Potassium-40	LANL ER-130 Modified	3.86E+00	1.68E+00	1.68E+00	1.77E+00	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-212	LANL ER-130 Modified	1.28E+00	2.60E-01	2.60E-01	1.89E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Lead-214	LANL ER-130 Modified	5.08E-01	2.45E-01	2.45E-01	2.58E-01	pCi/g
08-07074-08	TRG	151-2008-07	07/12/08 00:00	7/17/2008	7/21/2008	08-07074	Thallium-208	LANL ER-130 Modified	8.29E-01	2.94E-01	2.94E-01	4.29E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

08.07074

SAMPLE SUBMISSION & CHAIN-OF-CUSTODY RECORD

LAB: ☐UniTech Springfield ☑ThermoNUtech ☐ Other: ______

SAMPLE IDENTIFICATION

4 Sample ID No.: 151-2008-001 (AK) UniTech Location: 151

Sample Matrix: ☐Water ☐ Air Filter(s) ☐ Soil ☐ Sludge ☐ Vegetation

☒ Other – Describe: FLOOR DRAIN DEBRIS

Sample/Weight Volume: ~450 ml Sample Containers (No., Size, Type): Marinelli

Sample Description: FLOOR DRAIN DEBRIS

SAMPLE COLLECTION

Start Date/Time: 7/10/08 Stop Date/Time: 7/10/08

Volume/Weight Represented by Sample (SPECIFY UNITS): NA.

ANALYSIS REQUEST

☐Alpha Spec (specify): ☐Uranium ☐ Thorium ☐ Plutonium/Neptunium ☐ Americium/Curium

☐ Other - ______

☐Beta Analysis (specify): ☐H-3 ☐ C-14 ☐ Fe-55 ☒ Ni-63 ☐ Sr-89/90 ☐ Tc-99 ☐ I-129

☐All listed above ☐ Other - ______

☑Gamma Spectroscopy ☐Gross Alpha ☐Gross Beta

☐UniTech Standard Waste Classification (LAB: Perform Spec and all Spec and Analysis listed above.)

LAB INSTRUCTIONS

Turn Around Time: ☐Standard - 28 days ☒ 21 days ☐ 14 days ☐ 7 days

Reporting Units: ☐µCi/ml ☒pCi/g ☐ µCi/cc ☐ Other - ______

Required Detection Limit (units as specified above) Environmental.

Special Instructions: HOLD FOR DISPOSAL PERMISSION - 60 DAYS

Email Final to GRoberts @ UniTech.ws

LAB USE ONLY

Samples received in good condition with tape seal intact? ☑Yes ☐ No

Note all discrepancies: ______

UNITECH GAMMA SPEC

Sample Analyzed By: ______ Results Reviewed By: ______

Chain-of-Custody

Relinquished by	Received by	Reason	Date/Time
G Roberts (signature)		Shipment	7/15/08 11:00
	(signature)	Analysis	7/17/08 0900

Shipment Information

Carrier: Fed-X Tracking No.: ______

RP-008-02 Rev. 2 (01/01)

RECEIVED
JUL 17 2008
BY: KF

08.07074

SAMPLE SUBMISSION & CHAIN-OF-CUSTODY RECORD

LAB: ☐UniTech Springfield ☑ThermoNUtech ☐ Other: ____

SAMPLE IDENTIFICATION

5 Sample ID No.: 151-2008-02 UniTech Location: 151
Sample Matrix: ☐Water ☐ Air Filter(s) ☑ Soil ☐ Sludge ☐ Vegetation
☐ Other – Describe: EQ PIT BORE – DIRT
Sample/Weight Volume: 500 ml Sample Containers (No., Size, Type): Marinelli

Sample Description: EQ PIT BORE – DIRT

SAMPLE COLLECTION

Start Date/Time: 7/10/08 Stop Date/Time: 7/10/08
Volume/Weight Represented by Sample (SPECIFY UNITS): NA

ANALYSIS REQUEST

☐Alpha Spec (specify): ☐Uranium ☐ Thorium ☐ Plutonium/Neptunium ☐ Americium/Curium
☐ Other - ____
☐Beta Analysis (specify): ☐H-3 ☐ C-14 ☐ Fe-55 ☒ Ni-63 ☐ Sr-89/90 ☐ Tc-99 ☐ I-129
☐All listed above ☐ Other - ____
☒Gamma Spectroscopy ☐Gross Alpha ☐Gross Beta
☐UniTech Standard Waste Classification (LAB: Perform Spec and all Spec and Analysis listed above.)

LAB INSTRUCTIONS

Turn Around Time: ☐Standard - 28 days ☒ 21 days ☐ 14 days ☐ 7 days
Reporting Units: ☐μCi/ml ☒ pCi/g ☐ μCi/cc ☐ Other - ____
Required Detection Limit (units as specified above) Env.
Special Instructions: HOLD 60 DAYS FROM REPORT

LAB USE ONLY

Samples received in good condition with tape seal intact? ☒Yes ☐ No
Note all discrepancies: ____

UNITECH GAMMA SPEC

Sample Analyzed By: ____ Results Reviewed By: ____

Chain-of-Custody

Relinquished by	Received by	Reason	Date/Time
[signature]	[signature]	Shipment	7/15/08 11:00
	[signature]	Analysis	7/17/08 0900

Shipment Information

Carrier: Fed-X Tracking No.: ____

RP-008-02 Rev. 2 (01/01)

RECEIVED
JUL 17 2008
BY: KF

08.07074

SAMPLE SUBMISSION & CHAIN-OF-CUSTODY RECORD

LAB: ☐UniTech Springfield ☒ThermoNUtech ☐ Other: ____

SAMPLE IDENTIFICATION

6 Sample ID No.: 151-2008-03 UniTech Location: 151

Sample Matrix: ☐Water ☐ Air Filter(s) ☒Soil ☐ Sludge ☐ Vegetation

☐ Other – Describe: ____

Sample/Weight Volume: 500 ml Sample Containers (No., Size, Type): Marinelli

Sample Description: DISCHARGE PIT BORE-DIRT

SAMPLE COLLECTION

Start Date/Time: 7/10/08 Stop Date/Time: 7/10/08.

Volume/Weight Represented by Sample (SPECIFY UNITS): NA

ANALYSIS REQUEST

☐Alpha Spec (specify): ☐Uranium ☐ Thorium ☐ Plutonium/Neptunium ☐ Americium/Curium

☐ Other - ____

☐Beta Analysis (specify): ☐H-3 ☐ C-14 ☐ Fe-55 ☒ Ni-63 ☐ Sr-89/90 ☐ Tc-99 ☐ I-129

☐All listed above ☐ Other - ____

☒Gamma Spectroscopy ☐Gross Alpha ☐Gross Beta

☐UniTech Standard Waste Classification (LAB: Perform Spec and all Spec and Analysis listed above.)

LAB INSTRUCTIONS

Turn Around Time: ☐Standard - 28 days ☒ 21 days ☐ 14 days ☐ 7 days

Reporting Units: ☐μCi/ml ☒ pCi/g ☐ μCi/cc ☐ Other - ____

Required Detection Limit (units as specified above) Env.

Special Instructions: HOLD 60 DAYS FROM REPORT.

LAB USE ONLY

Samples received in good condition with tape seal intact? ☒Yes ☐ No

Note all discrepancies: ____

UNITECH GAMMA SPEC

Sample Analyzed By: ____ Results Reviewed By: ____

Chain-of-Custody

Relinquished by	Received by	Reason	Date/Time
D Roberts	[signature]	Shipment	7/15/08 11:00
	[signature]	Analysis	7/17/08 0900

Shipment Information

Carrier: Fed-X Tracking No.: ____

RP-008-02 Rev. 2 (01/01)

RECEIVED
JUL 17 2008
BY: KF

08.07074

SAMPLE SUBMISSION & CHAIN-OF-CUSTODY RECORD

LAB: ☐UniTech Springfield ☒ThermoNUtech ☐ Other: ______

SAMPLE IDENTIFICATION

7 Sample ID No.: 151-2008-04 UniTech Location: 151

Sample Matrix: ☐Water ☐ Air Filter(s) ☐ Soil ☐ Sludge ☐ Vegetation

☒ Other – Describe: CONCRETE

Sample/Weight Volume: ______ Sample Containers (No., Size, Type): ______

Sample Description: TRENCH BORE

SAMPLE COLLECTION

Start Date/Time: 7/10/08 Stop Date/Time: 7/10/08

Volume/Weight Represented by Sample (SPECIFY UNITS): NA

ANALYSIS REQUEST

☐Alpha Spec (specify): ☐Uranium ☐ Thorium ☐ Plutonium/Neptunium ☐ Americium/Curium

☐ Other - ______

☐Beta Analysis (specify): ☐H-3 ☐ C-14 ☐ Fe-55 ☒ Ni-63 ☐ Sr-89/90 ☐ Tc-99 ☐ I-129

☐All listed above ☐ Other - ______

☒Gamma Spectroscopy ☐Gross Alpha ☐Gross Beta

☐UniTech Standard Waste Classification (LAB: Perform Spec and all Spec and Analysis listed above.)

LAB INSTRUCTIONS

Turn Around Time: ☐Standard - 28 days ☒21 days ☐ 14 days ☐ 7 days

Reporting Units: ☐µCi/ml ☒ pCi/g ☐ µCi/cc ☐ Other - ______

Required Detection Limit (units as specified above) ENV.

Special Instructions: PULVERIZE - HOLD 60 DAYS.

LAB USE ONLY

Samples received in good condition with tape seal intact? ☒Yes ☐ No

Note all discrepancies: ______

UNITECH GAMMA SPEC

Sample Analyzed By: ______ Results Reviewed By: ______

Chain-of-Custody

Relinquished by	Received by	Reason	Date/Time
[signature]	[signature]	Shipment	7/15/08 11:00
		Analysis	7/17/08 0900

Shipment Information

Carrier: Fed-X Tracking No.: ______

RP-008-02 Rev. 2 (01/01)

RECEIVED
JUL 17 2008
BY: KF

08.07074

SAMPLE SUBMISSION & CHAIN-OF-CUSTODY RECORD

LAB: ☐UniTech Springfield ☒ThermoNUtech ☐ Other: ____

SAMPLE IDENTIFICATION

8 Sample ID No.: 151-2008-07 UniTech Location: ____

Sample Matrix: ☐Water ☐ Air Filter(s) ☒Soil ☐ Sludge ☐ Vegetation

☐ Other – Describe: ____

Sample/Weight Volume: ____ Sample Containers (No., Size, Type): 1 Marinelli

Sample Description: ____

SAMPLE COLLECTION

Start Date/Time: 7/12/08 Stop Date/Time: 7/12/08.

Volume/Weight Represented by Sample (SPECIFY UNITS): ____

ANALYSIS REQUEST

☐Alpha Spec (specify): ☐Uranium ☐ Thorium ☐ Plutonium/Neptunium ☐ Americium/Curium

☐ Other - ____

☒Beta Analysis (specify): ☐H-3 ☐ C-14 ☐ Fe-55 ☒ Ni-63 ☐ Sr-89/90 ☐ Tc-99 ☐ I-129

☐All listed above ☐ Other - ____

☒Gamma Spectroscopy ☐Gross Alpha ☐Gross Beta

☐UniTech Standard Waste Classification (LAB: Perform Spec and all Spec and Analysis listed above.)

LAB INSTRUCTIONS

Turn Around Time: ☐Standard - 28 days ☒21 days ☐ 14 days ☐ 7 days

Reporting Units: ☐µCi/ml ☒pCi/g ☐ µCi/cc ☐ Other - ____

Required Detection Limit (units as specified above) ____

Special Instructions: ____

LAB USE ONLY

Samples received in good condition with tape seal intact? ☒Yes ☐ No

Note all discrepancies: ____

UNITECH GAMMA SPEC

Sample Analyzed By: ____ Results Reviewed By: ____

Chain-of-Custody

Relinquished by	Received by	Reason	Date/Time
[signature]		Shipment	7/15/08 11:00
	[signature]	Analysis	7/17/08 0900

Shipment Information

Carrier: ____ Tracking No.: ____

RP-008-02 Rev. 2 (01/01)

RECEIVED
JUL 17 2008
BY: KF

ATTACHMENT 4

NRC Form 314

(Letter and Attachments Submitted 5 August 2008,

Supplemented with Consignee Signed Manifest No. 151-2008-WST-TX1)

UniTech Services Group
A SUBSIDIARY OF UNIFIRST CORPORATION

August 5, 2008

Mr. Bob Evans
Senior Health Physicist
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Re: License No. 53-13668-01 – Certificate of Disposition of Materials

Dear Mr. Evans,

Thank you for taking the time to speak with me yesterday on the phone regarding the status of the referenced facility. During our most recent decommissioning trip, all radioactive materials were shipped from the facility and Final Status Surveys were conducted.

There were three shipments of materials to licensed waste processors. Two of those shipments have been delivered as documented on the enclosed signed manifests. The third shipment is en route, currently by rail, and should be delivered by early next week. The results of the final status surveys confirm that the facility meets the criteria for unrestricted release and is ALARA.

This information is being submitted in advance of the Final Status Survey Report (FSSR), expected to be submitted in the next few weeks, in the event that this information, along with the independent surveys already performed by the NRC, will enable NRC's preliminary efforts on the Environmental Assessment (EA). UniTech understands that final review of the EA may not occur prior to submission of the FSSR. UniTech wishes to have the license terminated before December 31, 2008, and respectfully requests any attention and effort that might be devoted to this matter.

Thank you for your consideration. If you have any questions, please contact me at your earliest convenience at 610-948-9700, extension 19, or by email at GRoberts@UniTech.ws.

Sincerely,

UniTech Services Group, Inc.

Glenn Roberts
Health Physicist

cc: Michael R, Fuller, Esq., Manager, Health Physics and Engineering

NRC FORM 314 (4-2008)
10 CFR 30.36(j)(1); 40.42(j)(1); 70.38(j)(1); and 72.54(k)(5)(1)(1)

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF DISPOSITION OF MATERIALS

APPROVED BY OMB: NO. 3150-0028 EXPIRES: 08/31/2010

LICENSEE NAME AND ADDRESS	LICENSE NUMBER	DOCKET NUMBER
UniTech Services Group, Inc. 3050 Ualena Street, Suite C Honolulu, HI 96819	53-13668-01	030-06869
	LICENSE EXPIRATION DATE: 06/30/2015	

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

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

B. DISPOSAL OF RADIOACTIVE MATERIAL

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

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

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

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

☑ a. Transfer of radioactive materials to the licensee listed below:

☐ b. Disposal of radioactive materials:

☐ 1. Directly by the licensee:

☐ 2. By licensed disposal site:

☐ 3. By waste contractor:

2 Shipments to: Perma-Fix Northwest
2025 Battelle Boulevard
Richland, WA 99354
ATTN: Larry Morin
509-375-7046
WA DOH License No. WN-I0393-1

1 Shipment to: TOXCO Materials Management
109 Flint Road
Oak Ridge, TN 37830
ATTN: George Barnett
865-482-5532

All shipments were Class AU, 2 below DOT regulated shipment.

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

C. SURVEYS PERFORMED AND REPORTED

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

☑ a. the absence of licensed radioactive materials

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

☑ 2. A copy of the radiation survey results:

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

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

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

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

NAME	TITLE	TELEPHONE (*Include Area Code*)	E-MAIL ADDRESS
Glenn Roberts	Health Physicist	(610) 948-9700	GRoberts@UniTech.ws

Mail all future correspondence regarding this license to:

C. CERTIFYING OFFICIAL

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

PRINTED NAME AND TITLE	SIGNATURE	DATE
Glenn Roberts, Health Physicist	[signature]	08/05/2008

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

APPROVED BY OMB: NO. 3150-0164 EXPIRES: 05/30/2007

Estimated burden per response to comply with this information collection request: 45 minutes. This uniform manifest is required by NRC to meet reporting requirements of Federal and State Agencies for the safe transportation and disposal of low-level waste. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0164), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 540 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): Chemtrek
ORGANIZATION: 800-424-9300
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☐ YES ☑ NO
3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 3
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number
EPA MANIFEST NUMBER: NA

5. SHIPPER – NAME AND FACILITY: UniTech Services Group, Inc. - Loc. No. 151, 3050 Ualena Street, Suite #C, Honolulu, HI 96819
SHIPPER I.D. NUMBER: 151-2008-WST-PF2
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) I
USER PERMIT NUMBER: NA
SHIPMENT NUMBER: 151-2008-WST-PF2
CONTACT: Glenn Roberts
TELEPHONE NUMBER (Include Area Code): 610-960-2078

6. CARRIER – Name and Address: Various, See Addition Documents
EPA I.D. NUMBER: NA
SHIPPING DATE:
CONTACT: Glenn Roberts
TELEPHONE NUMBER (Include Area Code): 610-960-2078
SIGNATURE – Authorized carrier acknowledging waste receipt
DATE

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 151-2008-WST-PF2 CCW08-114

9. CONSIGNEE – Name and Facility Address: Perma-Fix North West, 2025 Battelle Road, Richland, WA 99345
CONTACT: Larry Morin
TELEPHONE NUMBER (Include Area Code): 509-375-7046
SIGNATURE – Authorized consignee acknowledging waste receipt: [signature]
DATE: 7-16-08

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: Glen Roberts
TITLE: Health
DATE: 7/10/08

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, excepted package-limited quantity of material, 7, UN 2910	NA	NA	Solid Metallic Oxides, et.al.	Co-60 Ni-63 U-238	2.5345E+01	NA	380 LBS; 7.5 FT3	151-2008-01
Radioactive material, excepted package-limited quantity of material, 7, UN 2910	NA	NA	Solid Metallic Oxides, et.al.	Co-60 Ni-63 U-238	2.2237E+01	NA	340 LBS; 7.5 FT3	151-2008-02
Radioactive material, excepted package-limited quantity of material, 7, UN 2910	NA	NA	Solid Metallic Oxides, et.al.	Co-60 Ni-63 U-238	7.5850E-01	NA	150 LBS; 7.5 FT3	151-2008-03

FOR CONSIGNEE USE ONLY

Transporter: Cast Transport
Richland, Wa 99352
Driver [signature] Date 7-16-08

NRC FORM 540 (6-2004)

NRC FORM 540 (6-2004)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0164 EXPIRES: 06/30/2007

Estimated burden per response to comply with this information collection request: 45 minutes. This uniform manifest is required by NRC to meet reporting requirements of Federal and State Agencies for the safe transportation and disposal of low-level waste. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0164), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): Chemtrek
ORGANIZATION: 800-424-9300

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☐ YES ☑ NO

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

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "yes," provide Manifest Number
EPA MANIFEST NUMBER:

5. SHIPPER – NAME AND FACILITY: UniTech Services Group, Inc. - Loc. No. 151, 3050 Ualena Street, Suite #C, Honolulu, HI 96819
USER PERMIT NUMBER: NA
SHIPMENT NUMBER: 151-2008-WST-PF1
CONTACT: Glenn Roberts
SHIPPER I.D. NUMBER: 151-2008-WST-PF1
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) I
TELEPHONE NUMBER (Include Area Code): 610-960-2078

6. CARRIER – Name and Address: Various, See Addition Documents
EPA I.D. NUMBER: NA
SHIPPING DATE: 07/09/2008
CONTACT: Glenn Roberts
TELEPHONE NUMBER (Include Area Code): 610-960-2078
SIGNATURE – Authorized carrier acknowledging waste receipt
DATE

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 151-2008-WST-PF1 ccw08-115

9. CONSIGNEE – Name and Facility Address: Perma-Fix North West, 2025 Battelle Road, Richland, WA 99346
CONTACT: Larry Morin
TELEPHONE NUMBER (Include Area Code): 509-375-7046
SIGNATURE – Authorized consignee acknowledging waste receipt: [signature]
DATE: 7-22-08

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.
AUTHORIZED SIGNATURE: [signature]
TITLE: Health Physicist
DATE: 7/9/08

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Non Regulated Shipment (Ref. 49CFR173.403)	NA	NA	Solid Metallic Oxides, et.al.	Co-60	Ni-63	U-238		3.1870E-01	NA	10810 LBS; 1280 FT3	836879

FOR CONSIGNEE USE ONLY

Cast - 1232 / 051
Y-8-1 Y-8-2

2nd Transporter: Cast Transport
P.O. Box 98
Richland, Wa 99352

Driver [signature] Date 7-22-08

NRC FORM 540 (6-2004)

APPROVED BY OMB: NO. 3150-0164
EXPIRES: 06/30/2007

NRC FORM 540 (6-2004) — U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800-424-9300

ORGANIZATION: Chemtrek

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☐ YES ☑ NO

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

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? ☐ YES ☑ NO
If "Yes," provide Manifest Number ⟹ EPA MANIFEST NUMBER: NA AR

5. SHIPPER – NAME AND FACILITY: UniTech Services Group, Inc. - Loc. No. 151, 3050 Ualena Street, Suite #C, Honolulu, HI 96819

SHIPPER I.D. NUMBER: 151-2008-WST-TX1
☐ COLLECTOR
☐ PROCESSOR
☑ GENERATOR TYPE (Specify) I

USER PERMIT NUMBER: NA
SHIPMENT NUMBER: 151-2008-WST-TX1

CONTACT: Glenn Roberts
TELEPHONE NUMBER (Include Area Code): 610-960-2078

6. CARRIER – Name and Address: Various, See Addition Documents
EPA I.D. NUMBER: NA
SHIPPING DATE: 07/09/2008
CONTACT: Glenn Roberts
TELEPHONE NUMBER (Include Area Code): 610-960-2078
SIGNATURE – *Authorized carrier acknowledging waste receipt*: NA AR
DATE: AR NA

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 151-2008-WST-TX1

9. CONSIGNEE - Name and Facility Address: **Toxco Materials Management Center, 109 Flint Road, Oak Ridge, TN 37830**
CONTACT: George Barnet
TELEPHONE NUMBER (Include Area Code): 865-482-5532, x23
SIGNATURE – *Authorized consignee acknowledging waste receipt*
DATE

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: [signature] TITLE: Health Physicist DATE: 7/9/08

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES				16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Non Regulated Shipment (Ref. 49CFR173.403)	NA	NA	Solid Metallic Oxides, et.al.	Co-60	Ni-63	U-238		6.1789E-01	NA	19810 LBS; 1280 FT3	836855

FOR CONSIGNEE USE ONLY

APPROVED BY OMB: NO. 3150-0164 EXPIRES: 06/30/2007

Estimated burden per response to comply with this information collection request: 45 minutes. This uniform manifest is required by NRC to meet reporting requirements of Federal and State Agencies for the safe transportation and disposal of low-level waste. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0164), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC FORM 540 (6-2004) — U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 800-424-9300

ORGANIZATION: Chemtrec

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? ☐ YES ☑ NO

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

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number ☐ YES ☑ NO

EPA MANIFEST NUMBER:

5. SHIPPER – NAME AND FACILITY: UniTech Services Group, Inc. - Loc. No. 151, 3060 Ualena Street, Suite #C, Honolulu, HI 96819

SHIPPER I.D. NUMBER: 151-2008-WST-TX1

☐ COLLECTOR

☐ PROCESSOR

☑ GENERATOR TYPE (Specify) 1

USER PERMIT NUMBER: NA

SHIPMENT NUMBER: 151-2008-WST-TX1

CONTACT: Glenn Roberts

TELEPHONE NUMBER (Include Area Code): [illegible]

6. CARRIER – Name and Address: Various, See Addition Documents

EPA I.D. NUMBER: NA

SHIPPING DATE: 07/08/2008

CONTACT: Glenn Roberts

TELEPHONE NUMBER (Include Area Code): [illegible]

SIGNATURE – Authorized carrier acknowledging waste receipt:

DATE:

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — 1 PAGE(S)
NRC FORM 542 AND 542A — None PAGE(S)
ADDITIONAL INFORMATION — None PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): 151-2008-WST-TX1

9. CONSIGNEE – Name and Facility Address: Toxco Materials Management Center, 109 Flint Road, Oak Ridge, TN 37830

CONTACT: George Barnet

TELEPHONE NUMBER (Include Area Code): 865-482-5532, x23

SIGNATURE – Authorized consignee acknowledging waste receipt: [signature]

DATE: [illegible]

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the applicable requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: Glen Roberts (signature)

TITLE: Health Physicist

DATE: 7/9/08

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY (MBq)	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Non Regulated Shipment (Ref. 49CFR173.403)	NA	NA	Solid Metallic Oxides, et.al.	Co-60 Ni-63 U-238	6.1789E-01	NA	19810 LBS; 1280 FT3	836855

FOR CONSIGNEE USE ONLY

A08146

NRC FORM 540 (6-2004)