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Criticality alarm system design guide with accompanying alarm system development for the Radiochemical Processing Laboratory in Richland, Washington

Bryce Greenfield

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**CRITICALITY ALARM SYSTEM DESIGN GUIDE WITH
ACCOMPANYING ALARM SYSTEM DEVELOPMENT FOR
THE RADIOCHEMICAL PROCESSING LABORATORY IN
RICHLAND, WASHINGTON**

BY

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UNIVERSITY OF NEW MEXICO
2007**

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Master of Science
Nuclear Engineering**

The University of New Mexico
Albuquerque, New Mexico

December, 2009

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ABSTRACT

A detailed instructional manual was created to guide criticality safety engineers through the process of designing a criticality alarm system (CAS) for Department of Energy (DOE) hazard class 1 and 2 facilities. Regulatory and technical requirements were both addressed. A list of design tasks and technical subtasks was compiled and analyzed to provide concise direction for how to complete the analysis.

An example of the application of the design methodology, the Criticality Alarm System developed for the Radiochemical Processing Laboratory (RPL) of Richland, Washington is also included. The analysis for RPL utilized the Monte Carlo code MCNP5 for establishing detector coverage in the facility. Based on the design methodology, significant improvements to the existing CAS were made that increase the reliability, transparency, and coverage of the system.

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Chapter 1 – Introduction

There are a variety of hazards facing those who work with fissile material; the most severe of those hazards is a runaway chain reaction known as a criticality accident. A criticality accident can release enormous amounts of radiation that may injure or kill those who are near it. Great care is taken to minimize the chance of a criticality accident occurring, but the possibility cannot be totally eliminated. Therefore it is this minimal possibility that must be accepted and planned for.

One way to lessen the potential impact of an accident event is to install a Criticality Alarm System. The purpose of a CAS is to promptly detect a criticality accident and immediately issue an audible evacuation warning to personnel. It has been shown that rapid evacuation away from criticality accidents can considerably reduce the dose received by personnel (McLaughlin et al., 2000). Getting people out quickly can decrease injury and save lives. This is the motivation to design and implement detection systems in facilities where accidents could occur. Federal standards exist that establish the performance requirements of these systems and discuss their applicability. But nowhere, be it federal or private, is there a standard on how to design them. Currently, there exists no consolidated body of work that addresses how to design a CAS. Because these alarm systems have the potential to save lives, it is of the utmost importance that they be rigorously designed. It is the focus of this thesis to provide an instructional guide for the design of a robust CAS that will perform its functions with the highest reliability.

All non-reactor facilities that handle greater than or equal to:

- 700g of ^{235}U
- 500g of ^{233}U
- 450g of ^{239}Pu
- 450g of any combination of these three isotopes

are required by the Department of Energy to install and operate a criticality alarm system (U.S. DOE, 2005). For the specific performance and detector coverage requirements expected of a CAS, DOE Order 420.1B defers to ANSI/ANS-8.3-1997 Criticality Alarm Systems. ANSI/ANS 8.3.1997 is the primary standard used to judge the acceptability of a CAS design.

A CAS is generally comprised of 3 main components as described in Appendix B: a comparator panel, alarms, and radiation detectors. Selection and placement of the detectors is the most difficult part of a CAS design. The detectors must operate with a high degree of reliability and require infrequent servicing or repair. The detectors, as well as the system in general, also need to minimize the potential for false alarms. The final and most important requirement of the detectors is that they must respond immediately to the Minimum Accident of Concern (MAC).

Minimum Accident of Concern

The Minimum Accident of Concern represents the smallest accident in terms of fission yield and dose rate that the Criticality Alarm System must detect. ANSI/ANS-8.3-1997 defines the MAC as one that delivers “the equivalent of an absorbed dose rate in free air of 0.2 Gy/min (20 rad/min) at 2 meters from the reacting material.” The design

engineer must determine what likely scenarios, specific to the facility, would meet this definition. The engineer must determine the forms of the reacting materials, configuration, concentration, and quantities involved in an accident that will reach the MAC dose rates. Establishing the appropriate MAC for the targeted facility is not trivial and requires considerable effort.

The MAC represents the most difficult accident scenario that the CAS must detect. Therefore, the MAC is used extensively during the design phase to prove or disprove adequate detector coverage in the facility. ANSI/ANS 8.3.1997 establishes what adequate coverage is by requiring that no single channel may cause an alarm or fault. This means that at least two detectors will alarm for every MAC regardless of the accident location. Proving the CAS meets the coverage requirements of ANSI/ANS 8.3.1997 is the ultimate goal of the design engineer and is the benchmark for an effective Criticality Alarm System.

Objective

The purpose of this thesis is to provide a thorough guide to CAS design. Each step of the design process is discussed in detail to show why the step is needed and how to best complete it. Estimates for the time commitment of each step are included, as well as potential pitfalls that may be encountered. A complete CAS design for the Radioisotope Production Laboratory of Richland, Washington is included in this thesis to provide clear illustrations of what is being explained. The included CAS design provides corresponding examples for each topic discussed in the Design Process Overview section.

A Criticality Alarm System designed based on this methodology will meet and exceed all current regulatory requirements.

Overview of Chapters

Chapter 2 provides a synopsis of the major federal requirements and standards that apply to CAS design. Each specific document is briefly summarized and discussed. After reading this chapter, the reader should have an understanding of the relevant regulations that drive the implementation and design requirements of a CAS. A general sense of how the regulations affect the system design is discussed. A more detailed analysis of the ANSI/ANS-8.3-1997 standard on Criticality Accident Alarm Systems completes the chapter.

Chapter 3 begins by giving a conceptual overview of what goes into the design of a CAS. A design process flow sheet is provided to illustrate how different design criteria affect the project. Following the process overview is the Design Methodology. An outline of tasks to be completed is presented as well as a technically-oriented subtask listing. The flow sheet and task outline form the foundation of how the remainder of the document is organized.

Chapter 4 uses a CAS developed for the Radioisotope Production Laboratory(RPL) in Richland, Washington to illustrate how to apply the methodology presented in Chapter 3. The task and technical subtask layout described in the previous chapter is applied to the RPL CAS. Results are given and evaluated for the MAC, coverage requirements, spectrum analysis, sensitivity analysis, and validation benchmarks. MCNP5 inputs (the facility model, validation benchmarks, spectrum

analysis, MAC, and sensitivity analysis) are provided in Appendix D for the different RPL specific models discussed.

The conclusion portion of the thesis draws all the sections together by highlighting and summarizing the major points. The improvements made to the RPL CAS are also listed with some discussion on their potential impacts on the facility with respect to safety and operations. The potential for future work in this area is also evaluated.

Chapter 2 – Literature Review

There are a multitude of documents that regulate the design and performance of a CAS. The final compliance memo for a CAS must not only reference the applicable regulations but include an actual copy of them in an appendix. This is done because the rules change over time. It is crucial to have a hard copy of what the rules were at the time the analysis was performed. Doing so helps avoid liability for future design conditions and performance requirement alterations as well as providing documentation for future system analyses and upgrades.

To begin evaluating the regulations the engineer needs to recognize that different facility classifications require different sets of regulations. The largest difference in regulations is whether or not the facility contains a reactor. The rules are significantly different for reactor and non-reactor facilities. This analysis focuses on CAS systems for non-reactor facilities. An important note, some of the standards discussed apply to all types of facilities; however it is just as crucial to justify why the standard is not applicable as it is to show why it is. Below is list of the documents that should be pulled and checked for relevance for non-reactor facilities.

- 1) DOE 420.1B *Facility Safety* (USDOE, 1997)
- 2) ANSI/ANS-8.1-1998 *Nuclear Criticality Safety in Operations with Fissionable Material Outside of Reactors*
- 3) ANSI/ANS-8.3-1997 *Criticality Accident Alarm Systems*
- 4) ANSI/ANS-8.10-1983 *Criteria for Nuclear Criticality Safety Controls in Operations with Shielding and Confinement*
- 5) ANSI/ANS-8.15-1981 *Nuclear Criticality Control with Special Actinide Elements*
- 6) ANSI/ANS-8.19-2005 *Procedures for Nuclear Criticality Safety*

These are the federal regulations and standards related to Nuclear Criticality Safety and Criticality Accident Alarm Systems. There will also be company specific procedures for how to comply with these documents. If the final compliance report does not apply to both federal and company specific procedure, it will not be accepted. The language used in the final reports will vary from company to company so the format of the report itself will not be discussed. The analysis performed for a Pacific Northwest National Laboratory facility had to comply with the following internal documents:

- 1) MEA001 *Nuclear Criticality Safety Basis Memo Evaluation, Documentation and Approval*
- 2) NQA1 *Quality Control*
- 3) MA250 *Criticality Safety Manual*
- 4) MA500 *Nuclear Material Control and Accountability Plan*
- 5) *Radiochemical Processing Laboratory Documented Safety Analysis*
- 6) *Radiochemical Processing Laboratory Technical Safety Review*
- 7) *Criticality Safety Specification 1*
- 8) *Criticality Safety Specification 2*
- 9) *Criticality Safety Specification 3*

Each of the documents listed above has the possibility of impacting the design, implementation, and final compliance report. The need to thoroughly analyze each document for applicability and to make a detailed list of notes while doing so to keep track of them all is vital to the successful completion of the analysis. Because the second list of requirements is company specific, they will not be discussed in detail. Most of the company specific documents are controlled and not available for public release. Topics that are typically universal regardless of the company, like quality control and method

validation, will be discussed to illustrate how related to these topics tasks can be conducted.

Throughout the range of ANSI/ANS documents, the same definitions are used for the terms shall, should, and may. These terms are defined throughout the standards as follows: *The word "shall" is used to denote a requirement, the word "should" to denote a recommendation, and the word "may" to denote permission, neither a requirement nor a recommendation. To conform with this standard, all operations shall be performed in accordance with its requirements but not necessarily with its recommendations* (ANSI/ANS 8.3, 1997). To avoid misinterpreting what has been said, it is important to keep in mind how these words are defined when reading the standards.

To establish facility and program safety requirements for the DOE, a good starting point for all of these regulations and standards is the Department of Energy Order 420.1B Facility Safety. This document is the fundamental regulatory driver for a CAS in a federal facility. DOE 420.1B then breaks down what is required from a CAS, but it generally does not list the requirements. What Order 420.1B does is reference the documents that specifically list the technical requirements, which are typically ANSI/ANS standards. Order 420.1B is structured this way, no doubt, because the ANSI/ANS standards are periodically reanalyzed and updated. There are some key sections of Order 420.1B that must be read and understood:

- 4.1.1 Nuclear Safety
- 4.3 Nuclear Criticality Safety
- 4.3.3 Specific Requirements

It should be noticed that Order 420.1B augments many sections of the different ANSI/ANS standards. Why it is important to note these modifications is discussed further in Design Process Overview Task II. There is a section in Order 420.4.3.3e part 4 that addresses what is known as quasistatic criticality accidents. Quasistatic accidents are tremendously challenging to detect and are not addressed within this Thesis. Order 420.1B then directs the user to ANSI/ANS-8.1-1998, which is the overarching criticality safety standard. All other criticality related standards address implementing the general philosophy contained in ANSI/ANS-8.1-1998.

1) ANSI/ANS-8.1-1998 – Nuclear Criticality Safety in Operations with Fissionable Material Outside Reactors:

Scope – This standard is applicable to operations with fissionable materials outside nuclear reactors, except for the assembly of these materials under controlled conditions, such as in critical experiments. Generalized basic criteria are presented and limits are specified for some single fissionable units of simple shape containing U-233, U-235, or Pu-239, but not for multiunit arrays. Requirements are stated for establishing the validity and areas of applicability of any calculational method used in assessing nuclear criticality safety. This standard does not include the details of administrative controls, the design of processes or equipment, the description of instrumentation for process control, nor detailed criteria to be met in transporting fissionable materials.

This standard lays out the general methodology and techniques for how work with fissionable materials should be carried out. It thoroughly discusses what an acceptable analysis would be for meeting safety requirements, and then it discusses what must happen if this analysis is based on computer simulations. This standard also discusses how computer systems must be validated using established experimental benchmarks to ensure that the code is performing as claimed.

2) ANSI/ANS-8.3-1997 – Criticality Accident Alarm System

Scope – This standard is applicable to all operations involving fissionable materials in which inadvertent criticality can occur and cause personnel to receive unacceptable exposure to radiation. This standard is not applicable to detection of criticality events where no excessive exposure to personnel is credible, nor to nuclear reactors or critical experiments. This standard does not include details of administrative actions or of emergency response actions that occur after alarm activation.

This standard contains a range of vital information. There is so much useful material in this standard that to discuss it all would be to almost reproduce it in its entirety. The most important parts with regard to design impact are the description of the coverage requirement, false alarm tolerance, detector failure, and the minimum accident of concern. Each of these parameters should be understood because each can impact the physical layout of the system. A brief discussion on the interplay among these parameters is useful to illustrate how one can affect another, and to show how important this standard is to CAS design.

The coverage requirement is the number of detectors that must alarm for the MAC. To meet the coverage requirement, the engineer would like the threshold (trip) setting for the detectors to be as low as possible, but if set too low, then there is a greater risk of false alarms. If the CAS is designed to meet only the minimum detector coverage requirement, then a fault at any one node takes the entire system out of compliance, thereby stopping work in the facility. However, the more detectors required for the system, then the greater the cost of installation and operation becomes. The most important piece of information this standard supplies is the general definition of the MAC.

The minimum accident of concern can be thought of conceptually as the worst case scenario for what a criticality safety engineer must design for. ANSI/ANS-8.3-1997

defines the minimum accident of concern as “the smallest event in terms of yield and dose that a criticality alarm system must detect.” It then goes on to define the MAC even further as “to deliver the equivalent of an absorbed dose rate in free air of 0.2 Gy/min (20 rad/min) at 2 meters from the reacting material.” For the system to be accepted in a DOE facility, CAS must be able to detect the MAC.

The purpose of the MAC definition is to give a clear lower limit of what must be detected, while still giving the criticality engineer some freedom with how to design the system. The standard does this by listing a minimum dose rate and by not listing how this dose rate is detected. From a practical sense not defining what the dose results from, neutrons, gammas, etc., lets the engineer decide what particles the system should detect. Having some freedom here allows the alarm system to be tailored to the individual facility.

3) ANSI/ANS-8.10-1983 – Criteria for Criticality Safety Controls in Operations with Shielding and Confinement:

Scope – This standard is applicable to operations outside of nuclear reactors with U-235 U-233, Pu-239, and other fissile and fissionable materials in which shielding and confinement are provided for protection of personnel and the public, except the assembly of these materials under controlled conditions, such as in critical experiments. Criteria are provided that may be used for criticality control under these conditions. The standard does not include the details of administrative procedures for control (which are considered to be management prerogatives) nor details regarding the design of processes and equipment or descriptions of instrumentation for process control.

This standard outlines a possible exception to requiring a CAS in a facility that is over the mass limit cutoff but has large amounts of shielding. This obviously warrants some attention because nothing makes project managers angrier than spending thousands

of dollars on completely unnecessary work. Without going into great detail, the standard's basis for omission of a CAS deals with sufficient shielding requirements, remote operation, and personnel restrictions.

4) ANSI/ANS-8.19-2005 – Administrative Practices for Nuclear Criticality Safety:

Scope – This standard provides criteria for the administration of a nuclear criticality safety program for outside-of-reactor operations in which there exists a potential for nuclear criticality accidents. Responsibilities of management, supervision, and the nuclear criticality safety staff are addressed. Objectives and characteristics of operating and emergency procedures are included.

This addresses the administration of a criticality safety program. Like the other standards mentioned in this section, it references many of the other criticality focused ANSI/ANS standards including ANSI/ANS-8.3-1997 Criticality Accident Alarm Systems. This standard is more focused on how programs are implemented and documented. Because the CAS design will have to be administered adherent to this standard, it should be reviewed during the CAS design process.

5) ANSI/ANS-6.1-1991 – Neutron and Gamma-ray Fluence-to-Dose Factors:

Scope – This standard presents data recommended for computing the biologically relevant dosimetric quantity in neutron and gamma-ray radiation fields. Specifically, this standard is intended to for use by shield designers to calculate effective dose equivalent per unit fluence for neutron energies from 1eV to 14 MeV and for gamma-ray energies from 0.01 to 12 MeV. Establishing maximum permissible exposure limits is outside the scope of this standard.

This is used convert gamma-ray fluence to dose in free air. The previous analysis of the RPL used this standard in conjunction with the MAC to find the smallest, and therefore most limiting, neutron fluence resultant from a criticality accident. It should be

noted at the time of this analysis, ANSI/ANS-6.1-1991 could not be used because the standards' status had been changed from Active to Historic. The status was changed to Historic because the standard was not reevaluated within the 10 year time frame designated by ANSI/ANS. The criticality safety engineer should be cautious about using it until the status is updated.

Based on the facility description, the judgment can be made as to which ANSI/ANS standards are applicable. As stated previously, it is important to make clear arguments why or why not each standard is specifically applicable to the design. These arguments will be included in the final report and checked over by quality control engineers. Of all the ANSI/ANS standards, the most applicable is obviously 8.3-1997 Criticality Accident Alarm Systems. This document will likely guide the majority of the technical design and warrant a good deal of attention.

Chapter 3 – Design Process Overview

Below is a brief overview of what goes into a complete CAS design. Each of the following steps is discussed in greater detail in the Methodology section. Throughout the design phase, frequent reviews of completed work and of the progress being made are advisable. In such a long process there are innumerable chances for mistakes to be made. If mistakes are made early on and go unnoticed, they can render the finished product useless. It is strongly recommended to have senior criticality safety engineers or other peers periodically review completed work. To provide an itemized summary of what lays ahead, the rather sprawling job of CAS design has been condensed into seven major tasks, which are:

- I. Become familiar with the facility where the CAS will be installed;**
- II. Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;**
- III. Outline a schedule of deliverables;**
- IV. Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected;**
- V. Design and model the criticality alarm system for the facility;**
- VI. Show the calibration method follows simple and concise methodology for setting the minimum detector trip points; and**
- VII. Assemble the final report;**

The tasks are roughly in chronological order. Lengthy projects such as this, more often than not, require tasks to be juggled simultaneously or to be moved around to meet deadlines. This project will likely be no different. The list above was constructed to help the novice engineer move from the beginning of the project to the end with organization and traceability.

Design Methodology

This section focuses on how to carry out the design of the CAS. Each task from the outline listed at the beginning of this Chapter is thoroughly described. The approach to each task, as well as any corresponding potential issues, is examined. Task VI contains the majority of the technical design, and it includes a numbered list of specific technical subtasks. This numbered list is then revisited in the Application of Design Methodology Chapter where the same numbering is applied to the RPL Criticality Alarm System analysis.

I. Become familiar with the facility where the CAS will be installed

Initial Phase

Begin by conducting walk downs of the targeted facility. Take general notes of the layout and the construction materials of the building. If a current CAS exists, make thorough notes about it; pay especially close attention to the detectors and their current locations. New CAS system installation and validation is very expensive so there is strong motivation to utilize existing components.

While in the facility, talk to people to get a sense of what day-to-day operations are like. The engineer needs to develop a sense for what typically occurs in the facility because it will help avoid incorrect assumptions during the modeling phase. Some questions to ask personnel are:

- How often are renovations performed?
- What fissile material movements occur?
- Where are operations with fissile material conducted?

- Do people and/or laboratories move around?
- Are there any neutronically significant materials present?

II. Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;

After the walk downs are completed, the engineer should have a better understanding of the operations and environment that the CAS design must accommodate. Using this knowledge, pull all of the references listed in the literature review section. Do not worry initially about whether or not they are specifically applicable.

- Spend the time to read them.
- Most are not terribly long.
- Pay close attention to the scope of each document.
- Obtain hard copies of all the references because they are often required in the final CAS design report.
- Make a summary of each document including:
 - Scope/applicability –specify any direct requirements for the facility.
 - Technical limits.

Repeat this process for the company specific regulations. Depending on the size of the company, it may or may not have a document clerk or department. If so, these personnel can be tasked to find and assemble all the applicable documents. Also, some companies maintain libraries that will have most if not all of the documents required. For example, the Hanford Technical Library at PNNL employs fulltime librarians that can be tasked with locating project specific documentation.

After all of the standards and guidelines have been assembled and summarized, it is time to select the most limiting accident scenarios to be modeled. It was found that inserting the summarized lists into a spreadsheet was very useful. The determination of which requirements represent the most limiting accident scenario is not always clear. For example, one standard may define a dose rate where another may define fluence. Unless the difference in magnitude for each situation is considerable, it can be difficult to discern what the most limiting parameter is. Therefore, it is recommended to perform some quick calculations to verify any conjecture.

Once an accurate assessment of the most likely minimum accident scenarios has been made, the assessment must be checked by experienced criticality safety engineers. PNNL requires that the limiting design conditions be peer reviewed, and there is a very explicit list of who can review what types of work. If for some reason, quality assurance is not required at this level, the engineer should seek it out independently. To reiterate, these limiting cases drive the analysis, so if they are incomplete, the design can be incomplete. An example of a final limiting case assessment is shown in Design Methodology Minimum Accident of Concern subtask.

III. Outline a schedule of deliverables

The management responsible for the project may provide a time frame or they may ask the engineer for an assessment of the expected duration of the project. It is generally beneficial for all those involved to have the person(s) with the most applicable experience construct the time line. It is much more difficult to make an accurate judgment of how long a task will take if the individual has never performed it before.

The schedule is also highly dependent on the size of the facility that the CAS is being designed for. The length of time to complete the design phase seems to roughly scale with facility size. There are several factors that drive this relationship. The larger the facility is, the longer it will take to model. The larger the model, the longer it will take to QA. The number of potential accident locations increases with building size, which adds to both the computational time and the analysis phase. For reference, the RPL building description is given in Chapter 4 as well as schematics for each floor in Appendix A. It took approximately four months to perform the analysis and write the final report. The time it will take to draft the report depends on company requirements and individual writing speed. The final Basis Memo for PNNL was written, reviewed, and re-written in about 80 hours. More on the report is discussed later in this section.

There are a few key factors that can reduce the CAS design time. Most time saving factors are human-based. For example computer code writing skills, general criticality safety knowledge, and regulatory knowledge can all aid the design engineer in completing tasks more quickly. For all the duration times listed from this point on, it is assumed that the user has the skills of an average entry-level engineer.

IV. Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected

ANSI/ANS-8.1-1998 requires that any code used for criticality analysis be validated prior to its use. This part of the process is really several tasks combined: choosing a code, evaluating the codes usability, and validating the codes accuracy relative to the specific situation being modeled. The goal in this step is to choose a computer simulation

package that can show detector coverage and to perform sufficient analysis of the code package chosen, to prove that it does operate as assumed. Meeting this goal is the focus of this section, and it is highly recommended that this goal be met before the design phase is undertaken.

There are some common sense reasons for performing the tasks mentioned above, but there is also a regulation that clearly invokes the need to do them as well. DOE Order 420 mandates that all facilities categorized hazard level 1 or 2 must implement a quality assurance program to oversee and ensure the legitimacy of the work being performed. So throughout the design process all of the work performed, must be checked in accordance with the facility specific QA program. At PNNL, as it should be elsewhere, the code package used to perform ANY analysis most certainly falls into QA space.

A brief word of caution, ANY code used to perform analysis on the system that will be included in any way in the final report must be validated and put through QA. Hopefully it is obvious then that it would be wise for the engineer to pick as few codes as possible to simplify this requirement. It should also be noted that many companies maintain a list of approved code packages that are specific down to the version and release dates. If the code the engineer would like to use is not on this list, it can not be used.

Once the code has been selected, if not already familiar with it, spend a few days learning the basics. It is important to do this because the validation phase is somewhat time consuming and requires a working knowledge of the code to complete. Naturally, it is a good use of time to ensure that the work can be completed in a timely manner with the selected code package. It is just common sense to not waste time validating software

that will never be used. After getting acquainted with how the code works, it is time to proceed with the validation phase. Note, that validation is required for every project, and must be included in the final report regardless of whether similar work has been previously performed.

Computer code validation is accomplished by modeling known, well documented, and very similar real world experiments. Then the results of the simulation are compared to actual real world experiment data. The code is deemed acceptable when it is shown to model similar situations with a prerequisite accuracy. The accuracy varies from company to company. The most important part of the validation process is the selection of relevant benchmarks.

The term, “relevant benchmark” is used in reference to established experiments that are well documented and reviewed and that clearly demonstrate the phenomena being investigated. To put it simply, if modeling fission in ^{235}U , then find a ^{235}U benchmark to compare it to. But this is indeed too simple an explanation. Depending on the situation it is also usually important to match the energy spectrum, chemical state of the material, geometry, and in some cases the magnitude of the fluence. The closer the benchmark physically resembles the system being investigated, the easier it will be to argue that the results obtained from the model are indeed acceptable. Luckily there exists a collection of benchmarks that fulfill these requirements.

In the last 50 years there has been a wide variety of criticality experiments conducted all over the world. These experiments were used to gain an understanding of a range of phenomena. Since these experiments were conducted, an organization has been formed to find and assemble them into a readily accessible database. Currently that

organization is the Nuclear Energy Agency (NEA) and their database is known as The International Handbook of Evaluated Criticality Safety Benchmark Experiments (IHECSBE) (NEA, 2008). The NEA has focused on compiling and checking the validity of the experiments and then issuing very high quality detailed reports about their findings. Many evaluated experiments also include computer input and output files for the experiment. The IHECSBE database is a widely acceptable source for validation benchmarks and offers a large variety of experiments.

V. Design and model the criticality alarm system for the facility;

As a certain professor of mine always used to say, “Here lies the meat and potatoes of your work.” Contained in this section are guidelines on how to complete the more technical aspects of this project. Below is an outline of the design phase of the project. Each number represents a subtask of the design process.

- 1) Find the MAC including fluence and spectrum**
- 2) Identify potential locations for detector placement**
- 3) Model the facility**
 - a. Assumptions/omissions/simplifications
 - b. Dimensions
 - c. Materials Used in Computational Models
 - d. Detectors
 - e. Source
 - f. Tallies
 - g. Accident Locations
- 4) Find count rates of the criticality detectors for known conditions**
- 5) Model the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies**
- 6) Adjust the value for the detector minimum trip setting**
- 7) Verify that adequate coverage has been obtained at the new minimum trip setting**
- 8) Modify the Calibration Procedure**

- 9) **Apply Variance Reduction as needed**
- 10) **Perform sensitivity analysis on the final CAS design**

Each numbered item is discussed in greater detail below. Chapter 4 describes these steps when applied to the design of the RPL criticality alarm system. Figure 1, a design process flow sheet, is included to illustrate how each piece of Task 5 is used to establish detector coverage. Each box colored in grey represents the output of the different subtasks.

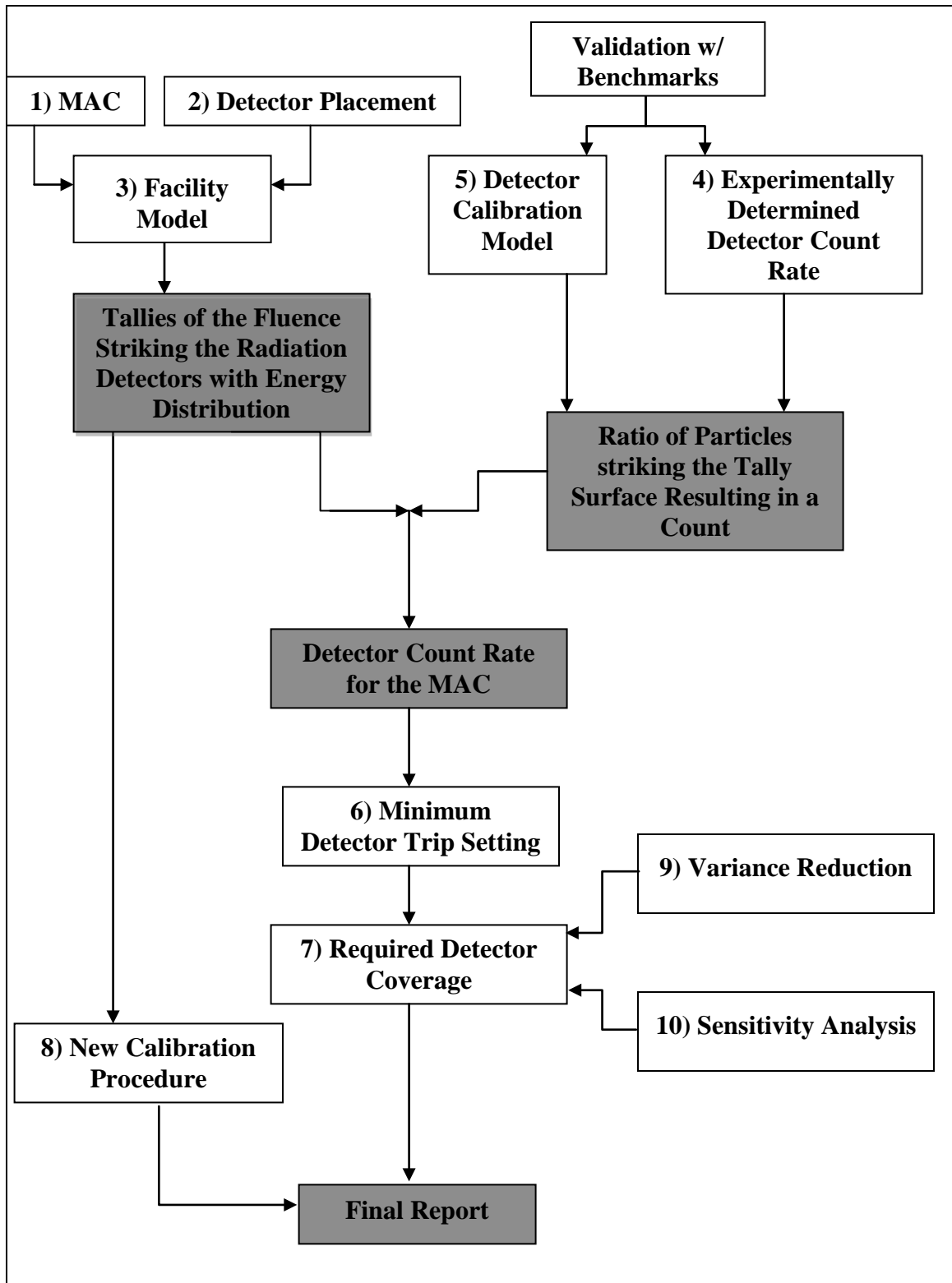


Figure 1. Design process flow sheet

Subtask 1 - Find the MAC – Fluence and spectrum

What the engineer seeks here is the determination of which accident is the most difficult accident to detect. The justification for the need to do this was discussed previously in Design Methodology Task II. How to actually make the determination is the focus of this section.

To find the MAC, start with the definition listed in ANSI/ANS-8.3-1997. Then pick the most probable physical scenarios that are most likely to reach the ANSI/ANS-8.3-1997 dose limit with the smallest number of detectable particles. So if the system employs gamma detectors, then look for the accident condition that maximizes the number of neutrons that contribute to the absorbed dose rate and vice a versa for a neutron detection system. Of course, it is not reasonable to model every conceivable accident scenario to be able to say with absolute certainty what the right answer is. What is reasonable is to pick a handful of the most likely candidates and model those.

To make a guess of what the likely accident scenarios are, it is very useful to remember the shielding properties of both gamma rays and neutrons. Low Z materials shield neutrons the best: increasing density, high Z materials shield gamma rays the best. It is clear that maximizing this discrepancy will likely generate the most limiting accident condition for the respective particles.

If both Uranium and Plutonium are present in the facility, then fission from each isotope should be looked at to determine which is more difficult to detect. Several accident conditions were analyzed for both Plutonium and Uranium including bare metal spheres, metal shielded cask type scenarios, and water reflected sources. Eventually it

was determined for the neutron detection system in RPL that optimally moderated Plutonium and water solutions yielded the fewest neutrons for the required dose rate. Of course Plutonium and water mixtures are not very physically meaningful for chemical reasons, but that is not as important as establishing an absolute lowest bounding accident condition.

Computer models should be made for the most likely accident scenarios: one complete set using ^{235}U sources, and one complete set using ^{239}Pu sources. For the accident scenarios, the dose rate in free air from neutrons and photons must be found. Finding this dose rate per neutron and per photon is necessary to determine the corresponding minimum fluence for the accident. The smallest fluence found then identifies the most difficult accident to detect for the ANSI/ANS-8.3-1997 MAC definition.

An advantage of using MCNP5 is absorbed dose can be tallied directly by using the F6 Tally, which is discussed further in the 2) f. Tallies subtask. MCNP5 makes a track length estimate in a designated cell for the absorbed dose there. The dose conversion equation listed as a footnote can be used to convert the result of a standard F6 tally to a final neutron fission source term.¹ KENO can not directly tally absorbed dose at a location. To find dose with KENO, the fluence must first be found with the code and then converted to dose by using published fluence to dose factors. One such standard is ANSI/ANS-6.1-1991 Neutron and Gamma-ray Fluence to Dose Factors. Be aware that currently the status of this standard has been changed to “Historical,” because it has not been reevaluated in the mandatory ten year review period.

¹ **F6 Result (MeV/g)*1.00e6 (eV/MeV)*1.60218e-12 (erg/eV)*0.01 (g-rad/erg)*v(neutrons/fission)**

The result of the most limiting fluence found from the MAC absorbed dose analysis will be used as the source weighting factor in the facility model. This weighting factor will therefore scale the results of the simulations to the correct MAC.

Subtask 2 - Identify potential locations for detector placement

Before the facility can be modeled in subtask 3, a preliminary number and location of the criticality detectors must be found. As stated in ANSI/ANS-8.3-1997, there must be at least two detectors that will alarm for every MAC. It is up to the user if a greater degree of coverage is desired. This initial detector placement should be viewed as a starting point, and not as the complete effort for detector placement. It should be noted that for the project, each detector represents a significant installation and maintenance cost. From a fiscal standpoint then, the engineer should optimize the design to use the fewest number of detectors to meet the coverage needs. To simply install dozens of detectors throughout the facility would be very expensive. Also, every detector must be periodically recalibrated and serviced, which adds cost over the lifetime of the system.

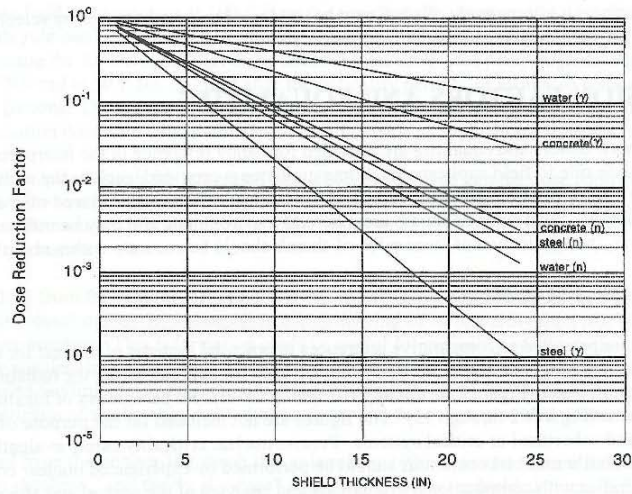
It was found that the fastest and simplest method for determining detector placement was to use the Updated Nuclear Criticality Slide Rule (UNCSR) (Hopper & Broadhead, 1998). The UNCSR can be used to estimate dose resultant from a user specified fission yield. This reference allows the user to select the fission yield and then see the corresponding dose from neutrons, gamma rays, and the total at a distance. The UNCSR also provides dose reduction factors as a function of shielding thickness. This allows the yield to be adjusted for different thicknesses of interceding materials.

Preliminary placement of the detectors needed in the facility can be made by inserting the yield from the MAC into the UNCSR. Then using engineering judgment, sufficient accident locations should be chosen for a good estimate of the coverage. For each accident location chosen, the UNCSR can be used to find the absorbed dose in rads, at a distance. It is recommended that floor by floor drawings of the facility are obtained and the appropriate scaling factors established.

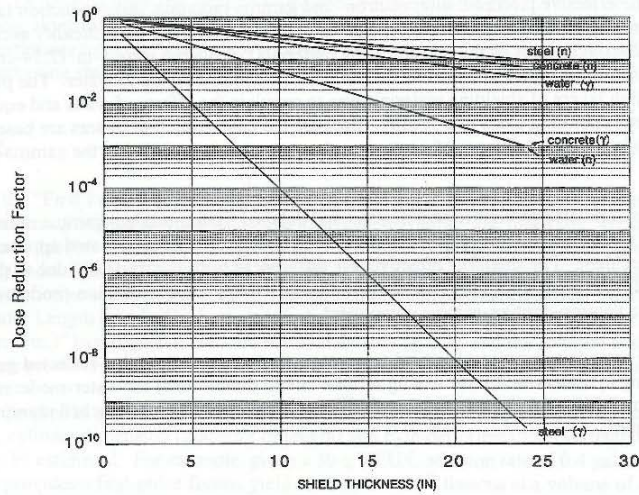
To begin placing the detectors, the user must pick a threshold value of dose that represents a detectable fluence for the system. There are a number of ways to reach an estimation of the detection threshold. For both neutron and gamma ray-based systems, the average energy from fission can be used to calculate fluence as a function of absorbed dose in free air. Equation 1 shows the relationship between absorbed dose and fluence.

$$\text{Dose in Air} = \Phi * E_{\text{avg}} / \rho_{\text{air}} \quad (1)$$

In Equation 1, Φ is the fluence in # of particles per MAC, E_{avg} is the average particle energy from fission, and ρ_{air} is the density of air. Equation 1 does not contain time values or rates because the dose is assumed to be entirely from prompt fission. The values found with Equation 1 have to be corrected for the amount of intervening shielding. The UNCSR provides tables that make it easy to approximate the reduction caused by shielding. Figure 2 shows a table of dose reduction factors for prompt fission, which is included in the UNCSR.



(a) prompt radiation dose-reduction factors for multiple thin shields



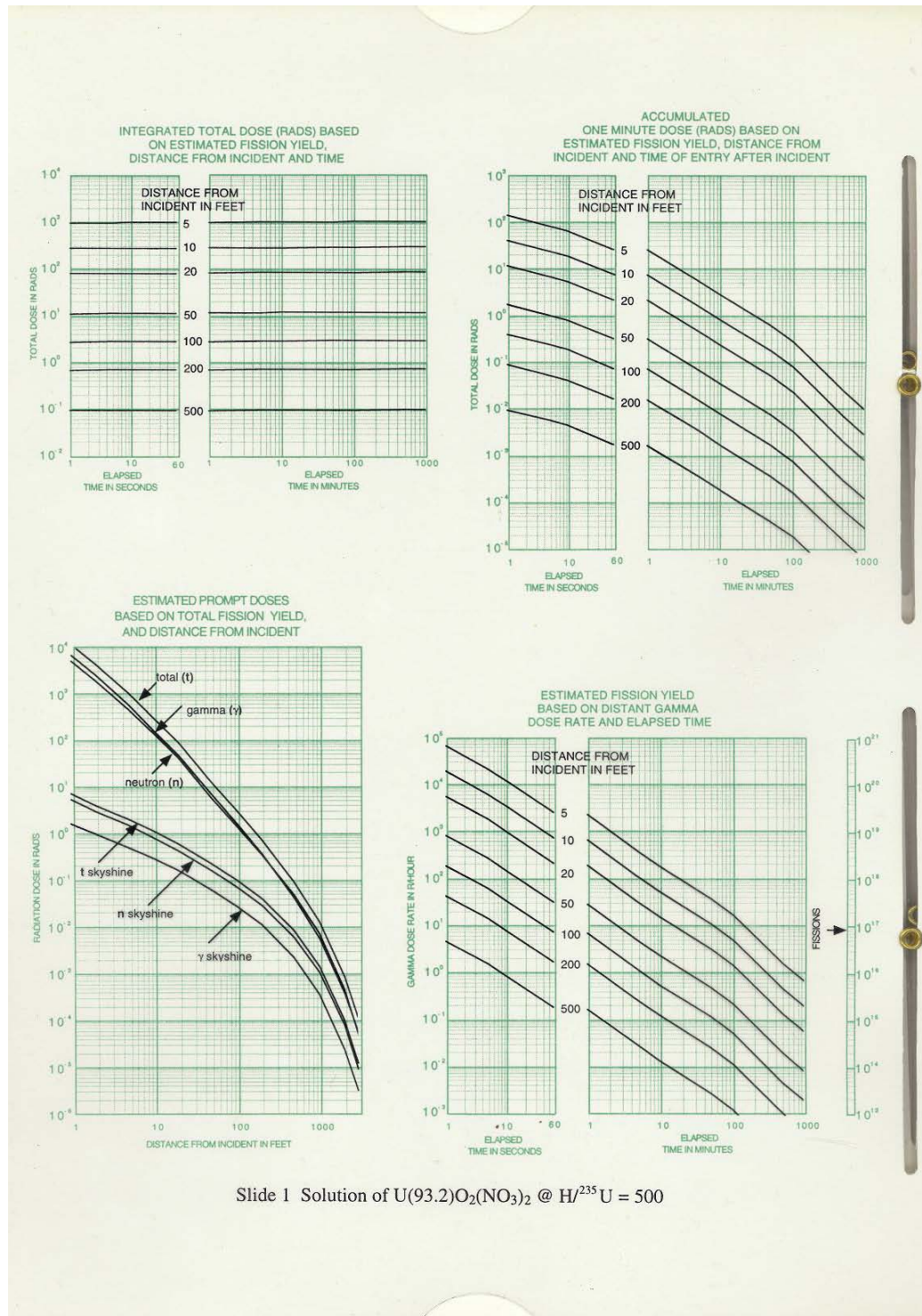
(b) prompt neutron and delayed gamma dose-reduction factors for single shields

Figure 1 Dose reduction factors for various shield thicknesses

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Figure 2. UNCSR dose reduction factors for various shield thicknesses

Once the dose threshold value is found and corrected for shielding, the corresponding distance for the MAC can be established with the slide rule. Figure 3 is an example of a slide rule provided in the UNCSR.



Slide 1 Solution of $U(93.2)O_2(NO_3)_2$ @ $H/^{235}U = 500$

Figure 3. UNCSR sample slide rule for $U(93.2)O_2-(NO_3)_2$ @ $H/X=500$

Using facility drawings, plot an arc of that distance value on the drawing(s) for each accident location. Areas with the most overlapping arcs will logically see the greatest number of accidents and are therefore the optimal locations to place detectors.

If the facility has multiple stories, then the process is repeated for each floor. Once a detector layout is found for each floor, then the facility as whole can be examined. Keep in mind that particles will travel through floors and ceilings. The UNCSR can be used to find the neutron fluence reduction rates through the floors and ceilings for the MAC. Do not spend an extensive amount of time trying to get a perfect detector arrangement here because the computer simulations will provide more accurate guidance. Examples of how the arcs can be drawn are included in the corresponding subtask in Chapter 4.

Subtask 3 - Modeling the facility

a. Assumptions/omissions/simplifications

Assumptions, if any, must be clearly documented because they will need to be included as an appendix to the final report. The QA engineer will check the validity of the claims made to ensure that they all result in increased model conservatism. The guiding principle for making assumptions is that they are allowable so long as they increase the amount of conservatism, not decrease it. An example assumption could be to not model the dirt surrounding the building to save computational time. This is an example of an acceptable assumption because it only results in decreasing the number of particles that could be reflected back into the facility from the MAC. Therefore the same guiding principle still holds of being able to detect the worst case possible. An

unacceptable assumption goes in the other direction and could then potentially invalidate the CAS. An example of an incorrect assumption is to avoid modeling the contents of offices located in the facility to save modeling time. This assumption is not conservative because taking material out of the interior of the model decreases the amount of absorption taking place. Removing a loss term inside of the facility artificially “increases” the source of the MAC, which is not conservative.

b. Dimensions

There is no substitute for good structural drawings, preferably digital CAD files. Not much needs to be said on the model geometry if it is mostly complete. Model everything that affects the particles being detected, e.g., concrete for neutrons and metals for gammas. If dimensions must be estimated, then always error on overestimating the size of bodies located within the facility and in the opposite direction for bodies located outside of it. In some instances, it may be useful to make hand drawn sketches of the facility. If this is done and the sketches are used as reference material for the model, then they must be included in the Appendices of the final report. This is a generally accepted practice.

c. Materials Used in Computational Models

Modeling the materials contained within the facility can be done with a mixture of facility inspections and published material definitions. It is very useful to physically inspect walls, ceilings, offices etc. to determine their contents. Walk-downs should be conducted to determine what amount and type of material is located in the facility.

Generally, it will be unreasonable and unnecessary to model the interiors of every office or laboratory space. It would take too much time to include this level of detail in most facility models. But as mentioned before, the interior fill material must be included to preserve conservatism. The size of the facility, the computational resources, and the time available to perform the CAS analysis should all be considered in how the interior material will be accounted for. The sensitivity analysis conducted on the final design will show how the addition and subtraction of material in the model affects the outcome and ultimately the applicability of the design.

d. Detectors

If at all possible the detectors should be modeled to resemble the actual detectors to be installed in the facility. Geometrically accurate detector models may not be usable when the facilities get sufficiently large because computational times grow considerably. For larger facilities it can become necessary to run trillions of particles to get acceptable statistics at the detector surfaces. This number of particles can correspond to very long run times, sometimes weeks or more. Depending on project requirements and company resources, it may become necessary to look at ways of reducing the time required to run the respective codes. Methods for decreasing run times are first discussed in the tally subtask below and then again in more detail in the variance reduction subtask.

Once the computational model of the detector has been made, it must be held constant for every input. However the detectors are modeled in the facility is how they must be modeled in the calibration setup, and likewise for any other model that includes them. Keeping the modeled detectors unchanged is vital to the validity of the method

being applied for finding the minimum trip settings and ultimately the detector coverage verification. Why keeping the detectors unchanged is so important will be discussed further in Chapter 4.

e. Source

Getting the correct source in the facility model is very important and can also be very difficult. Whatever situation that was found to be the MAC in the specific facility is the foundation of the source term for the facility model. The resultant minimum fluence found in the MAC is used as the source weighting factor in the model. MCNP5 provides a multitude of methods for modeling different sources. MCNP5 contains fission spectrums for several isotopes as well as a range of distribution functions (X5 Monte Carlo Team, 2003).

It is important to check the computer modeled source distributions for accuracy. The simulated source used in the computational model should mimic what occurs in the real world MAC. It should be understood that modeling a time dependent criticality event is extremely difficult and is beyond the needs of this project. An acceptable substitute is to make an approximate match of both the energy spectrum and fluence of the criticality accident to the simulated source. To verify that this has been done, it is recommend to use the program Vised, which is the visualization tool provided by RSICC with MCNP5. Vised has proven invaluable for catching the numerous source distribution errors made along the way. It is highly recommended to spend some time becoming familiar with the array of uses Vised has to offer. More specifically, time should be spent learning how to check source distributions using the particle tracking features. Vised will

“run” a user designated number of particles through the model using what has been defined as the source. VisEd will then produce a picture that will show a variety of useful information about what occurred with the source particles, making it very easy to see errors.

f. Tallies

The tallies chosen for the model will yield the results that are used to determine whether or not a detector has alarmed. The tallies can also be used in clever ways to decrease computational run time. MCNP5 provides eight basic tallies for recording particle information but for this project only four of them are of any use (X5 Monte Carlo Team, 2003). The tallies of interest for this design are the F1, F2, F4, and F6. Correspondingly they are surface current, surface flux, track length estimate of cell flux, and the track length estimate of energy deposition. Equations 2, 3, and 4 show, respectively, the F1, F2, and F4 tally equations. The F6 tally equation is merely the F4 cell flux tally multiplied by a heating function.

$$F1 = \int_{E_i} dE \int_{t_j} dt \int_{\hat{\Omega}_k} d\hat{\Omega} \int dA |\hat{\Omega} \cdot \hat{n}| vn(\vec{r}, \hat{\Omega}, E, t) \quad (2)$$

$$F2 = \frac{1}{A} \int_{E_i} dE \int_{t_j} dt \int dA \phi(\vec{r}, E, t) \quad (3)$$

$$F4 = \frac{1}{V} \int_{E_i} dE \int_{t_j} dt \int dV \phi(\vec{r}, E, t) \quad (4)$$

The units are important to note for the output of each tally. In their standard modes, the F1 tally has units of number of particles, the F2 and F4 tallies both have units of particles/cm², while the F6 tally has units of MeV/gram. MCNP5 will attempt to calculate the corresponding areas, volumes, or masses for each tally but is prone to error (X5 Monte Carlo Team, 2003). It is recommended that the user supply any and all of the aforementioned parameters by using the tally modification cards available in MCNP5.

The F4 tally was found to be the most reliable for tallying fluence. It should be noted that the method MCNP5 uses to calculate the F2 surface flux contains a large angle cosine approximation, which was found for this investigation, to report larger fluence values than did the F4 tally. The surface flux approximation used in the F2 tally for large angle approximation is given in Equation 5 (X5 Monte Carlo Team, 2003). The parameters in Equation 5 are W for the particle weight, δ for surface thickness, A as the surface area, \mathbf{n} for the unit normal vector, and $\mathbf{\Omega}$ as the particle position vector. Therefore, to be conservative, the decision was made to only use the F4 tally for the detectors in the building and calibration models.

$$\bar{\phi}_S = \lim_{\delta \rightarrow 0} \frac{W \delta}{A \delta |\hat{\Omega} \cdot \hat{\mathbf{n}}|} \quad (5)$$

The F6 tally worked very well for the MAC determination because it was very easy to show the conversion from MeV/gram to the absorbed dose value listed in ANSI/ANS-8.3-1997. The F1 current tally can be used to find amounts of reflection provided by different pieces of the facility. This information can then be used to greatly speed up the computational time by creating ALBEDO boundary conditions or modified

cell importance. Run times may be decreased by up to 40 percent using these techniques. This significant decrease in run time is mostly attributed to limiting the amount of time spent on tracking particles in the sand surrounding the facility. Another way to decrease the time spent tracking particles in sand is to change the composition from pure Silicon Dioxide to include a small fraction of Boron. So many collisions can occur in the surrounding sand that a small amount of Boron makes large contributions to absorption. The discussion on tallies and variance reduction more specific to the needs of this project is continued in the Variance Reduction subtask below.

Subtask 4 - Find count rates of the criticality detectors for known conditions

A bridge must be made between what is tallied in the model to what is counted in reality. The first step in establishing this link is to find a count rate for the detectors in a known configuration that can be modeled in subtask 4 with the same code packaged used for the analysis. The quantity sought in this task will be used in conjunction with the Detector Cell Tally Efficiency to ultimately determine what count rate the minimum trip setting will be.

One possible source of well-documented count rate data would be any existing calibration procedures or operations for the detectors in question. If the calibration procedure has already been developed, then there will be extensive records for count rates as a function of source activity. If this is the case, then acquire all the data regarding the calibration setup that would be needed for modeling it in the designated code package and proceed to subtask 5. If the calibration procedure does not exist then more discussion is needed.

The bulk of how the calibration procedure is developed and implemented is discussed in subtask 8 and hence out of the scope of this subtask. But to proceed with next task, modeling the calibration setup to find the DCTE, some preliminary work for the calibration must be conducted here. For reasons that will be discussed in subtasks 6 and 8, it is important to establish a set of 3 or 4 core detectors that will be used for finding the count rates in this subtask. This set of core detectors will be important for establishing the minimum trip setting and instating the calibration method in subtasks 6 and 8, respectively. Ensure that these core detectors are easily traceable and identifiable. Once this set of detectors has been established, find at least one set of count rates for each in a well defined counting setup. The better the counting setup is documented, the easier subtask 5 becomes.

Subtask 5 - Modeling the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies

The next piece of the puzzle is to find the detector cell tally efficiency (DCTE), which is basically the computational equivalent of the detector efficiency. The DCTE has the units of real world detector count rate divided by the number of simulated particles entering the modeled detector. The quantity being sought here is the fluence striking the modeled version of the detector in the same geometry that the experimental count rate was obtained in. The following provides a simple example of how the DCTE is applied.

Hypothetically, during the MAC runs in the facility, a detector recorded 1000 particles striking it. Using an exact replica of the facility detector in a model of a known counting setup, for a source of weight W , 750 strikes were recorded. The actual count

rate data obtained in the same setup as was modeled, with the same geometry and source used as weight W, was found to be 500 counts per second. Dividing the recorded count rate of 500 counts per second by 750 simulated strikes recorded yields a DCTE of 0.66. The DCTE can then be applied to the number of particles recorded in the MAC scenario to find an actual count rate. Multiplying the simulated 1000 particle strikes found in the facility model by the DCTE of 0.66, equates to a real world count rate of 666 counts for that detector for that MAC. This argument is valid because ANSI/ANS-8.3-1997 states that the MAC is assumed to happen in 1 millisecond, or essentially instantly.

The reason for the assumed duration of the MAC in ANSI/ANS-8.3-1997 is because modeling time dependent criticality is very challenging. Currently there is no widely accepted simulation package that will accurately depict a time dependent criticality event. The current solution for modeling a criticality accident is to simply eliminate the time dependence and assume a prompt yield, thereby ignoring the delayed contributions to the total yield. Experience with criticality accidents has shown that this prompt burst assumption is valid for all non-delayed critical excursions (McLaughlin et al., 2000). Order 420.1B does not require CAS be able to detect delayed critical accidents.

Therefore, the source can be weighted by the number of particles resultant from the MAC and not the time dependent fluence.

The DCTE also provides a way to check the validity of the experimentally observed count rate and efficiency. The DCTE allows the computer simulated fluence at the detector location to be compared to the fluence recorded in the real world experiment. If the computational fluence striking the detector versus the recorded count rate is considerably different than the experimentally determined detector efficiency, then

something may be amiss. If necessary a simple solid angle approximation should identify which is wrong –the model or the experiment.

Because the DCTE is so important, the setup used to calibrate the nuclear criticality detectors needs to be modeled with greater precision than the building model. There will be activity data for whatever source is used to find the count rates or to calibrate the detectors. It is important for some, but not all sources, to very accurately decay correct their activities. For example, the neutron source ^{252}Cf , has a half life of only 2.6 years so it is very important to correct for the change in activity over time. Make sure to use the same energy bin structure for the calibration model as was used for the tallies in the facility model. The same goes for the orientation and configuration of the detectors in each model. Finally, it is very important that the exact same tally be used for both the calibration and the facility models.

Subtask 6 - Adjust the value for the detector minimum trip setting

In theory the minimum trip setting is desired to be as high as possible to avoid false alarms. In practice the engineer wants this value to be as low as possible to make the system design easier. It is advised to take a preliminary look at the count rates being recorded for the detectors in the facility model and the coverage requirements to make an initial trip setting approximation. Based on the radioactive material inventory in the specific facility, an assessment of the likelihood of a false alarm resulting from internal radioactive sources should be made.

With regard to false alarms, it is far more important to get the minimum trip setting as high as possible for gamma detection systems than it is for neutron detection

systems. This is because there are far more natural sources of gamma radiation that could potentially cause a false criticality alarm than there are for neutrons. However, with regard to minimum accident detection it is more important to get the trip setting as low as possible for the neutron based systems than it is for the gamma. Neutron-based systems are not really affected by cosmic radiation sources like their gamma counterparts but neutrons levels are typically lower during a MAC making them more difficult to detect. There is no hard and fast way to identify the minimum trip setting. Only a best guess with sufficient documentation can get a reasonable answer.

Subtask 7 - Verify that adequate coverage has been obtained at the new minimum trip setting

The final steps in the design are focused on proving and optimizing the detector coverage of the facility. Enough data has been determined to evaluate the detector coverage in the facility. General intuition about detector and accident placement has already been discussed, so proceed with proving that the system detects the MAC everywhere in the facility. Once the coverage has been verified at the minimum trip setting by using the DCTE, then the analysis in regards to detector placement is completed. After the detector coverage has been shown, focus should be shifted to the spectrum incident on the detectors. All that remains is to modify the calibration procedure to better mimic the average spectrum observed at the detectors in the facility model during the MAC.

Subtask 8 - Modify the Calibration Procedure

When the coverage has been thoroughly proven, it is time to take the spectrum incident on the tally surfaces of the facility and compare it to the calibration models' incident tally spectrum. It makes sense conceptually to calibrate the nuclear criticality detector to a similar spectrum of what it is expected to detect. There are a variety of ways the calibration source spectrum can be modified. The methods are somewhat different for neutrons and gammas.

For neutrons, low Z materials can be used to increase the ratio of thermal to fast neutrons, or conversely cadmium can be used to almost entirely eliminate neutrons below about 0.4eV. Reflection can be increased by placing materials behind the detectors, which increases the fluence hitting the detectors. Increasing the fluence hitting the detector may be crucial if significant portions of the fluence are lost when the spectrum is modified to better emulate what is seen in the facility.

Gammas require slightly different treatment than neutrons. Equation 6 gives the formula for the linear photon attenuation coefficient μ .

$$\mu = \tau + \sigma + \kappa \quad (6)$$

Equation 6 contains the three main physical processes that remove or slow photons in a beam, which are τ for the photoelectric effect, σ for the Compton Effect, and κ for pair production. Using these three parameters, materials can be found to modify the spectrum in a targeted way. Contributions from Rayleigh scattering and photonuclear effects can usually be ignored because they are small in comparison to the three processes in Equation 6. Gamma sources are generally cheaper and have a larger intensity than

neutron sources. So eliminating too much of the incident beam is not as significant a concern as it is for neutron sources.

Subtask 9 - Variance Reduction

It should be readily apparent that even in small facilities the volume of the radiation detector is many orders of magnitude smaller than that of the facility. Computationally this presents a problem that is increasingly exacerbated as facility size grows. In stochastic codes, the statistics get ever worse as the detector to building volume ratio decreases. Getting usable statistics can become very arduous for large models. The run times necessary to produce tolerable variance can become unrealistic. The ensuing discussion addresses techniques for reducing computational run times by providing a few possible solutions.

It is extremely important to note that incorrectly applying variance reduction techniques can completely invalidate the results and worse still the errors can be very hard to catch. Each code package has a variety of options available for reducing variance in a problem. There are code specific options, such as invoking deterministic transport for Monte Carlo codes, and there are techniques based on engineering intuition like omitting the material surrounding the facility to decrease time tracking particles there. The following is a brief list of other code specific variance reduction methods:

- Minimum Energy Cutoffs
- Importance/weight Cutoffs
- Weight windows
- Simplified Scattering treatments
- Source direction biasing

Each technique must be thoroughly analyzed before it is implemented. It should be noted that many organizations' quality control programs explicitly disallow some or all code-invoked variance reduction techniques. Next is a list of engineering-based simplifications that can significantly decrease run times:

- Reduction of MAC locations in the facility needed to show full coverage
- Modifying the numbers of particles being run according to ease of detection in a location
- Form arguments based on proving worst case scenarios to eliminate situations that are obviously easier, simpler, etc.

Each type of simplification has drawbacks and should be used with caution. If any method, be it code specific or engineering based, is used to reduce variance of computations, it must be well documented and peer reviewed.

Subtask 10 - Perform sensitivity analysis on the final CAS design

Sensitivity analysis is the investigation of how different factors could affect the operations of the alarm system. For example, in the computer model, fill all of the rooms within the building with "paper" to see how the neutronics are affected. This is done to say that even in the almost totally inconceivable event of the building turning into a paper repository, the alarm system will still function properly. It might sound outlandish that this type of analysis would need to be performed, but knowing how tolerant the alarm system is to potential facility modification can add credibility to the design.

Sufficient sensitivity analysis should be conducted so that clear bounding limits can be included in the final design memo for what can, and cannot be done, to/in the facility and not interfere with the CAS. The data collected during facility inspections is

especially useful here. Much of what is investigated here will be based on what typically occurs in the facility. Depending on the facility, the following parameters could be important to investigate:

- Modifications and remodeling
- Movement of large amounts of various materials into and out of the facility
- The effect of fire suppression systems
- Changes to the material surrounding the facility

This analysis is done just as much to say what the CAS will not tolerate as it is to say what it will. Both are important for establishing the bounding operational tolerances that the system can endure.

VI. Show the calibration method follows simple and concise methodology for setting the minimum detector trip points

After all the technical analysis is completed and reviewed, it is time to make the recommendations of how to perform detector calibration and movement. It is crucial to make recommendations and corresponding instructions as clear and concise as possible. First, it is a good engineering practice to not over complicate things. A saying from another professor applies in this instance, “keep it simple, stupid.” The more instructions there are, the greater the chance of error. Those who have to implement the recommendations should receive instructions that give abundant measurements to a single common reference point. They should see very few, if any, ambiguous words like around, near, or approximately. All dimensions should be given in one system: mks, cgs, etc.

The second reason to keep things clear and concise is for the regulators. One of the drivers for redoing the analysis of RPL was that the DOE found the minimum trip setting for the neutron detectors to be very poorly worded. What the DOE wanted was a clear minimum trip setting that was easy to confirm or refute. The old criterion was related in terms of absorbed dose per source particle referenced to a Plutonium-Beryllium source. The new definition is, “The neutron detectors in RPL are set to alarm at 600 counts per minute, which corresponds to an absorbed dose rate in free air of 80mrem/hr.” -a clear improvement.

VII. Assemble the final report

The structure of the final report is likely to vary greatly from institution to institution, so it is of no use to go into great detail about how to write it. Also the final report drafted for PNNL is classified as business sensitive, thereby prohibiting it from being used outside of the organization. Accordingly the time needed for writing the report is likely to fluctuate considerably. It took approximately 80 hours to draft, review, rewrite, review again, and finalize the report as a whole. For time estimating purposes it should be taken into consideration that the PNNL report requirements did not seem excessive. It should also be noted that the 80 hour time estimate was not all used at once, but rather over the duration of the project. The report drafted for PNNL contained several sections that were not affected by technical design changes so they could be written ahead of time. Writing report sections early on is highly recommended. The sooner the sections are written, the sooner they can be reviewed. Having fewer sections to go over in the final review will greatly expedite the final submission process. To give

a general sense of what may be included in the final design report, an outline is provided below.

1) Introduction-State the purpose and scope of the evaluation

1.1) Review of Previous Methods

2) Description-Describe the process/system

3) Requirements Documentation

Indicate specific DOE Orders and Guides, ANS Standards, Code of Federal Regulations or other requirement documents that are uniquely applicable to the analysis

4) Methodology

4.1) Evaluation Methodology

When using computer codes, indicate what codes and cross section libraries were used and reference the applicable code configuration control information and the code documentation. Identify the type of computing platform.

4.2) Benchmark Evaluation and Bias Determination

List the benchmark experiments chosen and discuss their applicability to the problem. Show the calculation of the bias and the uncertainty in the bias. Describe how the bias is applied to the results of this evaluation.

5) Evaluation and Results

Provide a detailed description of any models used. Reference code generated drawings in an Appendix. State assumptions and simplifications made. Include all calculation results.

7) Design Features\changes\improvements

8) Summary and Conclusions

State the systems, processes or facilities that the analysis is applicable to and indicate any limitations on the evaluation.

9) References

List all original references. Avoid referencing documents that reference other documents.

Appendix Containing Materials and Compositions

List and reference all materials. Include atom densities.

Appendix Containing Sketches and Drawings

Include sketches of the actual process (hand-drawn sketches are generally acceptable and expected) and as-built or design drawings.

Appendix Containing Code Input Listings

Include input listings for all computer code runs.

One final note on the report - a hard copy of all the references used along the way was required to be inserted as an Appendix. The definition of references at PNNL was not as expected, so it would be wise to get a clear description of what a reference is before even conducting the building walk downs.

Chapter 4 – Application of Guideline Methodology

This set of tasks deals with the technical application of the CAS design methodology. The CAS designed for RPL is used as an example of the design methodology. Sample MCNP5 computer code inputs are listed in Appendix F for the RPL facility model, the detector calibration setup, the MAC evaluation, and the validation benchmarks. These inputs will help to guide the user through the modeling phase and ultimately the detector placement.

I. Familiarization with the facility where the CAS will be installed;

Over the 6 month duration of this project, roughly a dozen facility inspections were conducted. These inspections provided a solid fundamental understanding of the facility and the operations conducted therein. To form a better understanding of how the system works, a test of the existing criticality alarm system in the building was observed. This is highly recommended because seeing the test put into perspective how the testing procedures were performed.

Until the test of the CAS was witnessed, it had not been readily apparent that the people carrying it out did not have very technical backgrounds. This observation is important because it brings up a very crucial point; the procedures must be written for those who have to read them. Rigorous technical analysis can be performed but if the conclusions drawn from it can not be communicated clearly to those who must enable them, then the analysis itself is trivialized.

The inspections of the facility repeatedly proved to be useful so it is highly recommended to conduct them frequently. Doing so can make many facets of the project go more efficiently.

II. Obtain, read, and summarize all of the pertinent standards and guidelines; then compare company specific requirements to others, so that the most likely scenarios for the Minimum Accident of Concern can be found;

After much debate three scenarios, with two different sources, were assumed to be the most likely limiting cases that would reach the MAC. The three cases contained either pure ^{235}U or pure ^{239}Pu in an optimally moderated water filled sphere as the source. The three cases were: a bare sphere, a water reflected sphere, and an iron reflected sphere. These three cases were chosen because they resemble some possible physically relevant accident scenarios in the facility. The bare and water reflected spheres were chosen to represent laboratory type accident scenarios. RPL is a radioisotope production facility where much bench top radiochemistry takes place. The iron reflected sphere was selected because it resembled an accident occurring in a shipping cask. A significant amount of material is moved in and out of the facility, including into and out of the High Level Radiochemistry Hot cells. Then all six permutations of these scenarios were modeled to find the most limiting fluence during the MAC. The result of the limiting plutonium accident runs with the final determination of the most limiting scenario is presented in this chapter under Subtask 1.

III. Outline a schedule of deliverables;

Assembling the schedule of deliverables was taken care of by the project manager and is included in Appendix D. The project manager assembled a preliminary timeline, and then asked for feedback on whether the timeline was acceptable. It is very important that the timeline is carefully examined because it is the criticality safety engineer that is responsible for the majority of the work. Voice any concerns as soon as they are uncovered because it gives management more time to address any issues, which is in everyone's best interest for completing the project. The single largest use of time for this project was the development and quality analysis of the facility model. It should be noted that no results are acceptable for the facility model until after it has been put thru QA. This makes it a high priority to finish as soon as possible. Do not put off either job.

IV. Evaluate and choose a computer simulation package to perform the analysis based on validation benchmarks that clearly demonstrate the code chosen will perform as expected;

The decision was made early on to use MCNP5 because it was felt that it had the capacity to perform the analysis, and it had been accepted by the Quality Assurance program at PNNL. To ensure that MCNP5 could perform as assumed, a series of benchmarks were modeled to prove that it was indeed an appropriate tool for the design. This task goes through the process of validation per the quality control requirements of PNNL.

MCNP5 was used extensively for modeling many aspects of this project. An MCNP5 model was created for each of the following;

- A thorough representation of RPL

- 6 different accident scenarios involving ^{235}U
- 6 different accident scenarios involving ^{239}Pu
- The current setup used for calibrating the BF_3 Nuclear Criticality Detector(NCD) to a specified dose rate
- The recommended modified calibration setup
- 6 different scenarios for sensitivity analysis

It is necessary then to model a set of accepted, experimentally confirmed, benchmarks that resemble the models created above with the same code package. Modeling these benchmarks in the same code allows experimentally confirmed results to be compared to those received from simulation. Showing that the simulation correctly reproduces the published physically similar benchmark results therefore validates the use of this code for the work being performed.

The benchmarks selected to validate the models described above were all taken from the Nuclear Energy Agency International Handbook of Evaluated Criticality Safety Benchmark Experiments, September 2008 edition (IHECSBE). The benchmarks in the IHECSBE are an extensive set of criticality experiments that have been thoroughly peer reviewed and modeled in a variety of computer codes. The physical details of each experiment, as well as their inherent uncertainty, are listed for each benchmark. Experimental results are given with how they were obtained, detectors/type, location, etc. Then these experiments are reproduced using a common software simulation package. Results from the simulations are included in the write up of the benchmarks and generally an accompanying input file is also listed. Such an extensive degree of detail in these benchmarks allows the user to model the experimental results with a good deal of confidence.

Now it is necessary to discuss how these benchmarks are chosen and how they directly apply to this project. Much of the CAS analysis performed hinges on the overall ability of MCNP5 to correctly model criticality events. More specifically this code must accurately account for fission of ^{235}U , ^{239}Pu , and ^{252}Cf and the resulting myriad of interactions that the particles may undergo after fission. The following criteria should be used to judge the applicability of a benchmark to what is being modeled:

- Reflection
- Energy range of the particle(s) being investigated
- Geometry
- Magnitude of the fluence being investigated
- Material compositions

There is no way to assert that if x number of the above criteria are met then the benchmark is relevant. What can be said is that the more closely the benchmark resembles what is being investigated, the easier it will be to argue that it is relevant.

A set of evaluated benchmarks was selected from the fundamental physics section of the IHECSBE. This set of experiments is designated in the handbook as FUND-NIST-CF-MULT-FISS-001 (Kim, 1995). These experiments were performed from 1989-1990 at the National Institute of Standards and Technology facility in Gaithersburg, Maryland. This research was performed using a spherical stainless steel container and fission chambers to investigate discrepancies in neutron transport being observed in subcritical assemblies. A lightly encapsulated ^{252}Cf neutron source was placed at the center of the spherical shell of Stainless steel. Absolute fission rates of ^{235}U , ^{239}Pu , ^{238}U , and ^{237}Np deposits in fission chambers positioned outside the spherical container were measured. The measurements were performed for spherical containers of three different diameters;

3-in., 4-in. and 5-in., with and without water in the spherical container. So it is clear that these experiments thoroughly investigate fission in all of the isotopes used in the CAS models. To replicate the results of the benchmarks, MCNP must track particles through several materials before a normalized fission rate is calculated. It is asserted that if the model created in MCNP5 can accurately replicate these experimental results, then MCNP5 is valid for use in this analysis for the design of a CAS.

It was selected to use 3-in., 4-in. and 5-in spheres filled with water and the same set repeated for the sphere filled with air. Absolute fission rates were obtained for all four isotopes listed above, but only the ^{235}U and the ^{239}Pu results are relevant to these models and hence the validation. Each case was modeled with the same version of MCNP5 used for the CAS analysis. A diagram of the general setup for the NIST experiments is shown in Figure 4.

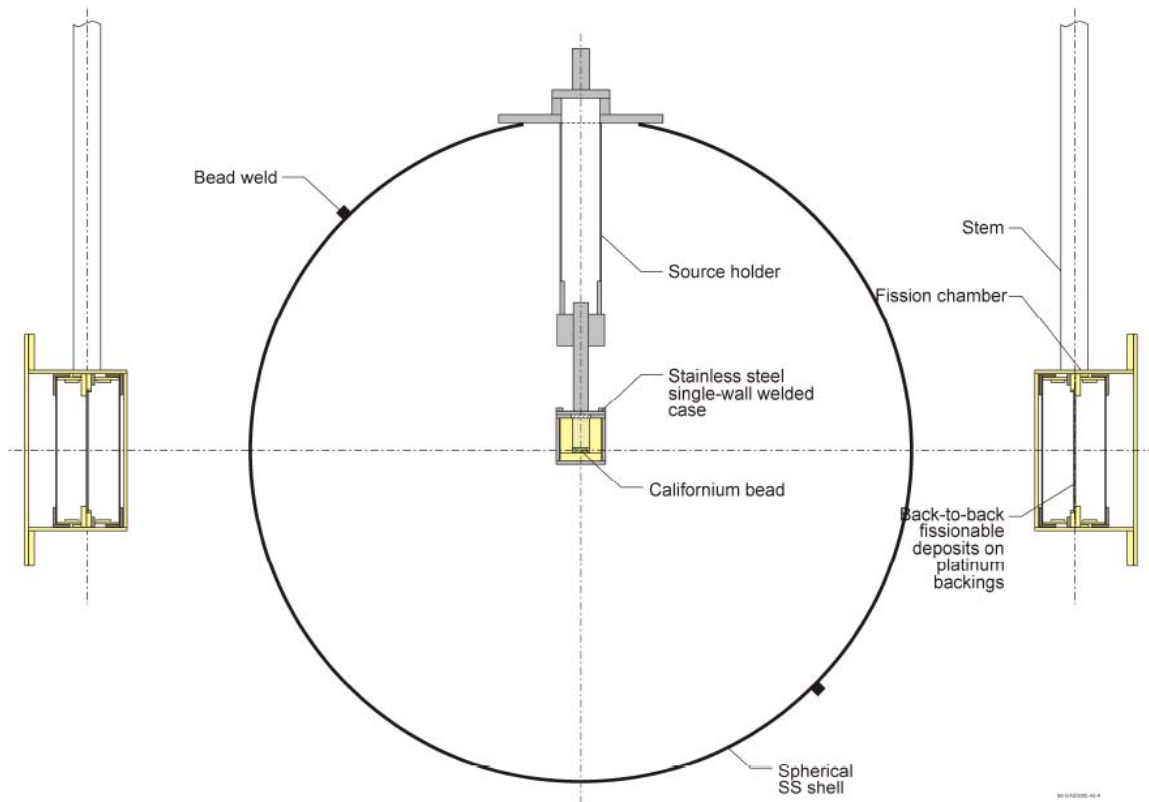


Figure 4. Experimental setup for the NIST Sphere Benchmarks

The Spherical Stainless Steel Shell had a diameter of 3, 4, or 5 inches. The detectors remained in the same location for both the 3- and 4-inch Shells –distance from the source was unchanged. In the 5-inch experiments, to facilitate the increase in radius of the shell, the detectors had to be moved 0.75 inches outward. To keep the source at mid-plane with the fission chambers for each shell size, the source holder was either lengthened or shortened accordingly. For the water-filled experiments, the sphere shown above was completely filled with room temperature water. These are the only geometric parameters altered for the experiments.

Table 1 gives the experimental results for the normalized fission rates in barns, as well as the associated relative error. MCNP5 will output a variety of cross section values including single group effective fission cross-sections in barns. That cross-section value multiplied by the fluence striking the fission detector yields the benchmark designated Fission Rate in barns shown in Table 1. Further details on how the Fission Rate was calculated can be found in (Kim, 1995).

The implications of having data for both water-and air-filled spheres are important to note. It is imperative for proving validity that the code is able to accurately account for the scattering and fission of neutrons. Demonstrating that MCNP5 can track neutrons through a strong scattering medium such as water, for all the isotopes involved in this analysis proves the code will perform as needed. The air-filled sphere data is important because the spectrum of the neutrons is much harder than that of the water-filled experiments. Showing that MCNP5 can track and account for fission of both thermal and fast neutrons is crucial to the dependability of the CAS analysis.

Table 1. Experimental normalized fission rates for ²³⁵U and ²³⁹Pu

Isotope	Condition	Sphere	Fission Rate (barns)	Relative Error (%)
U-235	dry	3-inch	1.278	1.6
	dry	4-inch	1.279	1.6
	dry	5-inch	No Results	
	wet	3-inch	19.6	1.7
	wet	4-inch	45.7	1.7
	wet	5-inch	72.2	1.7
Pu-239	dry	3-inch	1.916	1.5
	dry	4-inch	1.924	1.5
	dry	5-inch	No Results	
	wet	3-inch	36.7	1.5
	wet	4-inch	82.3	1.5
	wet	5-inch	125.5	1.5

Table 2 shows the results found from modeling the experiment in MCNP5 and the percent that this computational result differs from the experimental value.

Table 2. MCNP5 Computational results with comparison to experimental results

Isotope	Condition	Sphere	Fission Rate (barns)	MCNP5 Results	Variance from Experimental (%)
U-235	dry	3-inch	1.278	1.280	0.186
	dry	4-inch	1.279	1.281	0.175
	wet	3-inch	19.6	20.237	3.250
	wet	4-inch	45.7	46.245	1.194
	wet	5-inch	72.2	72.536	0.465
Pu-239	dry	3-inch	1.916	1.850	-3.457
	dry	4-inch	1.924	1.847	-4.027
	wet	3-inch	36.7	37.339	1.742
	wet	4-inch	82.3	81.753	-0.664
	wet	5-inch	125.5	124.669	-0.662

The requirement at PNNL for dose modeling accuracy is only plus or minus 20 percent of the accepted values. Table 2 clearly shows that MCNP5 exceeds this requirement. Table 2 shows the largest variance is -4.027 percent in the ²³⁹Pu dry 4-inch sphere model. The results obtained with MCNP5 clearly show that MCNP5 can accurately model fission of ²³⁵U, ²⁵²Cf, and ²³⁹Pu. It is also clear that MCNP5 models neutron transport through strong scattering media substantially well.

V. Design and model the criticality alarm system for the facility;

Subtask 1 - Finding the MAC including fluence and spectrum

Table 3 shows the results for the minimum accident scenarios that contained Plutonium. The Uranium accident scenarios were not included because the Plutonium accidents were found to generate fewer neutrons. These results were obtained using MCNP5 with F6 dose tallies. The inputs for all the Plutonium scenarios used to determine the MAC are listed in Appendix F. Looking at Table 3 it makes sense based on the shielding properties of neutrons that a water moderated system shields the most neutrons. Table 3 shows the minimum neutron fluence for RPL, which was found to be $3.94E15$ (n/cm²-s) for the MAC. This fluence was the result of an optimally moderated bare Plutonium and water sphere. This scenario had the largest portion of gamma-rays contributing to the dose limit. For reference the RPL minimum accident of concern MCNP5 input file is included in Appendix F.

Table 3. Plutonium minimum accident scenario data

Accident Scenario for Optimally Moderated 1kg Pu-239 and H2O Spheres	Neutron Dose per Source Particle (MeV/g)	Photon Dose per Source Particle (MeV/g)	Total Source Neutrons Required to Reach the MAC
Unreflected	1.34E-08	8.92E-08	3.94E+15
Water Reflected	2.94E-10	8.84E-08	4.90E+15
Iron Reflected	3.86E-09	4.74E-09	5.06E+16

When tracking photons in MCNP5, the user must designate the appropriate cross-sections for both neutrons and for photons. Cross-sections must also be included for photonuclear effects if the physics card does not explicitly disable them. Correctly defining the cross-sections and the physics options are not trivial exercises. Using the

wrong libraries or incorrectly tracking the particles can result in much different answers. Chapter II of the MCNP5 manual goes into greater detail on this matter so refer to it for specific guidance (X-5 Monte Carlo Team, 2003).

It is important to remember that the F6 tally output is normalized to per starting particle. This means that the branching ratios of the fission events taking place are not represented in the tallied quantities. So they must be included to determine the Total Source Neutrons Required to Reach the MAC quantity listed in Table 3. For example, a non-kcode calculation, for californium-252 emulates the fission energy spectrum but it does not account for the average number of neutrons emitted per fission (ν). Not including the correct branching information would result in source numbers that were at least a factor of ν too high, which could invalidate the calculated detector coverage.

Also it is important to remember that MCNP5 does not track delayed photons. It is essential to include the delayed photon contribution because it ultimately lowers the source term needed to reach the minimum dose level. Omitting the delayed fraction is then non-conservative and should be addressed. Depending on how much time is available, burn up calculations can be performed to determine the isotopics as a function of accident history. Then another MCNP5 input can be constructed that tracks only the resultant photon contribution from these delayed products. It was attempted to get this dose contribution for the delayed fraction but the total delayed contribution never amounted to more than roughly 3.5 percent of the total dose contribution. Several engineers felt that 3.5 percent was too small of a delayed fraction to guarantee conservatism. It was advised to assume a delayed dose contribution of 7 percent to be sure. It is unlikely that the delayed photon contribution is that high. Because there was

not great confidence in the numbers found with MCNP5, the decision was made to error on the side of conservatism.

Subtask 2 - Identify potential locations for detector placement

An analysis of the detector placement in RPL was performed using the Criticality Slide Rule (UNCSR) and an assumed minimum detectable dose value. To find the minimum detectable dose value, assumptions had to be made for the following quantities:

1. Average neutron fission energy of 2.1MeV for ^{239}Pu
2. Average value of interceding shielding of 8 inches of concrete
3. Minimum detectable fluence of $1\text{e}5$ neutrons

Assumption 1 was made because the only fissile material that the MAC contained for RPL was ^{239}Pu . Assumption 2 was found by looking at the materials between the accident locations and the detectors. The actual shielding values are different for every MAC location but an average value was used to save time.

The final assumption for the minimum detectable fluence was not as straightforward as the first two. At this point in the analysis, detector count rates, efficiency, and spectral dependence were not known for the system. Not knowing these parameters for the detectors to be used in the facility made choosing the minimum detection value difficult. Because no alternative was found a typical value was assumed for a similar detector type found on the General Electric (GE) website for a Reuter-Stokes BF_3 tube. The GE tube value had a lower detection threshold than the $1\text{e}5$ fluence chosen for this system but the BF_3 tubes that were available for this CAS were legacy tubes,

some over 40 years old. To compensate for the age, the decision was made to increase the GE minimum detection value by a factor of 100.

Using Equation 1 and the assumed parameters discussed above, the final equivalent minimum detectable dose was calculated to be 0.028 rad. The resulting dose reduction factor for 8 inches of concrete was 0.70. This yielded a final dose of 0.02 rad at a distance of 200ft. An arc was traced over facility drawings using the correctly scaled distance for each MAC. Figure 5 and Figure 6 show the arcs for the basement and first floors of RPL, respectively.

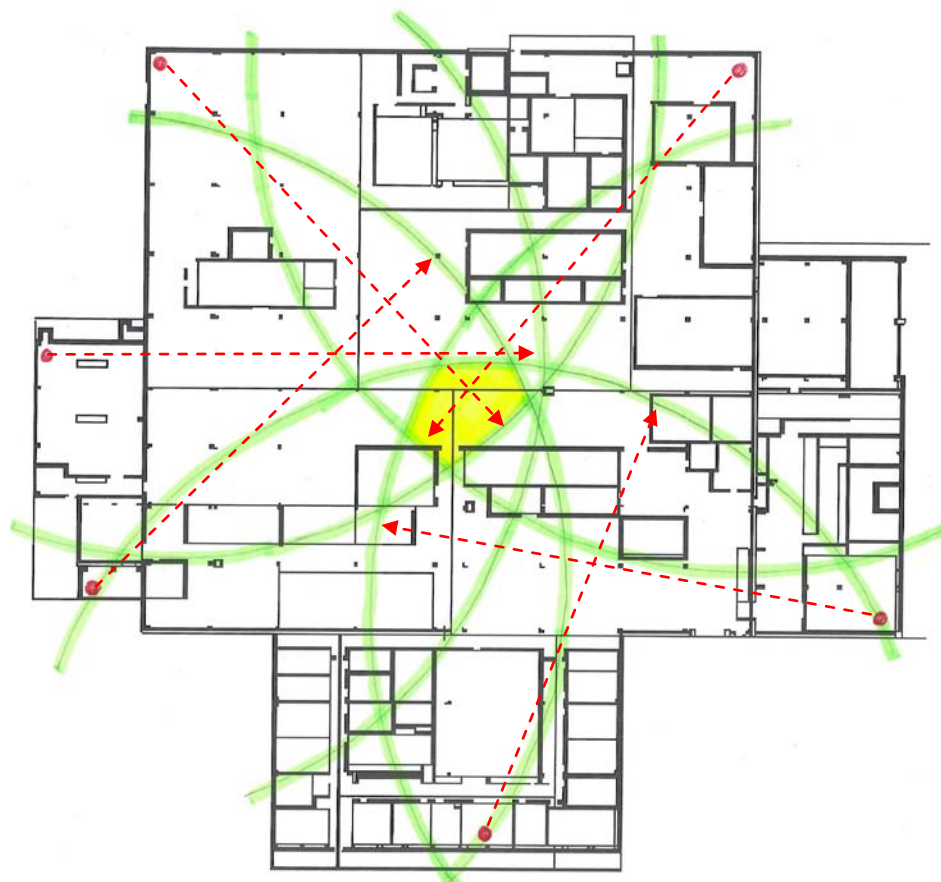


Figure 5. 0.02 rad arcs for the outlying MAC's in the basement of RPL



Figure 6. 0.02 rad arcs for the outlying MAC's in the first floor of RPL

The green arcs are the assumed minimum detectable distances for the specified parameters. The red dots are the MAC locations that correspond to the arcs. The highlighted areas represent the greatest number of arc unions on that floor. The most outlying MAC locations were chosen because they represent the most challenging detection locations. Comparing Figures 5 and 6 to Figures 7 and 8 shows how good of an approximation the Criticality Slide Rule provides. The actual detector locations for the basement are very near the highlighted areas. The first floor is slightly less accurate but the majority of the actual detector locations are within a small distance of highlighted

area. It can be concluded from Figures 5 and 6 that the assumed minimum detectable distance was slightly conservative, but still relatively accurate for predicting the detector coverage in the facility.

Subtask 3 - Modeling the facility

a. Assumptions/omissions/simplifications

All of the assumptions made for the CAS design of RPL are given in Appendix E. One major assumption for the RPL facility model was to standardize the fill material for the different spaces in the building. As mentioned in the Design Methodology section to be conservative, the material located inside of the facility must be included in the model. The method used for the RPL project was to make fill approximations based on facility inspections. The following classifications were made based on the average contents of the spaces in RPL, *Empty Rooms*, *Full Office*, *Full Laboratory*, *Half Full Office* and *Half Full Laboratory*. The contents of each classification are given in subtask c. These fill definitions were used to characterize the spaces within the facility.

To make the application of these fill definitions easier, the items located in the requisite space, i.e., desks, glove boxes, bookshelves, are homogenized for material definition. What this means is that the volumes of the corresponding items are conserved, but the items do not retain their geometric shape. The corresponding number densities for each item desks, glove boxes, bookshelves, etc., are all found independently and then added together to make the final appropriate room fill definitions.

b. Dimensions

Figures 7, 8, and 9 are floor layouts for RPL generated with the program Vised mentioned earlier. The red dots represent where each MAC was placed for the simulations. The green squares represent the existing detectors. Figure 9 shows the 2nd floor of RPL. There is only one laboratory on that level and the rest of the space in the northwest corner is taken up by offices. On the east side of that same figure is the top of High Level Radiochemistry Facility (HLRF). At that altitude HLRF is only open space and structural material.

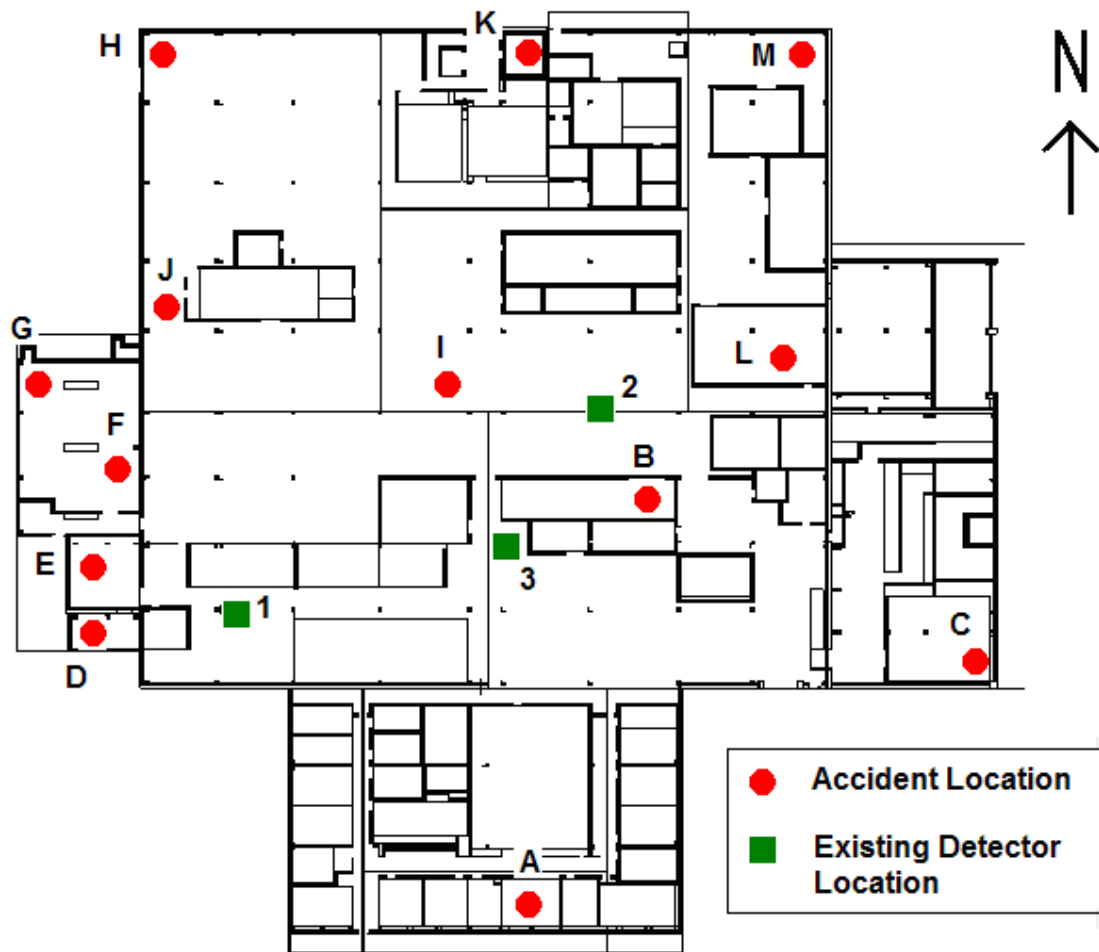


Figure 7. RPL Basement shown with modeled accident locations and the existing detector placement

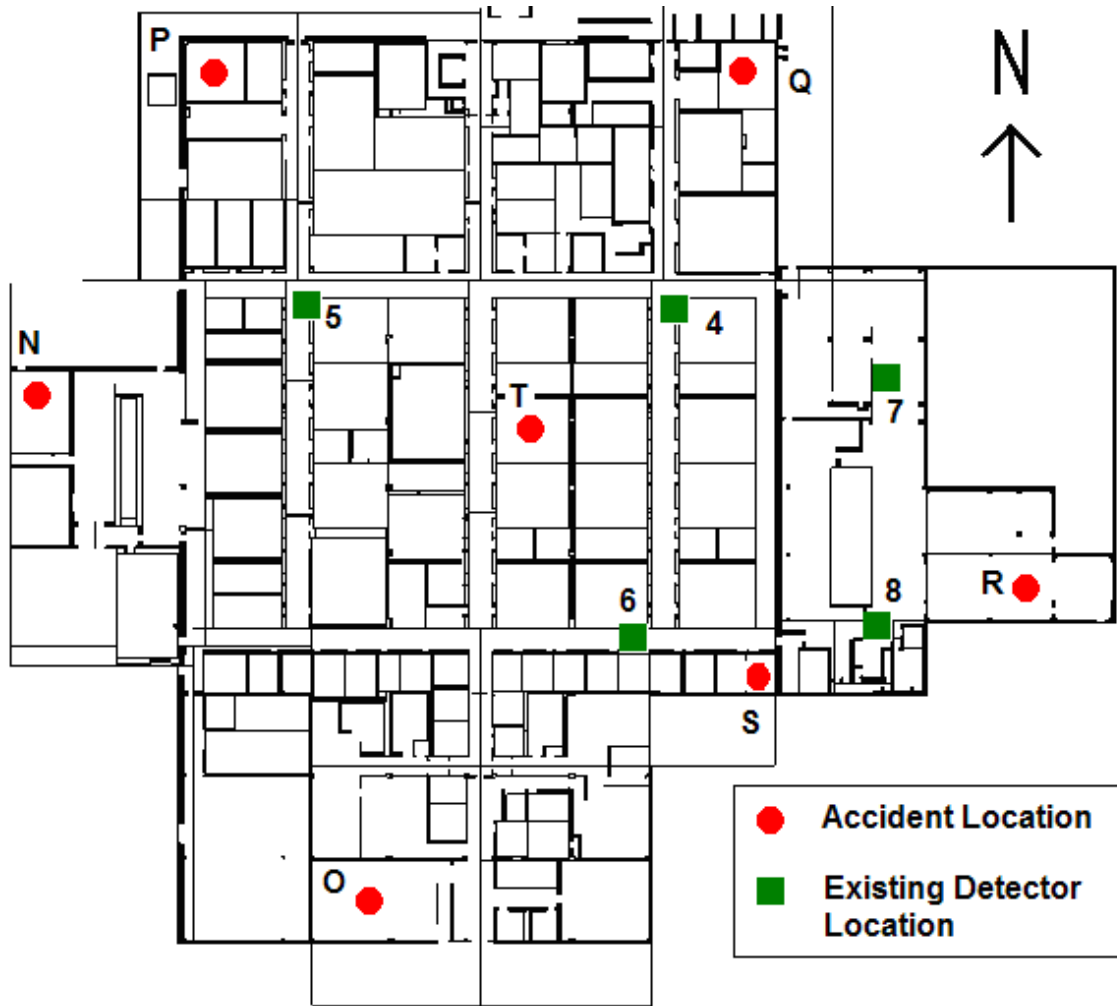


Figure 8. RPL First floor shown with modeled accident locations and the existing detector placement

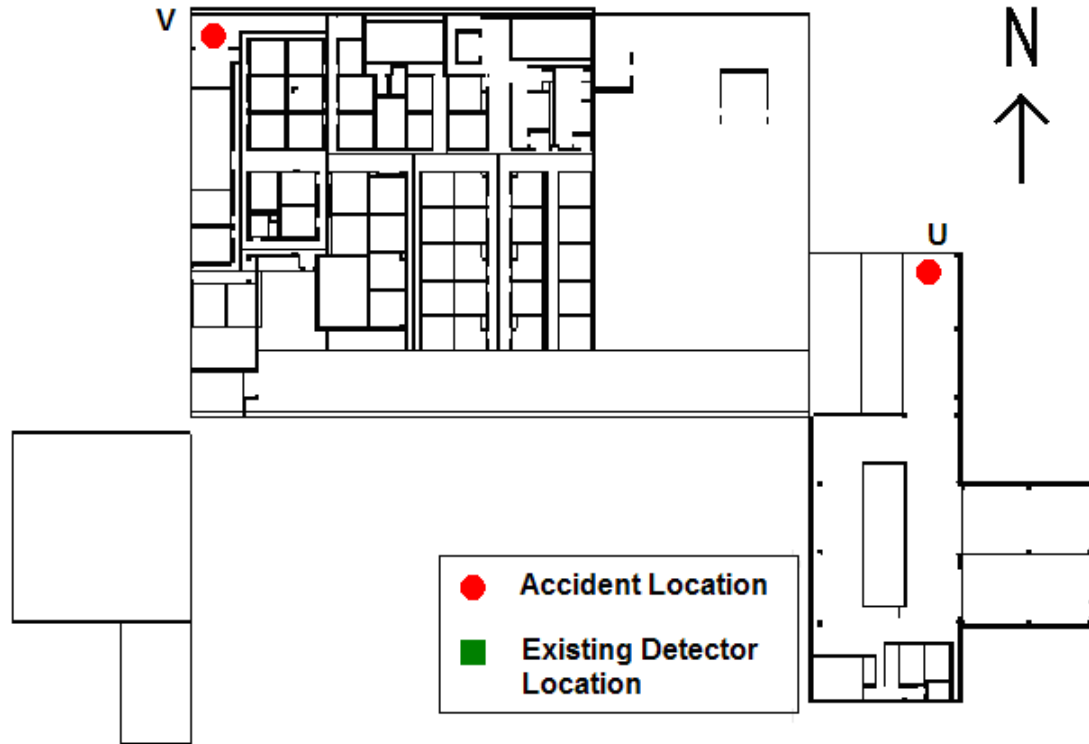


Figure 9. RPL Second floor layout

Facility Description

Building 325 houses the Radiochemical Processing Laboratory (RPL). It is located in the 300 Area of the Hanford Site in Washington State. The building is used to conduct radiochemical research. RPL contains laboratories and other facilities designed for work with non-radioactive materials, microgram-to-kilogram quantities of fissionable materials, and up to mega-curie quantities of other radionuclides. It is a Class 2 nuclear facility.

The RPL consists of a central portion, a south (front) wing, east and west wings. The central portion of the building contains over 100 laboratories and offices on three floors. The second floor and basement contain mechanical areas such as supply fans, steam lines, etc. The south wing (two floors) contains offices, a conference room, a

machine shop, a lunchroom, and rest rooms. The east wing (one floor) houses the high-level radiochemistry facility (HLRF), truck lock, and manipulator repair area. The west wing (one floor) houses the shielded analytical laboratory (SAL).

c. Materials Used in Computational Models

A note of caution: it was not determined until late in the analysis that the cinderblock walls of RPL were not hollow. During a QA mandated facility walkdown, it was discovered that the cinderblock walls were actually back-filled with concrete. Because this finding increases the amount of intervening material in the building, the models had to be updated and restarted. Fortunately the mistake was found early enough to not adversely impact the schedule.

Empty Rooms

Any room found to be “empty” was filled with air. The chemical composition of air is found in Appendix C. “Empty” was defined in the following way. Hallways were considered empty, including entryways and any space that looked to be wide open. Rooms void of furniture were likewise modeled as empty. Laboratories with empty cabinets built into the sides were modeled as empty. Bathrooms were modeled as empty.

Full Office

Offices that were fully functional, filled with a desk, full bookshelves, file cabinets, etc., were modeled as “full offices.” The justification and calculation of the material composition of a “full office” is provided in Appendix C. The office material

mixture was based on the dimensions of room 113 in the RPL. This room has dimensions of 350cm by 313.7cm by 442cm. It was assumed that the “typical” full office contained three full bookshelves, one full desk, and one full file cabinet. The measured dimensions of a typical bookshelf are 208.3cm by 91.5cm by 30.5cm. The measured dimensions of a typical file cabinet are 152.4cm by 38.1cm by 66cm. The desk was modeled as three file drawers with dimensions 91.5cm by 38.1cm by 66cm. It was assumed that all the bookshelves and file drawers (cabinets included) were full of paper. According to (Reppond, 1977), wood has a material composition of 44.44 weight percent carbon, 6.22% hydrogen, and 49.34% oxygen with an overall density of 1.0 g/cm³. The density assumed for the wood is intentionally high to ensure that even water-logged wood is accounted for. Appendix C provides the calculations for the “full-office” homogeneous material. The “half-filled office” was assumed to have one half the material in the room.

Full Laboratory

Laboratories were judged, upon personal inspection, to be “empty,” “full,” or “sparse.” The justification and calculation of the material composition of a “full laboratory” is provided in Appendix C. The laboratory material mixture was based on the dimensions of the room 312 in the RPL. This room has dimensions of 802.64 cm by 601.98 cm by 441.96 cm. There is also a wall section that cuts into the total volume of the room with dimensions 220.98 cm by 60.96 cm by 441.96 cm. It was assumed that the “typical” full laboratory contained four full bookshelves, four full file cabinets, and one glove box with six lead bricks. To represent the various instruments in the room, a 2-cm

thick sheet of stainless steel and a 2-cm thick sheet of glass was placed in the room. To represent all the tables, cabinets, and desktops, an 16-cm thick sheet of wood was placed in the room. The same dimensions for the desk, bookshelf, and file cabinet that were used in the office calculation were used in this calculation. The glove box has 6 panels of stainless steel and 4 panels of glass. The homogeneous material composition for the “full laboratory” is calculated in Appendix C.

Sparse Laboratory

The justification and calculation of the material composition of a “sparse laboratory” is provided in Appendix C. The same dimensions were used that are described in “full laboratory.” For the sparse laboratory, it is assumed that there is one-half the total amount of material in full laboratory. The homogenous material composition for the “sparse laboratory” is calculated in Appendix C.

Additional Materials

The rest of the materials used in the models were all approximated using existing published information on typical densities and compositions. For example the MCNP5 material card for the structural concrete used to model RPL is shown in Figure 10. The densities listed in Figure 10 are atom fractions with the units of atoms per barn centimeter.

c Calculated Density -2.3g/cc Standard Concrete

m3	1001.66c	-0.022100	\$ H Concrete (Ordinary)
	6000.66c	-0.002484	\$ C
	8016.66c	-0.574930	\$ O
	11023.66c	-0.015208	\$ Na
	12000.66c	-0.001266	\$ Mg
	13027.66c	-0.019953	\$ Al
	14000.60c	-0.304627	\$ Si
	19000.66c	-0.010045	\$ K
	20000.66c	-0.042951	\$ Ca
	26000.55c	-0.006435	\$ Fe

Figure 10. Standard concrete material definition of 2.3g/cc density.

d. Detectors

The detectors used in RPL are BF₃ gas proportional detectors, which have active dimensions of 21.6cm by 1.27cm. The Boron is 95% enriched ¹⁰B and the pressure of the gas is approximately 0.70atm. Each BF₃ is surrounded by 5.75cm by 21.6cm Right cylinder of Polyethylene. The calculated efficiency of the detectors was on average 7 percent. These detectors are designed such that when a failure of the tube occurs, it causes an “alarm” signal. This failed alarm mode is important when the accident scenarios are maximized to determine the 12 rad boundary; another regulatory concern out of the scope of this document.

e. Source

To model the MAC discussed above for RPL, a variety of MCNP5 features were used. The SDEF card was used with the coefficients corresponding to a Watt fission spectrum for thermal fission of ²³⁹Pu. To get the appropriate geometric distribution, the source was smeared isotropically throughout a sphere that contained the correct volume of water. Depending upon the location of the accident in the building, the number of

particles that were needed to get acceptable statistics varied considerably. The smallest number was only 10^5 but the largest number was 10^{10} .

f. Tallies

The only technically useful information that is warranted here is to show how the F2 surface flux approximation tally differed from the F4 cell weighted flux tally. Otherwise the tallies are thoroughly discussed in the MCNP5 manual (X-5 Monte Carlo Team, 2005).

It was found that the F2 tally generally over reported the surface flux for cylindrical and spherical tally surfaces more than it did for planar surfaces. How much the F2 tally over reported the flux varied from almost none to as much as 10 percent. Whether the F2 tally is over reporting fluences or the F4 tally is under reporting is not known. To maintain conservatism, the decision was made to use only the F4 cell tallies because there is no large angle approximation used in its computation, and it reported the lowest fluences of the two tallies.

g. Accident Locations

All that must be done is to prove that the alarm system can see an accident anywhere in the facility, plausible or not. So enough accident locations must be selected to show the total facility coverage. Generally all the corners, all of the heavily shielded areas, and all of the hot cells should have accidents modeled there. To show complete coverage for RPL, a total of 24 accident locations were chosen. The number of accident locations chosen to prove coverage is dependent on the size of the facility and the

available computational capability. The 24 accident locations chosen for RPL represent all of the most difficult to detect areas for the CAS. Intuition should be used in the determination of these locations. Areas with large amounts of intervening shielding and places that are the furthest from the detectors will commonly be the hardest to see. Figures 7, 8, and 9 show the modeled accident locations for RPL.

Subtask 4 - Find count rates for the criticality detectors for known conditions

The ratio of particles that result in a count is the actual efficiency of the detector. It makes little difference whether the efficiency is good or bad; what matters is that the efficiency is known, and known with confidence. PNNL operates a calibration lab where all of the NCD are routinely recalibrated and checked for problems. Their procedure for NCD calibration utilizes a neutron counting well with a ^{252}Cf neutron source placed in a motorized elevator. More importantly their procedure uses a set of three BF_3 tubes that were sent to the National Institute of Standards and Technology (NIST), where count rates for each tube were found at known dose rates with a high degree of certainty.

The NIST calibrated BF_3 tubes are used to find an elevation for the source in the well that yields a count rate that corresponds to the known dose rate. The NCD to be calibrated is then placed in the well, and its count rate obtained. If this count rate is not within 10 percent of the golden count rate, the gain or the dwell time is changed until it is. The count rate data for each NCD is recorded and plotted over time to show any underlying trends and how the tubes are progressing over time. It was found that the average count rate for all three golden BF_3 tubes was 563 counts per second at a distance of 1.61 meters from the source at 9:15am of March 3rd 2009. This information is used to recreate the calibration setup in MCNP5 in subtask 5 so that the DCTE can be found.

Subtask 5 - Modeling the Calibration/Counting Setup to find the Detector Cell Tally Efficiencies

The data found in subtask 4 was used to create an accurate model of the calibration setup so that the DCTE could be found. Table 4 shows decay corrected activity data for the ^{252}Cf NCD calibration source that was used in the model.

The neutron source was modeled using the spontaneous fission spectrum of ^{252}Cf provided by MCNP5 and the decay corrected activity for the simulated source weight. In MCNP5, the source weight is used to scale the tallied results to a real world yield. The same geometric model and F4 cell flux tally of the NCD used in the facility model was placed in the calibration mock-up.

Table 4. ^{252}Cf calibration source information

Date	Seconds Elapsed	Activity (Ci)	Activity (Bq)	Neutrons per second
9/27/1995	0.0000E+00	0.6880	2.5456E+10	2.9340E+09
3/4/2008	3.9243E+08	0.0264	9.7840E+08	1.1277E+08
1/19/2009	4.2016E+08	0.0210	7.7713E+08	8.9569E+07
3/9/2009	424396800	0.0203	7.5028E+08	8.6475E+07

The F4 tally indicated that 1440 particles strike the high density polyurethane (HDPE) collar per second for the identical calibration scenario described in task 4. Dividing the golden count rate by this tallied fluence gives a DCTE of 0.39 percent of the simulated particles entering the HDPE collar result in a real world count.

Subtask 6 - Adjust the value for the detector minimum trip setting

The count rate found by NIST for the set of three BF₃ tubes corresponds to a dose rate in free air of 80mrem/hr. This was the dose rate and ultimately the count rate used for the trip setting of the NCD in RPL. To the best of the knowledge of the engineers at PNNL, there has never been a false alarm in the facility. This fact was important to note because the facility has been in operation for over 50 years. This established track record was a great help for basing the trip setting high enough to avoid false alarms. It is unlikely to ever see a natural or cosmic background source that would approach even ten percent of the required 563 counts per second alarm setting. What may be plausible is that man-made sources could potentially reach this trip setting. To avoid potential man-made triggered false alarms, every effort was made to not decrease the trip setting.

Each facility will present its own challenges but it is this balance between detection and false alarms that is the most likely to cause problems for the engineer. RPL has a large amount of concrete, both regular and Barytic. RPL also has dozens of heavily shielded hot cells spread throughout the building. All of this material adds to the challenge of detecting an accident in any location. With diligence, effective coverage can be obtained with trip settings that are high enough to avoid almost all false alarms.

Subtask 7 - Verify that adequate coverage has been obtained at the new minimum trip setting

Once the initial accident modeling runs were completed and the trip setting agreed upon, the rest of the building inputs were run. Table 5 shows the final coverage for RPL. Table 6 shows the room locations of the accidents. These are the same accidents shown on the facility models in Figure 7, Figure 8, and Figure 9. Dividing the trip setting listed

in subtask 5 of 563 counts per second by the DCTE found in subtask 4 of 0.390 yields the computational equivalent of an alarm. Therefore the minimum F4 tally value that represents an alarm is 1440 particles. It can be seen in Table 8 that all the reported values are greater than the 1440 particles needed to trip a detector.

Table 5. Detector counts for each MAC location in RPL

Accident Location	Floor	NCD 1	NCD 2	NCD 3	NCD 4	NCD 5	NCD 6	NCD 7	NCD 8
Rm203	1	1.80E+06			2.37E+05	1.14E+05	4.66E+07		
Lunch Room	1	2.83E+07		8.89E+05		6.69E+06		1.10E+06	
Room 327A	1	1.64E+06	6.43E+06		3.33E+05		1.34E+07		
Room 528	1		6.90E+05		2.69E+07		2.21E+05		3.16E+05
HRLF Truck Lock	1				6.87E+06	3.96E+06		2.80E+08	2.12E+08
Room 119	1			4.14E+06	4.42E+06	3.49E+08		1.41E+08	
Room 410	1		1.18E+09	1.17E+08	1.73E+07	1.25E+07			
Mezzanine Lunch Room	B1	6.30E+05	6.11E+05	9.59E+06		9.49E+06			
Room 34	B1	1.52E+07	1.32E+09	8.27E+08		2.29E+07			
Room 40C	B1			3.66E+06		1.26E+07		3.14E+08	1.49E+07
Southwest of Room 23B	B1	3.09E+07	2.21E+05	2.31E+05		2.40E+04			
West of Room 23	B1	9.78E+07	4.74E+06			4.25E+04	3.25E+05		
East side of Room 32	B1	1.06E+08	6.57E+07	8.91E+06			5.68E+06		
Northwest side of Room 32	B1	3.02E+07	2.37E+07	2.63E+06			2.99E+06		
North of Room 63	B1	1.34E+08		1.80E+07	4.07E+05		2.22E+07		
Southwest of Room 57W	B1		2.78E+09	1.10E+09	1.20E+07		1.46E+07		
West of Room 55	B1	3.53E+08	1.37E+08	2.66E+07			8.12E+07		
Room 90	B1		5.58E+05	2.02E+05	2.29E+05		1.96E+05		
Room 48	B1		1.23E+08		9.86E+06			1.28E+06	2.63E+07
North of Room 52	B		1.32E+06		4.88E+06	1.15E+05			1.11E+06
Over Room 603	2				6.72E+08	7.75E+07		7.08E+08	4.35E+09
Over Room 327	2	8.26E+05		2.32E+05	3.41E+06		1.05E+08		

Note: All accident locations had a minimum of 4-detector coverage. B1=First basement floor 1=First floor, 2=Second floor

Table 6. As modeled MAC locations in RPL

Accident Location	Floor	Position X	Y	Z
(A) Mezzanine Lunch Room	Basement	1334.6	-847.5	202.5
(B) Room 34	Basement	1753.5	680.5	50.0
(C) Room 40C	Basement	2882.0	40.0	50.0
(D) Southwest of Room 23B	Basement	-202.0	171.0	50.0
(E) West of Room 23	Basement	-202.0	474.0	50.0
(F) East side of Room 32	Basement	-92.0	921.0	50.0
(G) Northwest side of Room 32	Basement	-382.0	1141.0	50.0
(H) North of Room 63	Basement	44.5	2577.0	50.0
(I) Southwest of Room 57W	Basement	1144.5	1028.5	50.0
(J) West of Room 55	Basement	44.5	2338.5	50.0
(K) Room 90	Basement	1314.5	2300.5	50.0
(L) Room 48	Basement	2303.5	1228.5	50.0
(M) North of Room 52	Basement	2178.5	2288.5	50.0
(N) Rm203	First Floor	-634.5	1132.5	492.0
(O) Lunch Room	First Floor	541.5	-847.5	492.0
(P) Room 327A	First Floor	40.0	2332.5	492.0
(Q) Room 528	First Floor	2277.5	2340.5	492.0
(R) HLRF Truck Lock	First Floor	3355.5	402.0	492.0
(S) Room 119	First Floor	2261.5	27.5	492.0
(T) Room 410	First Floor	1367.5	960.5	492.0
(U) Over Room 603	Second	44.5	2350.0	884.0
(V) Over Room 327	Second	2875.0	1520.0	1072.0

Subtask 8 - Modify the Calibration Procedure

The energy bins used to characterize the spectrum striking the detectors were first set to the same energy bins as the Hansen-Roach 16 Group Cross-section library (Hansen, 1964). In practice this was far more energy bins than were needed for making adjustments to the calibration procedure. Eventually, it was found that only two energy groups were needed to do the analysis. It may be beneficial in some facilities to include more than two groups, but because there are limited options available for spectrum modification more energy groups may not provide much advantage. The techniques used

for modifying the energy spectrum of neutrons and gammas were discussed in subtask 7 of Design Methodology. The two groups used for RPL were set to represent thermal and everything not thermal. The bin limits were zero to 4eV then from 4eV to 20MeV.

There are only two viable options for altering the energy distribution of a neutron spectrum. Either thermalize them by scattering, or use Cadmium to remove thermal neutrons thereby increasing the ratio of fast neutrons. The bin structure was set to make utilizing these two methods easier and more effective. The Cadmium cutoff is around 0.5eV but there is a broader structure than just a single peak. Figure 11 shows the total neutron absorption cross-section for ^{113}Cd . The peak is clearly visible but what is more important is the overall structure of the cross section.

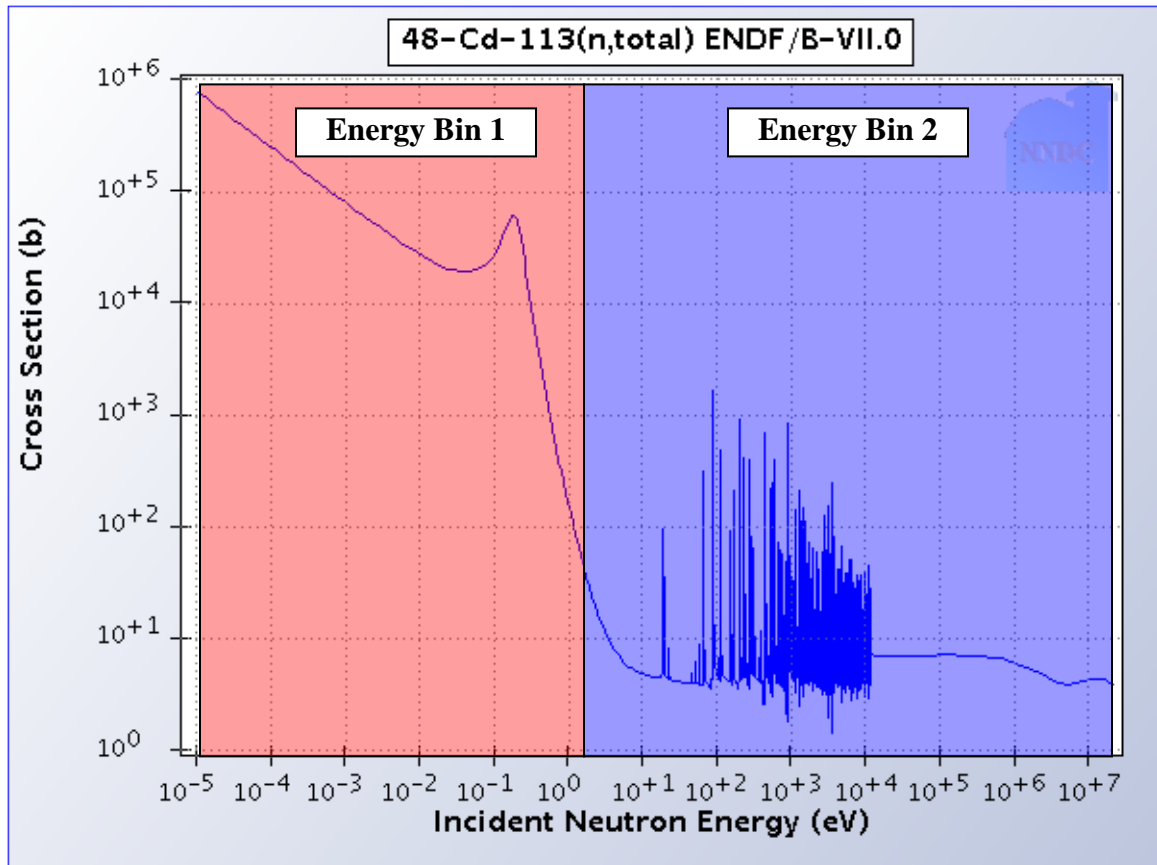


Figure 11. Graph of the total cross-section of ^{113}Cd

The total cross-section is large (1000's of barns) up to the single digit eV range, which is the main driver for the bin structure used for the detector tallies.

It was found from computer simulation of the MAC that approximately two-thirds of the fluence striking the tally surfaces in the facility model was in the 0 to 4eV range with the remaining third above that. The opposite ratio was found for the existing Nuclear Criticality Detector calibration setup. The same tally in the calibration model showed that roughly one-third of the incident spectrum fell below 4eV and two-thirds above it. To prove the NCD were calibrated correctly, the calibration procedure had to be modified to better resemble the average spectrum of the MAC. The next part of the document goes into detail on how the analysis was performed and the results obtained.

Example Nuclear Criticality Detector Calibration Procedure Evaluation

The current calibration procedure for the NCD at PNNL utilizes a ^{252}Cf source that generates the neutron energy spectrum seen in Figure 12.

Cf-252 S.F. Watt Spectrum Coefficients

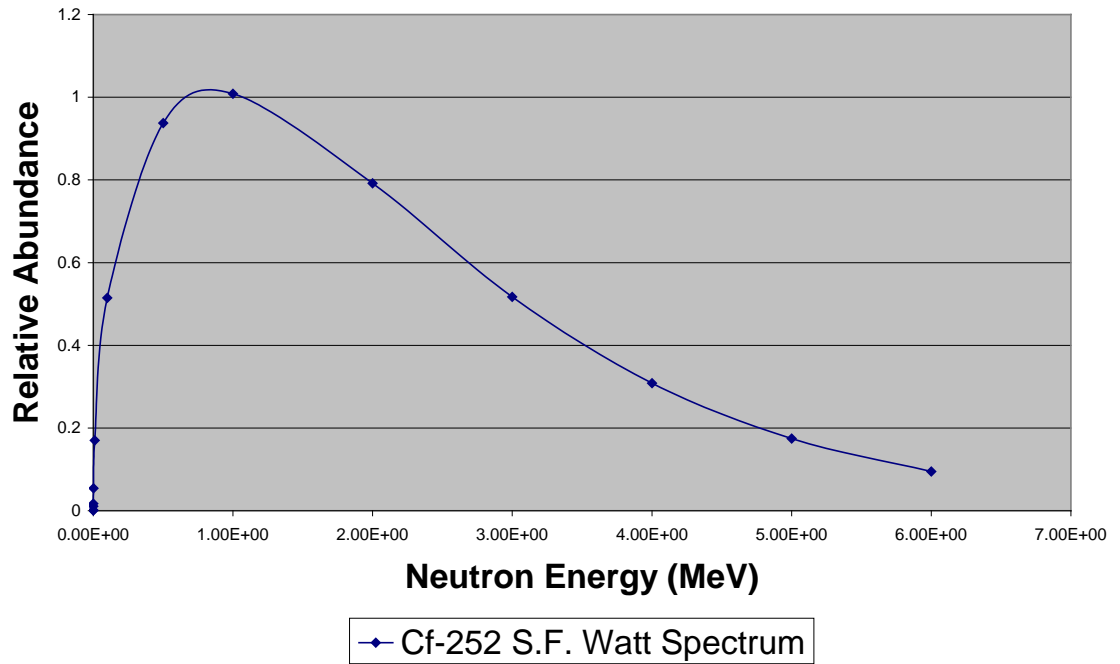


Figure 12. Neutron energy spectrum for the spontaneous fission of ^{252}Cf

Placing the neutron emission spectrum of ^{252}Cf into the same 0 to 4eV and 4eV to 20MeV energy bins from the facility model yields the graph shown in Figure 13 –Note the graph is in Log Scale.

Energy Distribution of the Nuclear Criticality Detector Calibration Source

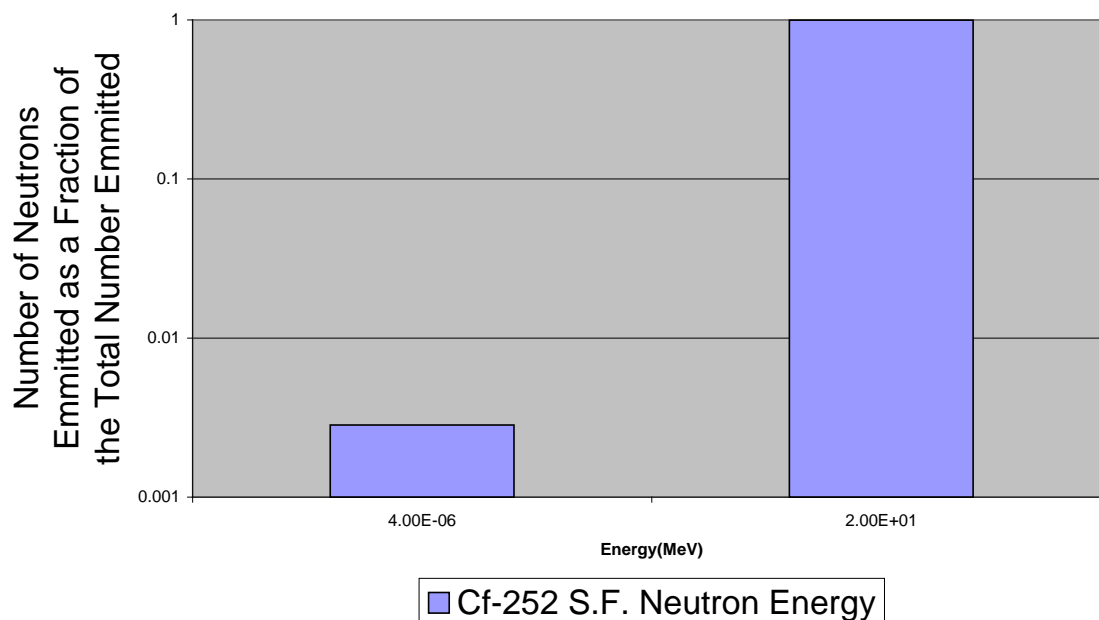


Figure 13. Neutron energy spectrum grouped into 4eV and 20 MeV energy bins for the spontaneous fission of ²⁵²Cf plotted on a log scale

It is clear from Figure 13 that the spontaneous fission of Cf-252 has almost no thermal energy neutrons.

The ²⁵²Cf source shown in Figure 12 and Figure 13 is placed on a motorized elevator in a 10 meter deep counting well. The NCD are placed on top of the well and the source is raised to the desired height for the corresponding activity level. For the current activity of the ²⁵²Cf source, the distance between the elevator and the NCD is approximately 1.60 meters. The fluence that reaches the NCD was found to have the energy distribution shown in Figure 14.

Existing Calibration Spectrum

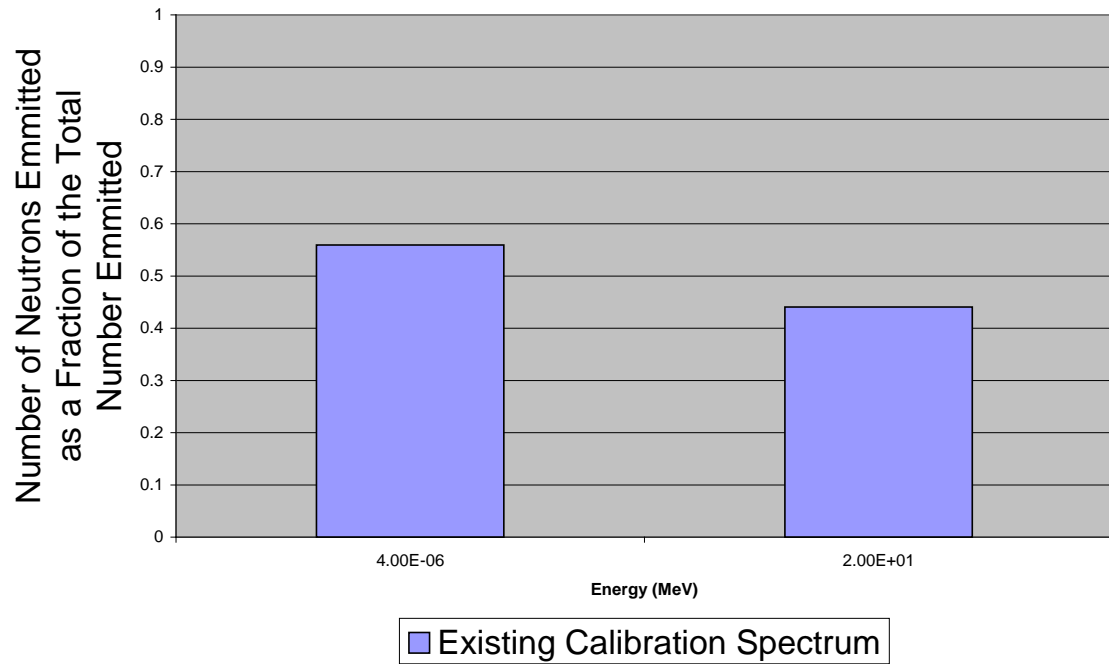


Figure 14. Existing calibration spectrum

Using the same energy bins as Figure 13 and Figure 14 for the MAC in RPL generates the graph in Figure 15. It is clear that spontaneous fission spectrum of ^{252}Cf is considerably thermalized by the materials around the counting wells.

Neutron Energy Distribution Incident on the Nuclear Criticality Detector During the Minimum Accident of Concern

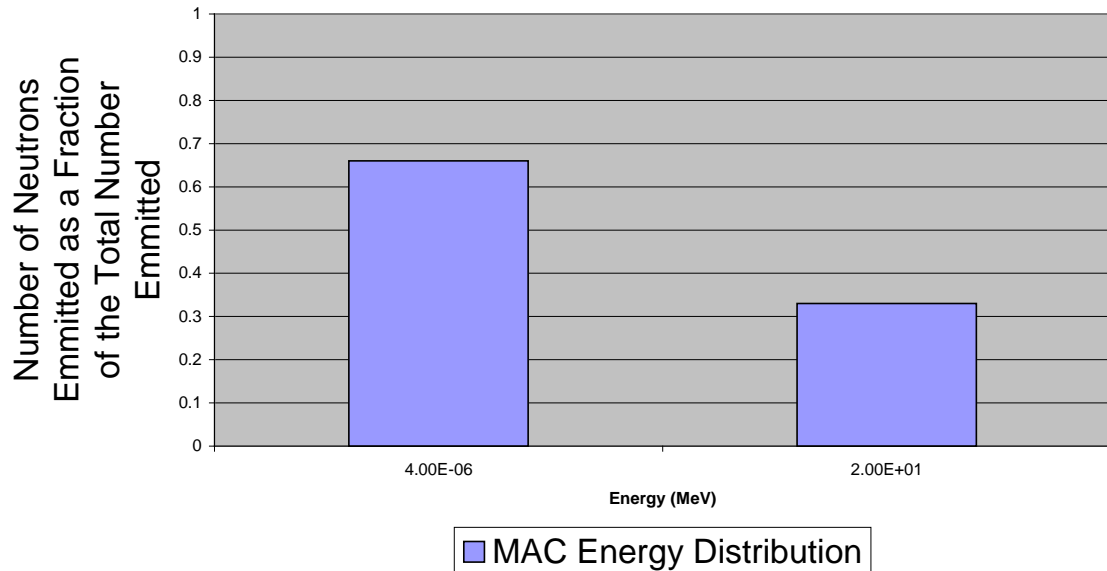


Figure 15. Average neutron energy spectrum during the Minimum Accident of Concern grouped into 4eV and 20 MeV energy bins

From Figure 14 and Figure 15, it can be seen that the spectrum used to calibrate the NCD was not the same spectrum the NCD was likely to be exposed to during the MAC; therefore it was necessary to modify how the NCD were calibrated. The existing calibration spectrum had approximately 56 percent of the spectrum below 4eV whereas the MAC spectrum had 66 percent. This discrepancy had to be resolved because if there was spectral dependence for the counting efficiency then the assumed known count rates used in subtask 4 would be incorrect.

To perform the analysis, an MCNP5 model was constructed. The basics of the calibration setup were included and flux tallies were used to find the energy distribution of neutrons striking the detector. Different materials were placed between the source and

the detector until the required energy distribution was obtained. A simple diagram of the calibration setup is shown in Figure 16. The NCD is yellow, the counting well is gray, and the ^{252}Cf source holder is red. The drawing is to scale.

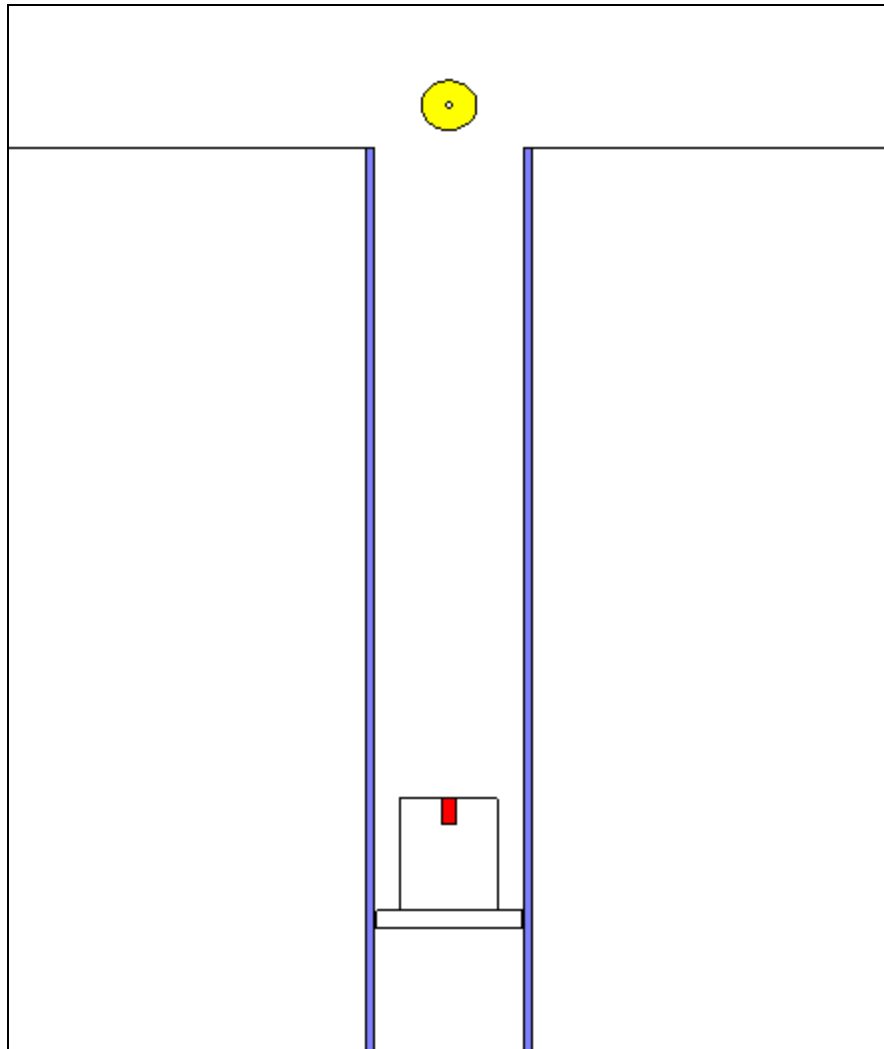


Figure 16. Existing NCD calibration setup

The entire well is surrounded by high density concrete. It was found that the following two steps could be inserted into the existing calibration spectrum to more effectively bound the average energy spectrum present during the MAC:

1. Construction and Placement of a 2cm thick, 13cm radius disc of High Density Polyurethane (HDPE) between the Californium Source and the NCD. The location of the plate should be just below the NCD.
2. Construction and placement of a hollow five sided box of HDPE 40cm x 40cm x 24cm around the NCD on top of the counting well. All sides of the box being roughly 6cm thick.

Figure 17 shows what the revised calibration setup will look like.

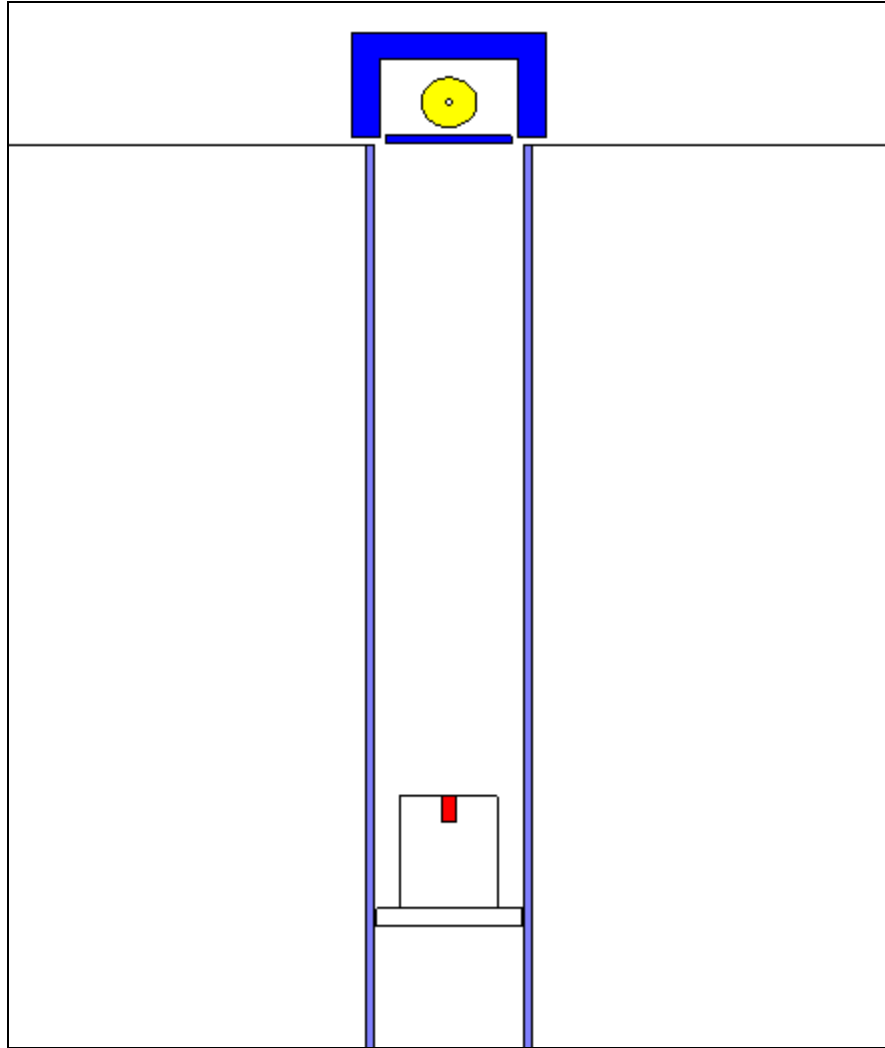


Figure 17. Revised NCD calibration setup with the added HDPE

The blue material is the added HDPE. After the proposed HDPE pieces are implemented, the spectrum hitting the NCD is altered to the distribution shown in Figure 18.

Calibration Spectrum After Proposed Changes

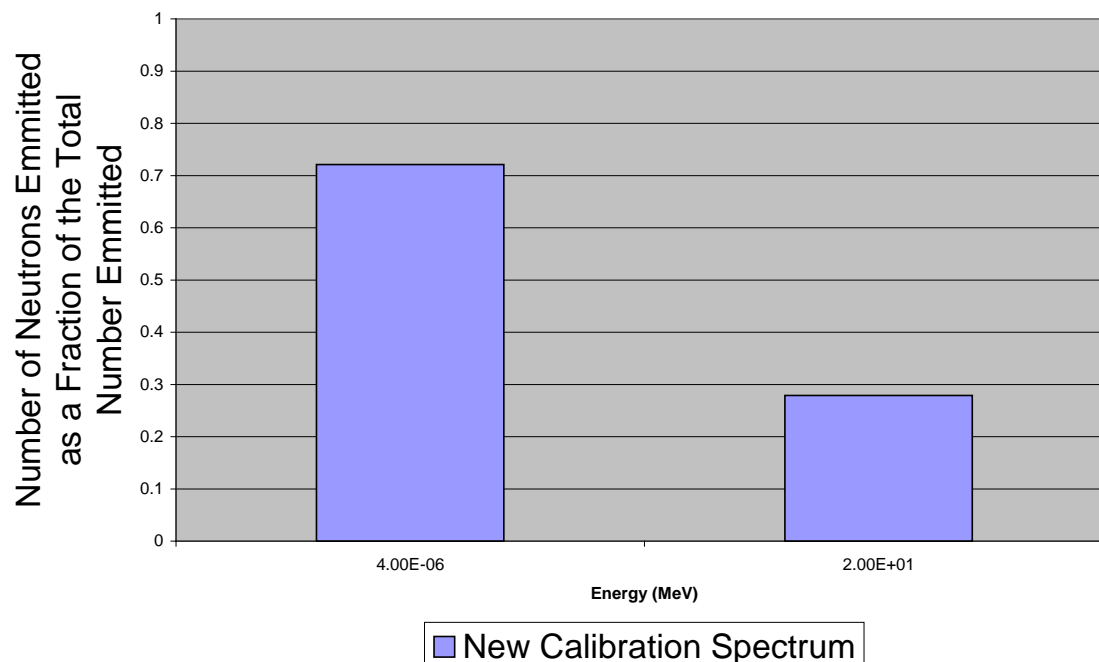


Figure 18. Modified calibration spectrum grouped into 4eV and 20 MeV energy bins

Adding the HDPE to the calibration process creates a spectrum with a slightly larger thermal fraction than both the existing calibration setup and the MAC spectrum. In reality, there is a range of spectrums that are possible in the MAC. Therefore the increase in the thermal fraction to beyond the MAC is done intentionally to more effectively bound the calibration of the NCD. The HDPE slab used to slow down the neutrons also absorbed or reflected away a considerable number of them as well. The box was placed over the well to increase the amount of reflection back toward the NCD. Placing the box in this manner not only made up for what was lost to the HDPE slab but actually increased the fluence striking the detector beyond the existing calibration procedure by an extra 15 percent. Californium neutron sources are very expensive so prolonging their

usable life is very helpful. Table 7 gives a summary of all the values shown in the histograms.

Table 7. Corresponding Data Used in the Histograms

Energy Bins (MeV)	Cf-252 Emission Spectrum	MAC Average Spectrum	Old Calibration Spectrum	New Calibration Spectrum
4.00E-06	0.003	0.660	0.559	0.721
2.00E+01	0.997	0.330	0.441	0.279

The suggested changes discussed here only deal with the need to modify the calibration spectrum to better mimic the likely accident conditions. These proposed changes are intended as an addition to the existing calibration procedure, not as a total replacement of existing methods.

Subtask 9 - Apply Variance Reduction as needed

During the modeling portion of the project it was found that the run times needed to obtain usable precision (less than 0.10 error) were very large. For the majority of the MAC locations needed to show complete facility coverage, the run times were upwards of 10 days on dual quad core 3.2GHz workstations. With 24 accident locations selected to prove coverage, it is apparent that if all went correctly it would take a minimum of 240 days to receive results. This amount of time exceeded the schedule of the project. The decision was then made to investigate using variance reduction in MCNP5.

The QA program at PNNL very clearly states that no variance reduction techniques may be used that alter the fundamental physics of the computer simulation. It was attempted to implement reduction strategies that complied with this requirement but

no solution was found that reduced run times to an acceptable level. To mitigate this problem, a compromise was made. Well documented variance reduction techniques could be used provided that standard Monte Carlo runs would be completed in the future to validate the results.

After extensive investigation, it was found through trial and error that implementing the deterministic transport option in MCNP5, DXTRAN, reduced the run times to 4 days plus or minus 2 days depending on the accident location. To initially verify the DXTRAN results were correct, 2 standard Monte Carlo runs were carried out. The first standard run represented the hardest accident location to detect, Room 90, a well-shielded location at the northern edge of the basement. The second run was for the easiest location to detect in the facility, (T) Room 410, a laboratory located in the center of the first floor. In both cases there was very little deviation of the DXTRAN results from standard Monte Carlo. Table 8 shows the results for these two sets of runs.

Table 8. Comparison of deterministic transport results to standard Monte Carlo results

Accident Location	Detector 2	Detector 3	Detector 4	Detector 5	Detector 6
(T) Room 410 - Standard	1.18E+09	1.18E+08	1.79E+07	1.34E+07	
(T) Room 410 - DXTRAN	1.18E+09	1.17E+08	1.73E+07	1.25E+07	
100*(Standard - DXTRAN)/ Standard	-0.1	0.7	3.2	6.8	
(K) Room 90 - Standard	5.57E+05	2.03E+05	2.34E+05		1.97E+05
(K) Room 90 - DXTRAN	5.58E+05	2.02E+05	2.29E+05		1.96E+05
100*(Standard - DXTRAN)/ Standard	-0.1	0.2	2.2		0.5

As mentioned earlier, extreme caution must be used when applying these techniques. Even though promising results have been demonstrated for this technique, the final analysis will not accept them. As per QA requirements, the final results will not be established on record until the standard Monte Carlo runs are complete. Techniques that reduce the variance have tremendous use for scoping and preliminary analysis, but are generally not acceptable as final numbers for the project.

Subtask 10 - Perform sensitivity analysis on the final CAS design

The sensitivity analysis conducted for RPL focused primarily on the effects of overloading the spaces in the facility with material that was twice as dense as the Full Office and Full Laboratory material definitions listed in Appendix C. This fill density was chosen because it represents the uppermost limit of the physical capacity of the spaces. Also the distribution of the super dense spaces was configured in the most challenging manner for accident detection. The spaces in the core of the building were filled with the super dense material and the spaces outside of the accident locations were left empty. Arranging the fill material in this manner represented a situation where the maximum amount of matter is placed between accidents and detectors. This represents the most limiting feasible scenario for the sensitivity analysis. Results for (T) Room 410 and for (K) Room 90 are given in Table 9.

Table 9. Detector counts for preliminary sensitivity analysis for maximum loading within the facility

Accident Location	NCD 2	NCD 3	NCD 4	NCD 5	NCD 6	Number Alarming
Room 410	1.18E+09	1.17E+08	1.73E+07	1.25E+07		4
Overloaded Tally	5.83E+08	5.20E+07	2.10E+06	1.39E+06		4
% Lost from Overloading	50	56	88	89		
Room 90	5.58E+05	2.02E+05	2.29E+05		1.96E+05	4
Overloaded Tally	3.71E+05	1.16E+05	1.19E+05		9.67E+04	4
% Lost from Overloading	34	43	48		51	

Again these results were obtained using deterministic transport and are not acceptable in the final report, but these preliminary results indicate that four detector coverage is maintained even at this loading. The standard Monte Carlo runs will provide the final data when they are completed sometime in the 2015 timeframe. It should be noted for the overloaded models, both standard and deterministic based MCNP5 run times increased dramatically.

VI. Show the calibration method follows simple and concise methodology for setting the minimum detector trip points;

Simplifying the calibration method for setting the minimum detector trip points was fairly straightforward. The majority of the analysis needed to set the trip setting was completed after both the average MAC spectrum in the facility had been analyzed and the calibration setup modeled for subtask 4. Because of the methodology used to establish building coverage took into account the conversion from simulated count rate to actual count rate, all that remained was to state what that count rate was.

Given the historical absence of false alarms with the established trip setting for RPL, the decision was made to attempt establishing coverage for the entire building at or above that level. It was shown in Chapter 4 subtask 7 that coverage was established for the entire facility above the historical trip setting. The final revision of the calibration procedure simply removed all extraneous dose conversion wording to arrive at the following definition of the trip setting: “All Nuclear Criticality Detectors for the Radioisotope Production facility will be set to alarm at 563 counts per second.” This is the definition that will be submitted to the DOE to show compliance with their request for a more transparent and verifiable definition of the minimum detector trip setting.

VII. Assemble the final report;

The final design report for the CAS of RPL was drafted in two parts that roughly followed the outline listed under the corresponding heading in Design Methodology. The initial draft contained four sections which were: the Introduction, Design Description, Requirements Documentation, and Methodology. The second draft contained:

- Evaluation and Results
- Conclusions
- References

Each draft was reviewed by a committee, and their comments were all submitted for evaluation of relevance. Because an outline was already provided, only general comments about the specific RPL report will be addressed here.

There is a reason the heading for this section is titled “Assemble the Final Report,” not “Write the Final Report.” In reality there is little writing that goes into the

final design report. What actually goes into the report is primarily tables, figures, diagrams, and references. It is advised to make all graphs, charts, etc., as plain and uncluttered as possible. Nothing seems to annoy management and tech editors more than a busy graphic.

The most challenging aspect of assembling the final report was finding, organizing, and citing all of the required References. The final design report contained over 60 different references, and hard copies had to be obtained for all of them. PNNL procedure required the references to be in the same order in the appendix that they were presented in the body of the text. PNNL document control system is also very strict, which made obtaining the necessary hard copies time consuming. It can not be overstated how important it is to retain all references that are encountered throughout the design phase, regardless of their perceived importance at that time.

Chapter 5 – Conclusion

Summary

A guide for designing a Criticality Alarm System was established. The focus of the guide was on producing a CAS that would meet applicable regulations and supply dependable coverage for personnel. The first half of the document provided an outline for the methodology behind each task and then thoroughly evaluated each task from a technical perspective. The second half of the document demonstrated how to apply this methodology by reviewing the analysis performed on the CAS of the Radiological Processing Laboratory of Richland, Washington. Results from the RPL system were included for each task and subtask. Potential pitfalls that were encountered during the design process were also included to aid the user in avoiding costly mistakes.

Future Work

As technology and standards evolve, the requirements that will be placed on Criticality Alarm Systems will no doubt change, likely only becoming more stringent. To meet any increased constraints, it is likely that more labor and computational time will be needed to complete the design of a CAS. As computational technology advances, more in-depth and detailed analyses can be conducted that could utilize greater precision. Greater modeling detail will instill greater confidence in the results and reliance on established overly conservative methods could potentially be relaxed.

The development of more efficient detectors, as well as more in-depth analysis, would allow the minimum trip settings to be raised thereby increasing the margin for avoiding false alarms.

Enhancements

Several improvements were made to the existing CAS design for RPL:

- Nearly all of the RPL facility was modeled and evaluated
- The number of modeling assumptions used was decreased
- Complete facility detector coverage was proven
- Detector coverage for the MAC was increased from 2 detectors to 4
- Better calibration methods were developed that more effectively bound the average spectrum likely to strike the NCD during the MAC
- The definition of the minimum trip setting was vastly streamlined to meet regulatory findings and to enhance transparency
- Direct dose calculation for the MAC was done, thereby eliminating the need for fluence to dose conversion factors

Each of these improvements increases the reliability of the CAS and streamlines any potential future analysis that may need to be performed. The increased detector coverage opens more areas in the facility where criticality work can be conducted. The increase in the number of detectors that will see the MAC impacts the operations in the building by allowing criticality work to continue even in the event of two separate detector failures. The modification of the calibration procedure enhances the reliability of the CAS by demonstrating that the NCD will more effectively see the energy spectrum of neutrons emitted during the MAC. Changing the definition of the minimum trip setting from a dose value to a simple count rate makes understanding what the CAS is set

to alarm for much easier. Changing the trip setting to a count rate also satisfies regulatory findings. The elimination of the dose conversion factors makes finding the corresponding fluence of the MAC clearer, again enhancing transparency of the overall design methodology.

The combination of all these improvements to the CAS in RPL provides better, more dependable coverage, which will send out prompt warning to personnel in the event of a criticality potentially saving lives of those involved.

Definitions

Criticality Alarm System (CAS): The combination of nuclear criticality detectors, audible alarms, and comparator panel that is responsible for the prompt detection and immediate audible alarm issuance to personnel.

Detector Cell Tally Efficiency (DCTE): The ratio of the number of particles that strike the detector cell equivalent being tallied that will ultimately result in a count, this is a computational quantity.

Detector Efficiency: The ratio of the number of particles entering the active detector volume which result in a count, which is experimentally determined.

Detector Surface Tally Efficiency (DSTE): The ratio of the number of particles that strike the tally surface that will ultimately result in a count, this is a computational quantity.

High Density Polyurethane (HDPE): A polymer with the chemical composition of CH_2 with an assumed density of .933(g/cc).

High Level Radiation Facility (HLRF): An annex of building 325 in the 300 area of the Hanford, Washington Department of Energy site that contains large shielded hot cells for work with fissile material.

Monte Carlo N-Particle Transport Code Version 5 (MCNP5): A Monte Carlo based neutronics code developed by Los Alamos National Laboratories and maintained by the Radiation Safety Information Computational Center.

Nuclear Criticality Detector (NCD): The instrument used for the detection of particles resultant from fission.

Radioisotope Production Laboratory (RPL): Designated as building 325 in the 300 area of the Hanford, Washington Department of Energy site used for work conducted on fissile material, a Class 2 hazard facility.

Shielded Analytical Laboratory (SAL): An annex of building 325 in the 300 area of the Hanford, Washington Department of Energy site that contains shielded hot cells for work with fissile material.

Appendix A: RPL Building Schematics with Accident and Detector Locations

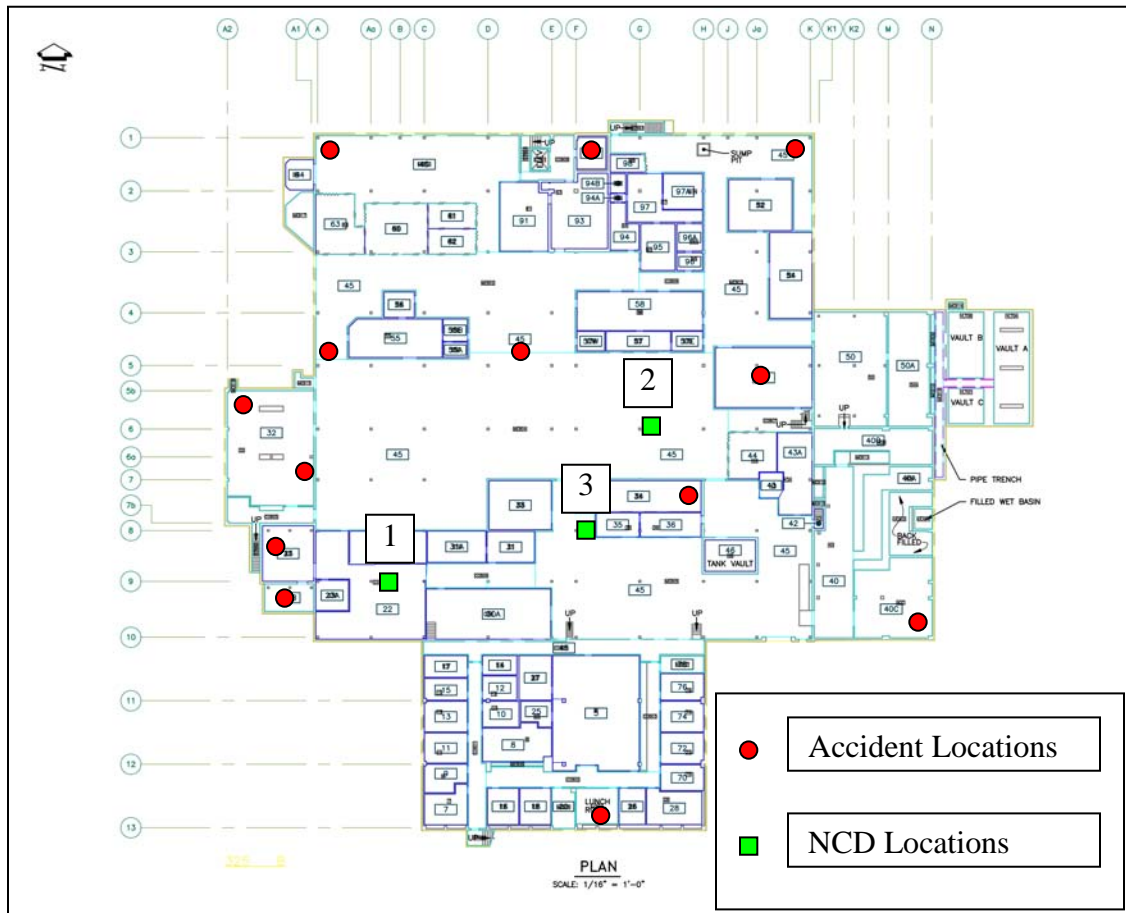


Figure 19. RPL Basement showing accident locations and NCD locations

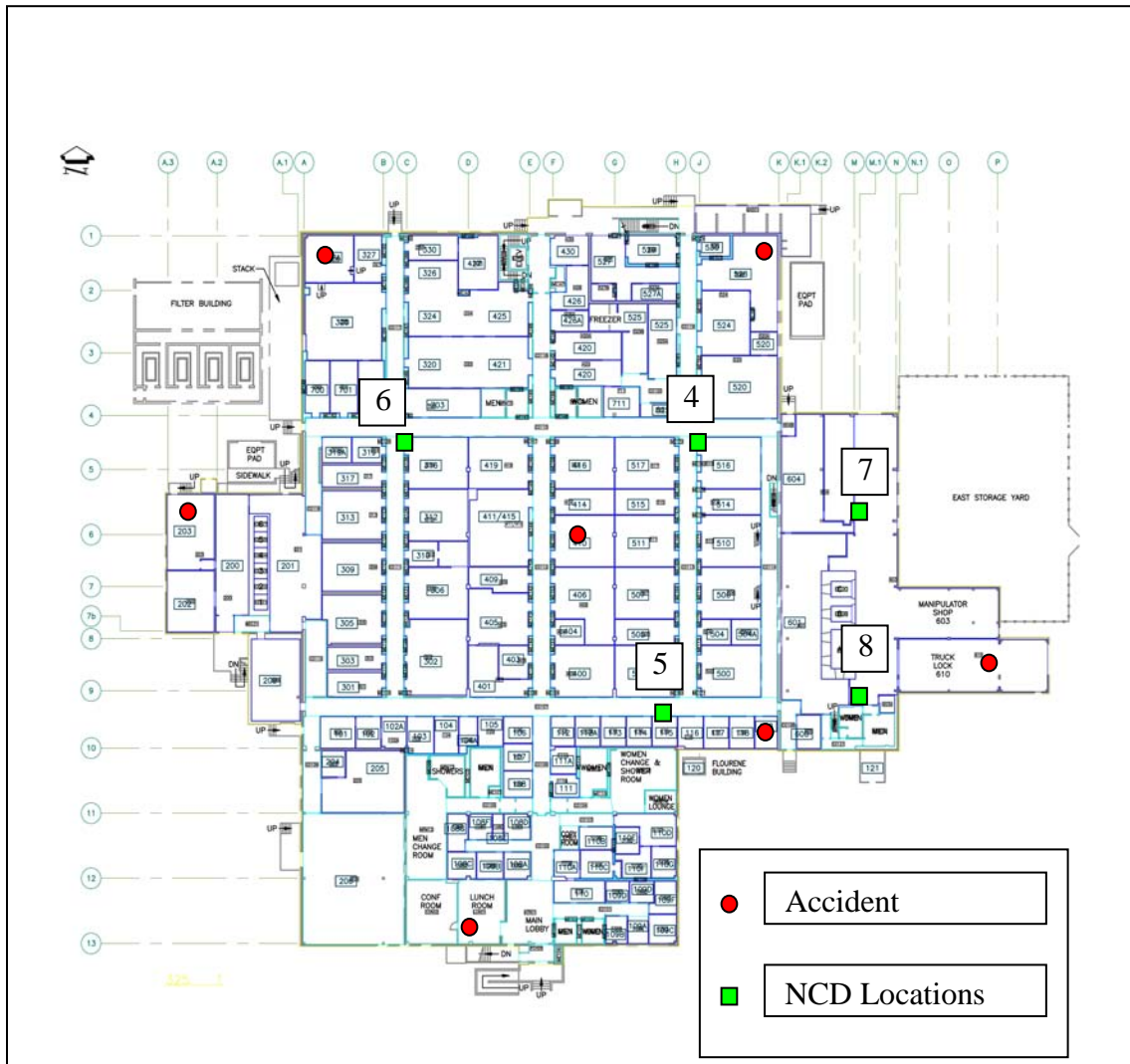


Figure 20. RPL First Floor showing accident locations and NCD locations

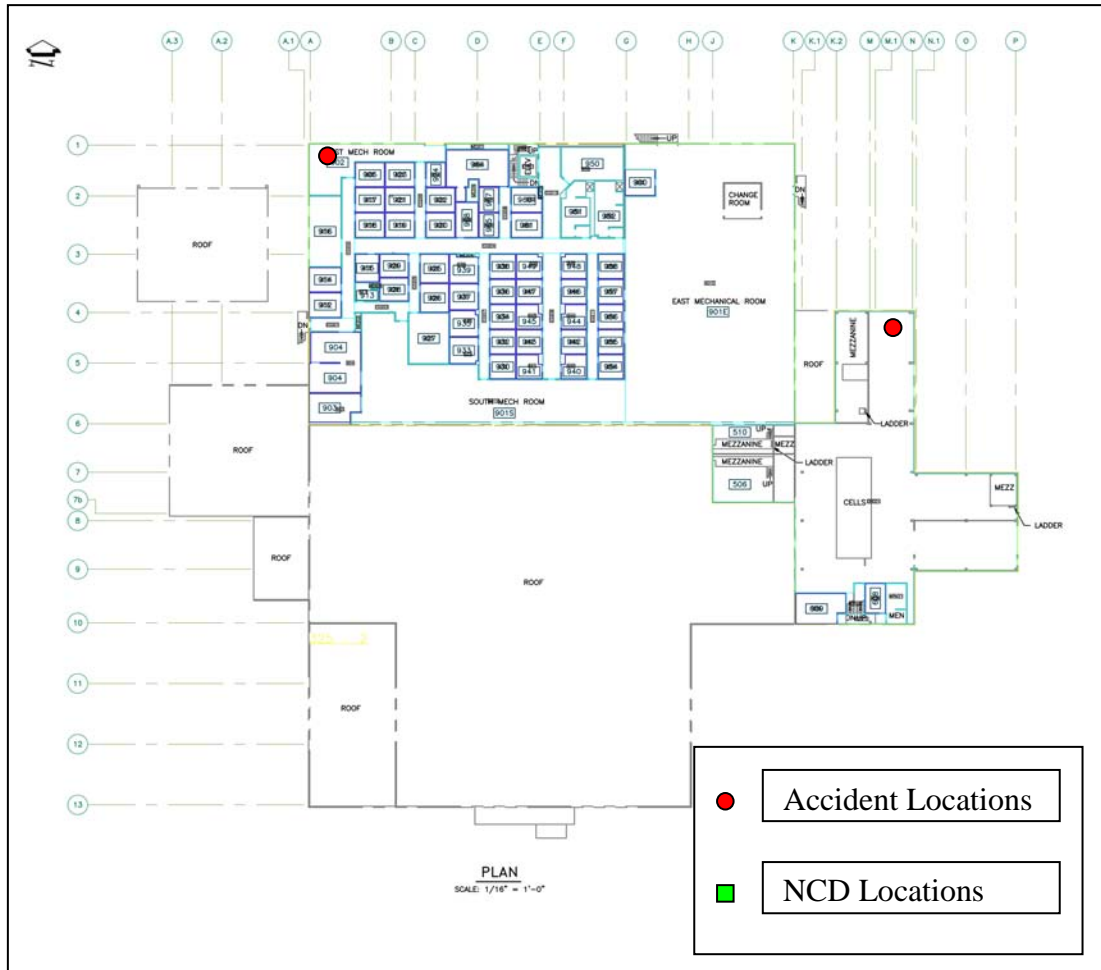


Figure 21. RPL Second Floor showing accident locations, no NCD are located on this floor

Appendix B: CAS Component Descriptions

Technical Description of the Comparator Panel

ANSI/ANS-8.3-1997 dictates that the comparator panel shall not trigger a criticality alarm for any single malfunctioning detector and that great care must be taken in the avoidance of false alarms. The panel constantly generates a signal that is broadcast to all of the detectors in the system. If any detector ceases to return the signal, the board considers the detector failed, and a warning is generated. Note that this warning is not the audible criticality alarm; it is a different alarm that is sent to an area normally occupied by competent personnel. Another note about the panel is that it does not issue a criticality alarm until two or more channels have alarmed. This eliminates the possibility of a single detector failure causing a false alarm. This is an important design criterion that greatly impacts the physical design of the system. It should also be noted the ANSI/ANS-8.3-1997 words the alarm statement as "...requiring concurrent response of two or more detectors to initiate the alarm." So it is allowable to require greater than two concurrent detector responses for a criticality alarm to be generated.

Technical Description of the Radiation Detectors

There are two types of radiation resultant from fission that are practically detectable: neutrons and gamma rays. The range of both neutrons and gammas is large enough that the number of detectors needed for adequate coverage is not prohibitive.

Typical CAS use either neutron or gamma detectors. A review of the literature did not identify any system that uses a combination of the two.

The selection of neutron or gamma ray detectors for the detection system has some important physical implications. Because the goal of the alarm system is to establish adequate coverage for the facility in question, it is desired from an engineering standpoint to set the trip setting of the detectors as low as possible. The lower the trip setting is then the fewer particles the detectors need to see for an alarm signal to be generated. But conversely the lower the trip setting is, the greater the risk of false alarm becomes. So there must be a balance made between lowering the minimum trip setting for detection limits and keeping the trip setting high enough to avoid false alarms.

Finding and proving this balance is not trivial so appropriate detector selection is crucial.

Section 5.1 of ANSI/ANS-8.3-1997 addresses the reliability of the system in general, which is of course applicable to the detectors themselves. It says:

“The system shall be designed for high reliability and should utilize components that do not require frequent servicing, such as lubrication or cleaning. The system should be designed to minimize the effects of non-use, deterioration, power surges, and other adverse conditions. The design of the system should be as simple as is consistent with the objectives of ensuring reliable actuation of the criticality alarm signal and avoidance of false alarms.”

This description is used to narrow the field of possible detectors that could be used in the system.

To investigate detector specific properties the book, Radiation Detection and Measurement by Glenn Knoll is extraordinarily useful. It goes into great detail for many different detector types. It provides operational data as well as counting efficiencies. It should be clear that the main detector selection criteria are gross count efficiency,

dependability, and the detection efficiency over the applicable incident particle energy range i.e., fission. There is no need for a detector that has spectral analysis capability. The list of potential detector candidates for both gamma and neutron detectors is quite large and beyond the focus of this document. What is of concern is the selection of which type of particle will be detected.

Background levels, both terrestrial and cosmic, are considerably different for gammas and neutrons. Background levels for neutrons are typically next to nothing in most areas. Generally it takes human effort to liberate neutrons, so man made sources are really the only area of concern for false alarms in a system utilizing neutron detection. This is not the case for gamma rays.

Natural background for gamma rays varies from location to location, sometimes considerably. Worse still is that the background levels for gamma rays can fluctuate with time. For example cosmic sources, such as solar flares, can cause significant increases in the gamma ray background levels. It is not all bad though because gamma rays are not attenuated in low Z materials as quickly as neutrons are. Most building construction materials are low-Z; concrete, wood, sheet rock, to name a few. Of course there can be large amounts of metal in buildings as well. Metals do a reasonably good job of shielding gammas. But metal will also absorb neutrons, which will then emit gammas as a result. This makes typical activity levels of gammas in facilities higher than that of neutrons during accident scenarios and therefore easier to detect.

Because the 300 area of Hanford, Washington is undergoing widespread demolition, the radiation detectors from other buildings have been salvaged and stockpiled. The majority of these detectors are BF_3 filled neutron proportional detectors.

These are very reliable, simple devices that don't require any significant maintenance other than calibration. So it was "recommended" that the design utilize this excess resource, which it does.

Equation B-1 shows the detection efficiency of BF₃ Tube. $\Sigma_a(E)$ is the Macroscopic Absorption Cross-Section of B¹⁰ at an energy level E, and L is the active length of the tube. Be sure to note any end effects when making an active length determination.

$$E(E) = 1 - \exp[-\Sigma_a(E)*L] \quad \text{B-1}$$

This equation was provided to illustrate a point. The absorption cross-section of B¹⁰ is very large so the corresponding detection efficiency is good.

Appendix C: Material Definitions for Codes

32 g/l ²³⁹ Pu in H ₂ O (From ARH 600)	
Nuclide	Number Density (atoms/bn-cm)
²³⁹ Pu	8.0614E-05
¹⁶ O	3.3374E-02
¹ H	6.6748E-02

H ₂ O	
Nuclide	Number Density (atoms/bn-cm)
¹ H	6.6890E-02
¹⁶ O	3.3440E-02

Iron	
Nuclide	Mass Density (g/cm ³)
Fe	7.874

Air	
Nuclide	Weight Fraction
¹⁴ N	79%
¹⁶ O	21%
Atom Density=1.197E-03 atoms/bn-cm	

Dirt	
Nuclide	Atom Fraction
Si (nat.)	33%
¹⁶ O	67%
Mass Density = 2.32 g/cm ³ . With a 66% packing factor mass density = 1.53 g/cm ³ .	

Concrete (2.3g/cc)	
Nuclide	Atom Fraction
²⁷ Al	0.00175
Ca (nat.)	0.00152
Fe (nat.)	0.00035
¹ H	0.01375
¹⁶ O	0.04608
²³ Na	0.00175
Si (nat.)	0.01663

Stainless Steel	
Nuclide	Weight Fraction
Fe (nat.)	74%
Cr (nat.)	18%
Ni (nat.)	8%

Stainless Steel Walls	
Nuclide	Atom Density (atoms/bn-cm)
Fe (nat.)	2.63792E-03
Cr (nat.)	6.89167E-04
Ni (nat.)	2.71250E-04
Total	3.59833E-03

Wall density changes from the 8" to the 4" because of construction method

8" Wood Walls	
Nuclide	Mass Density (g/cm ³)
C (nat.)	2.6664E-02
¹ H	3.7320E-03
¹⁶ O	2.9604E-02

4" Wood Walls	
Nuclide	Mass Density (g/cm ³)
C (nat.)	5.3328E-02
¹ H	7.4640E-03
¹⁶ O	5.9208E-02

Basement Ceiling/First Floor-Deck	
Nuclide	Mass Fraction
²⁷ Al	0.03177
Ca (nat.)	0.04112
Fe (nat.)	0.06160
¹ H	0.00934
¹⁶ O	0.49712
Si (nat.)	0.31491
²³ Na	0.02710
Cr (nat.)	0.01180
Ni (nat.)	0.00524

The density of the mixture is 2.4121 g/cm³.

First Floor-Ceiling/Second Floor-Deck	
Nuclide	Mass Fraction
²⁷ Al	0.00454
¹⁰ B	0.01680
¹⁶ O	0.24290
Si (nat.)	0.1712
²³ Na	0.01861
Fe (nat.)	0.40400
Cr (nat.)	0.09828
Ni (nat.)	0.04368

The density of the mixture is 0.47511 g/cm³.

Full-Office Material Composition

The typical full office has one desk, one file cabinet, and three bookshelves. The dimensions are as follows:

Desk = 36" * 15" * 26"	Vd = 14,040 inches ³
File Cabinet = 60" * 15" * 26"	Vfc = 23,400 inches ³
Bookshelf = 82" * 36" * 12"	Vs = 35,424 inches ³

Therefore, the total volume of the wood in the room is $V_d + V_{fc} + 3V_s$, which is 143,712 in³ or 2.35502E+6 cm³.

The percent volume of wood = $V_w/V_{room} = 4.85496E-02$

Wood is assumed to be cellulose (C₆H₁₀O₅) at 1 g/cm³.

Therefore, the weight fractions are

C =	0.4444
H =	0.0622
O =	0.4934

The material densities are therefore:

C =	2.15754E-02 g/cm ³
H =	3.01979E-03 g/cm ³
O =	2.39544E-02 g/cm ³

Total Room Density = 4.855E-02 g/cm³

Full-Laboratory Material Composition

$$\begin{aligned} \text{Room Volume} &= (802.64 \text{ cm} * 601.98 \text{ cm} * 441.96 \text{ cm}) \\ &- \\ & (220.98 \text{ cm} * 60.96 \text{ cm} * 441.96 \text{ cm}) \\ &=2.0164\text{E}+08 \text{ cm}^3 \end{aligned}$$

Glove Box

SS panels

Number	x	y	z	Volume (in ³)	Volume (cm ³)
2	24	48	0.25	576	9,438.95
2	48	36	0.25	864	14,158.42
2	36	24	0.25	432	7,079.212

Glass panels

Number	x	y	z	Volume (in ³)	Volume (cm ³)
2	48	36	0.25	864	14,158.42
2	24	36	0.25	432	7,079.212

Lead Bricks

Number	x	y	z	Volume (in ³)	Volume (cm ³)
6	2	4	8	384	6,292.633

Stainless Steel Sheet to Represent Instruments

Number	x	y	z	Volume (cm ³)
1	802.64	601.98	1.0	483,173

Glass Sheet to Represent Instruments

Number	x	y	z	Volume (cm ³)
1	802.64	601.98	1.0	483,173

Wood Sheet to Represent Tables and Desks

Number	x	y	z	Volume (cm ³)
1	802.64	601.98	1.0	483,173

Two Bookshelves 1,160,991 cm³

Two File Cabinets 766,915 cm³

Material Totals

	Volume (cm ³)	Volume Fraction	Density in Room (g/cm ³)
Glass	504,410	2.5016E-03	5.5785E-03
SS	513,849	2.5484E-03	2.0209E-02
Pb	6,292	3.1208E-05	3.5421E-04
Wood	2,411,078	1.1958E-02	1.1958E-02
Air	1.9820E+08	9.8296E-01	1.1815E-03

Densities (Reppond, 1977)

$$\text{Glass} = 2.32 \text{ g/cm}^3$$

$$\text{SS} = 7.93 \text{ g/cm}^3$$

$$\text{Pb} = 11.35 \text{ g/cm}^3$$

$$\text{Wood} = 1.00 \text{ g/cm}^3$$

$$\text{Air} = 0.001202 \text{ g/cm}^3$$

Nuclide	Weight Fraction
Al	1.4202E-03
B	5.2546E-03
Na	5.8227E-03
O	2.3249E-01
Si	5.3541E-02
Fe	3.8071E-01
Cr	9.2605E-02
Ni	4.1158E-02
Pb	9.0174E-03
C	1.3528E-01
H	1.8935E-02
N	2.3762E-02
Total Density	0.03928 g/cm ³

Sparse-Laboratory Material Composition

$$\begin{aligned}\text{Room Volume} &= (802.64 \text{ cm} * 601.98 \text{ cm} * 441.96 \text{ cm}) \\ &- \\ & (220.98 \text{ cm} * 60.96 \text{ cm} * 441.96 \text{ cm}) \\ &= 2.0164\text{E}+08 \text{ cm}^3\end{aligned}$$

It is assumed that there is one-half the total amount of material that is present in the full-laboratory model.

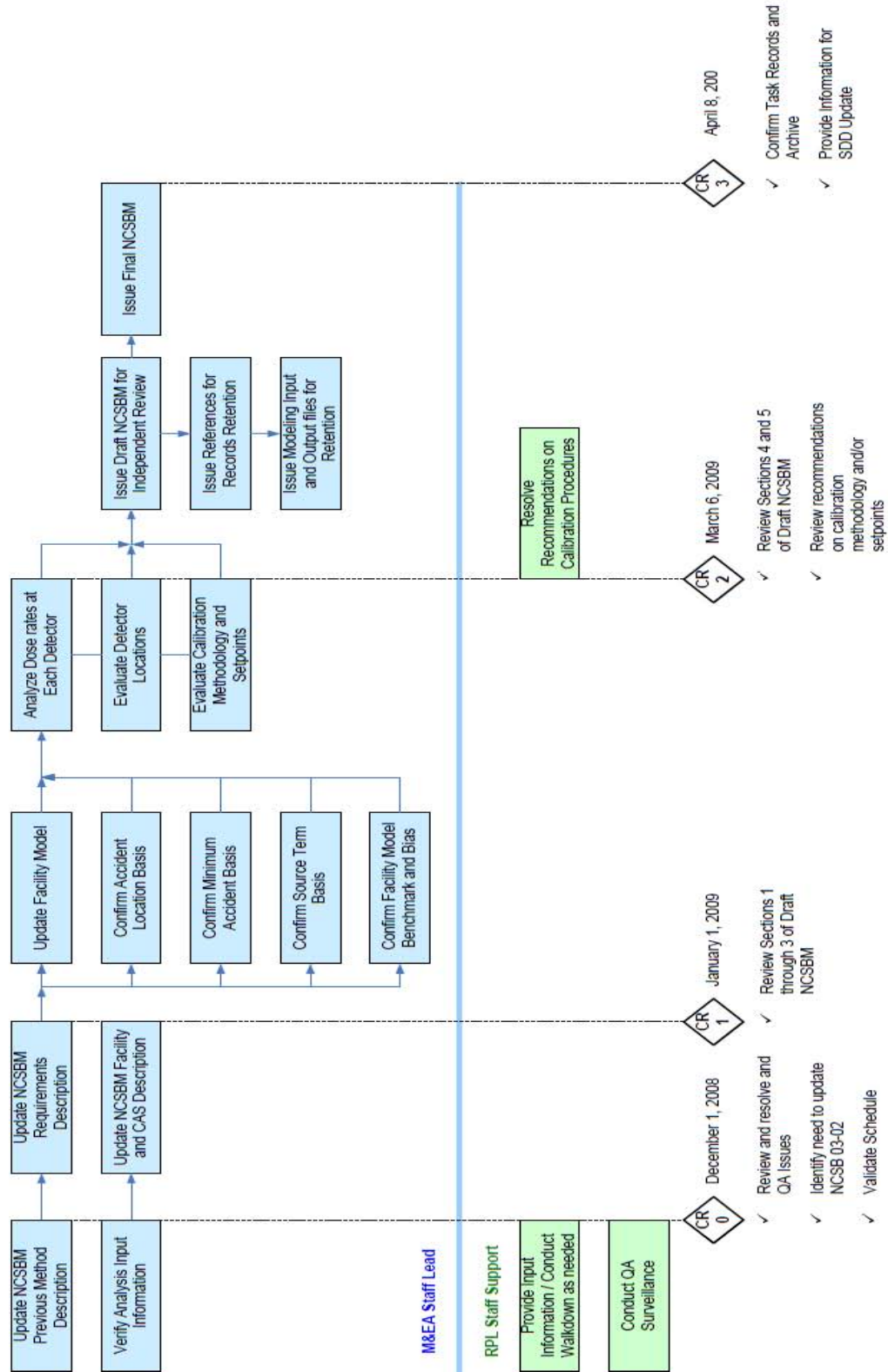
Material Totals	Volume (cm ³)	Volume Fraction	Density in
Room			
Glass	252,205	1.2508E-03	2.7893E-03
SS	256,924	1.2742E-03	1.0104E-02
Pb	3,146	1.5604E-05	1.7710E-04
Wood	1,205,539	5.9788E-02	5.9788E-02
Air	1.9992E+08	9.9148E-01	1.1918E-03

Densities (Reppond, 1977)

$$\begin{aligned}\text{Glass} &= 2.32 \text{ g/cm}^3 \\ \text{SS} &= 7.93 \text{ g/cm}^3 \\ \text{Pb} &= 11.35 \text{ g/cm}^3 \\ \text{Wood} &= 1.00 \text{ g/cm}^3 \\ \text{Air} &= 0.001202 \text{ g/cm}^3\end{aligned}$$

Nuclide	Weight Fraction
Al	1.3780E-03
B	5.0986E-03
Na	5.6498E-03
O	2.3183E-01
Si	5.1951E-02
Fe	3.6941E-01
Cr	8.9855E-02
Ni	3.9936E-02
Pb	8.7497E-03
C	1.3126E-01
H	1.8372E-02
N	4.6513E-02
Total Density	0.020240 g/cm ³

Appendix D: Schedule of Deliverables



Appendix E: Assumptions Used in the CAS Design of RPL

Modeling Assumptions

- 1) 1st Floor Deck is a sandwiched 14 gauge steel honeycomb with a maximum of 5” of “standard Concrete” The ceiling composition is based on the elevation blue prints listed below, which show that the ceiling is on average 3.75” thick with 14-gauge steel (0.0766” thick, Reference 23). This works to a volume ratio of 0.98/0.02 concrete to stainless steel and a mass ratio of 0.934/0.066 concrete to stainless steel.
- 2) 2nd Floor Deck is a sandwiched 16 gauge steel honeycomb with a maximum of 5 inches of “Emmeshic Concrete”. Dave Koontz indicated that this concrete was roughly 30% if the density of standard concrete.
- 3) The Gable of all roofs was modified to be a flat equivalent slab at the average height of the actual roof.
- 4) The ground surrounding 325 was assumed to be SiO₂ with a 66% packing fraction.
- 5) Room fill was approached as a combination of full, half-full, or empty office/lab.
- 6) Dave Koontz mentioned Asbestos in the hollow walls on the 300, 400, and 500 hallways. Have not included any Asbestos in the model because I was unable to verify its existence.
- 7) The offset of roof parapets were omitted. Walls are capped by the roofs.
- 8) Basement Deck is set as 1ft thick from drawing H-4-50013 –Hard to read
- 9) All staircases omitted
- 10) Altitudes/elevations are very difficult to verify. This is especially true for HLRF. The original schematics are in PDF format and are extremely cluttered but all non-roof elevations are referenced from H-4-50013-1 and H-3-12901.

- 11) The exterior wall of B325 changes from structural concrete to metal siding, insulation, metal support columns, and the occasional window. This change from concrete to metal conglomerate occurs at 404'-6" for the majority of the building. The Northern exterior walls do not change at this height. They change at 416'-4". For simplicity, I have set the ENTIRE buildings exterior concrete wall to a height of 404'-6". The material compositions of the exterior wall versus concrete support that making this change is conservative because reflection decreases with the omission of the concrete northern wall.
- 12) Roof elevations were taken from drawing H-3-305005. The roof in the NW corner of HLRF has been commented out. The roof composition was observed to be a conglomerate of asphalt, tar, gravel, and cement. Because I have found no documents that state the actual contents, I have set all roofs to concrete. All roofs run to the edge of the sections they cover –No overhangs. You will notice a rather large gap above the central section of floor 1 and the corresponding roof. This was done intentionally because there is a large crawl space. The gap is due to setting the roof position to the average height of the gable.
- 13) The Elevation for the roofs were taken from Drawings H-3-12901 and H-3-305005 to be 429'9" or 13098.8cm. The roof also has a gable that runs a delta of approximately 6" over the span of the roof over HLRF. The highest point is approximately 430' and the lowest is approximately 429'6".
- 14) The very small roof over the southern entrance to RPL was neglected.
- 15) The CAD Drawings clearly show the top floor of HLRF E wall at 230.9' (586.5cm) from the SW corner. The second floor CAD drawings clearly show the second floor E wall at 224.4' (570cm) from the same origin. I am leaving the dimensions as shown on the CAD drawings until inspection proves otherwise. The point of this statement is there is a noticeable overhang of the second floor HLRF E wall over the same first floor E wall.
- 16) ALL CHAIN LINK was omitted.
- 17) There are three vaults E of HLRF that have not been added to the model.
- 18) Men's and Women's restrooms were left empty

- 19) Tank 46 was modeled as empty.
- 20) The corresponding materials for SAL and HLRF hot cells were smeared to be the most limiting conservative cases.
- 21) From personal inspection, a grade was found in the deck of the Basement mezzanine. The altitude change was observed to be 1ft over the length of the deck. This slope was ignored and the deck of the mezzanine was held level at 8.5ft. The offset of the deck of the mezzanine to the deck of the central section of the basement was measured at 5ft.
- 22) The southern mezzanine section of B1 is set 5ft above the central B1 Deck. This is an observed distance because I have found no blueprint that clearly defines this distance.
- 23) There is a small gap between Rm23B and the top of Rm32 where there is no sand and just air.
- 24) There is no sand up to the grade height in the SE corner of the building. This was done to be conservative. There are numerous areas in the SE that do not have a backfill to the same grade as the rest of the building. There is also a loading dock located in the SE corner which is simply free space lined with concrete.
- 25) The material fill for all interior office/laboratory walls were set to be the same “metal fill” listed in the materials definition because there was no access to the interior of the walls

Translation notes

The basement was translated in reference to the SW section. Floor1 was translated with reference to the NW section. The second floor was translated in reference to the SW section. TR4=basement translation, TR1=Floor1 translation, TR2=Floor2 translation. And TR3=Floor3 translation.

Appendix F: MCNP5 Input Decks

Bldg. 325 RPL 10/15/2008

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c 34567890123456789112345678921234567893123456789412345678951234567896123456789712345678

c Built by: Bryce Greenfield

c Pacific Northwest National Laboratory, USA

c <Bryce.Greenfield@pnl.gov>, 509-372-4384

c For: Crit. Safety Analysis of Bldg 325 -RPL Improved Detector Coverage

c

c Rev. Date: 2/2/2009

c

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c Each Surface block contains a header with notes about that section.

c Whenever possible and or convenient the origin for each sections coordinate system

c was place in the most Southwestern point in that section. On some junctions between surfaces

c boundary errors arose even though the dimensions were correctly entered. The solution

c used to eliminate these errors was to back out the conflicting boundary by a very small margin~0.01cm.

c Each surface is followed by a brief description of what and where it is. Surfaces were modeled,

c grouped, and numbered according to their respective room numbers. The format for both the cell

c and surface cards is as follows (###\$\$). The ### signs are the room numbers with a

c range of 1-999 and the \$\$ signs are the surface/cell numbers that range from 1-99.

c For example 701 refers to room 7 surface 1. Whereas 7001 refers to room 70 surface 1.

c Cardinal directions relative to each room were used to roughly

c describe where a surface existed. For example: W wall Rm72.

c Hopefully it is easy to interpret as the western wall of Room 72. When multiple surfaces

c existed in the same room/plane they were described with SW, CentralW, or NW. If there were numerous

c bodies in the same room/plane then a numbering system was used that always started with the

c southwestern most body and the moved eastward. After a terminating surface was encountered

c the numbering was continued by moving back to the starting body(the most SW body) and moving North

c to continue the numbering sequence. For an example of this check the descriptions of the columns

c modeled in Room 45 of the Basement.

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c S = South
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c
c Begin North West Section of the Central Section of Basement1
c *****Notes for this section of Cells*****
c Room 64 was
c left out because I am not sure what it is made of or why it has the dimensions shown.
c
c Basement1 Decks Listed Below
c Assumed to be 1 foot thick. This thickness was taken from H-4-50013. Standard Concrete was used.
414 3 -2.3 (-414) imp:n=1 $Conc Filled Central Section of B1 foundation Deck
415 3 -2.3 (-415) imp:n=1 $Conc Filled East Section of B1 foundation Deck
416 3 -2.3 (-416) imp:n=1 $Conc Filled South Section of B1 foundation Deck
417 3 -2.3 (-417) imp:n=1 $Conc Filled SW B1 foundation Deck
418 3 -2.3 (-418) imp:n=1 $Conc Filled W B1 foundation Deck
419 2 -1.53 (-419) imp:n=1 $$Sand 10ft thick under building
420 2 -1.53 (-420) imp:n=1 $$Sand filling the gap below South Section of B1
421 2 -1.53 (-421 9005 9008 9306) imp:n=1 $N of B1 20ft Thick sand up to a building grade of 327.7cm
422 2 -1.53 (-422) imp:n=1 $NE of B1 20ft Thick sand up to a building grade of 327.7cm
423 2 -1.53 (-423) imp:n=1 $$S of B1 20ft Thick sand up to a building grade of 327.7cm
424 2 -1.53 (-424) imp:n=1 $$S2 20ft Thick sand up to a building grade of 327.7cm
425 2 -1.53 (-425 #4508) imp:n=1 $$SW 20ft Thick sand up to a building grade of 327.7cm
426 2 -1.53 (-426) imp:n=1 $$SW2 20ft Thick sand up to a building grade of 327.7cm
427 2 -1.53 (-427) imp:n=1 $W B1 20ft Thick sand up to a building grade of 327.7cm
428 2 -1.53 (-428 406) imp:n=1 $NW 20ft Thick sand up to a building grade of 327.7cm
c
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c Basement1 ceiling/First Floor Deck From the previous methodology of NCS99 the ceiling of B1 was smeared
c to a slab with a thickness of 3.75". It was found from investigation that 3.75" was the approximate
c average of the thickness of the ceiling. Drawing H-3-306083-2.DWG shows the structure of the ceiling and is to scale.
430 12 -2.6467 (-430) imp:n=1 $Central Section of Basement ceiling
431 12 -2.6467 (-431) imp:n=1 $East Section of B1 ceiling
432 12 -2.6467 (-432) imp:n=1 $$South Section of B1 ceiling
433 12 -2.6467 (-433) imp:n=1 $$SW B1 ceiling
434 12 -2.6467 (-434) imp:n=1 $W B1 ceiling
c

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c
c
c Listed Below will be all of the cells related to the criticality detection portion of this model
c
c Pu Filled Sphere in Rm 22
440 17 0.100200 (-440) imp:n=1 \$Pu-H20 Sphere
c
c
c Below are the cells for all of the Detectors in Building 325 .9detectors
c
461 19 -.9300 (-461) imp:n=1 \$Detector 1 B1
462 19 -.9300 (-462) imp:n=1 \$Detector 2 B1
463 19 -.9300 (-463) imp:n=1 \$Detector 3 B1
464 19 -.9300 (-464) imp:n=1 \$Detector 4 F1
465 19 -.9300 (-465) imp:n=1 \$Detector 5 F1
466 19 -.9300 (-466) imp:n=1 \$Detector 6 F1
467 19 -.9300 (-467) imp:n=1 \$Detector 7 F1
468 19 -.9300 (-468) imp:n=1 \$Detector 8 F1
c
c
c Basement1 Room 45
c This room contains mainly columns.
4536 13 -7.93 (-4536) imp:n=1 \$SS-304
4537 13 -7.93 (-4537) imp:n=1 \$SS-304
4538 13 -7.93 (-4538) imp:n=1 \$SS-304
4539 13 -7.93 (-4539) imp:n=1 \$SS-304
4540 13 -7.93 (-4540) imp:n=1 \$SS-304
4541 13 -7.93 (-4541) imp:n=1 \$SS-304
4542 13 -7.93 (-4542) imp:n=1 \$SS-304
4543 13 -7.93 (-4543) imp:n=1 \$SS-304
4544 13 -7.93 (-4544) imp:n=1 \$SS-304
4545 13 -7.93 (-4545) imp:n=1 \$SS-304
4546 13 -7.93 (-4546) imp:n=1 \$SS-304
4547 13 -7.93 (-4547) imp:n=1 \$SS-304
4548 13 -7.93 (-4548) imp:n=1 \$SS-304
4549 13 -7.93 (-4549) imp:n=1 \$SS-304
4550 13 -7.93 (-4550) imp:n=1 \$SS-304
4551 13 -7.93 (-4551) imp:n=1 \$SS-304
4552 13 -7.93 (-4552) imp:n=1 \$SS-304
4553 13 -7.93 (-4553) imp:n=1 \$SS-304
4554 13 -7.93 (-4554) imp:n=1 \$SS-304
4555 13 -7.93 (-4555) imp:n=1 \$SS-304
4556 13 -7.93 (-4556) imp:n=1 \$SS-304
4557 13 -7.93 (-4557) imp:n=1 \$SS-304
4558 13 -7.93 (-4558) imp:n=1 \$SS-304
c
c
c Basement Room 55/55A/55B
5501 14 -0.539 (-5501) imp:n=1 \$Cinder Block
5502 3 -2.3 (-5502 5501 5503) imp:n=1 \$Conc Filled
5503 14 -0.539 (-5503) imp:n=1 \$Cinder Block
5504 14 -0.539 (-5504) imp:n=1 \$Cinder Block
5505 3 -2.3 (-5505) imp:n=1 \$Conc Filled
5506 3 -2.3 (-5506) imp:n=1 \$Conc Filled
5507 14 -0.539 (-5507) imp:n=1 \$Cinder Block
5508 14 -0.539 (-5508) imp:n=1 \$Cinder Block
5509 14 -0.539 (-5509) imp:n=1 \$Cinder Block
5510 14 -0.539 (-5510) imp:n=1 \$Cinder Block
5511 14 -0.539 (-5511) imp:n=1 \$Cinder Block
5512 14 -0.539 (-5512) imp:n=1 \$Cinder Block
5513 3 -2.3 (-5513) imp:n=1 \$Conc Filled
c
c
c Basement Room 56
5601 14 -0.539 (-5601) imp:n=1 \$Conc Filled
5602 14 -0.539 (-5602) imp:n=1 \$Conc Filled
5603 14 -0.539 (-5603) imp:n=1 \$Conc Filled
5604 14 -0.539 (-5604) imp:n=1 \$Conc Filled
c
c

c
c
c
c Begin North-center Section of the Central Section of Basement1
c *****Notes for this section of Cells*****
c
c
c
c Basement1 Room 91
9101 3 -2.3 (-9101) imp:n=1 \$Conc Filled
9102 3 -2.3 (-9102) imp:n=1 \$Conc Filled
9103 3 -2.3 (-9103) imp:n=1 \$Conc Filled
9104 3 -2.3 (-9104) imp:n=1 \$Conc Filled
9105 3 -2.3 (-9105) imp:n=1 \$Conc Filled
9106 3 -2.3 (-9106) imp:n=1 \$Conc Filled
9107 3 -2.3 (-9107) imp:n=1 \$Conc Filled
9108 3 -2.3 (-9108) imp:n=1 \$Conc Filled
c
c
c Basement1 Room 93
9301 3 -2.3 (-9301) imp:n=1 \$Conc Filled
9302 3 -2.3 (-9302) imp:n=1 \$Conc Filled
9303 3 -2.3 (-9303) imp:n=1 \$Conc Filled
9304 3 -2.3 (-9304) imp:n=1 \$Conc Filled
9305 3 -2.3 (-9305) imp:n=1 \$Conc Filled
9306 3 -2.3 (-9306) imp:n=1 \$Conc Filled
9307 3 -2.3 (-9307) imp:n=1 \$Conc Filled
9308 3 -2.3 (-9308) imp:n=1 \$Conc Filled
9309 3 -2.3 (-9309) imp:n=1 \$Conc Filled
9310 3 -2.3 (-9310) imp:n=1 \$Conc Filled
9311 3 -2.3 (-9311) imp:n=1 \$Conc Filled
9312 3 -2.3 (-9312) imp:n=1 \$Conc Filled
9313 3 -2.3 (-9313) imp:n=1 \$Conc Filled
9314 3 -2.3 (-9314) imp:n=1 \$Conc Filled
9315 3 -2.3 (-9315) imp:n=1 \$Conc Filled
9316 3 -2.3 (-9316) imp:n=1 \$Conc Filled
9317 3 -2.3 (-9317) imp:n=1 \$Conc Filled
9318 13 -7.93 (-9318) imp:n=1 \$SS-304
c
c
c Basement1 Room 94/94A/94B
9401 14 -0.539 (-9401) imp:n=1 \$Cinder Block
9402 14 -0.539 (-9402) imp:n=1 \$Cinder Block
9403 14 -0.539 (-9403) imp:n=1 \$Cinder Block
9404 14 -0.539 (-9404) imp:n=1 \$Cinder Block
9405 3 -2.3 (-9405) imp:n=1 \$Conc Filled
9406 14 -0.539 (-9406) imp:n=1 \$Cinder Block
9407 14 -0.539 (-9407) imp:n=1 \$Cinder Block
9408 3 -2.3 (-9408) imp:n=1 \$Conc Filled
9409 3 -2.3 (-9409) imp:n=1 \$Conc Filled
9410 3 -2.3 (-9410) imp:n=1 \$Conc Filled
9411 3 -2.3 (-9411) imp:n=1 \$Conc Filled
9412 14 -0.539 (-9412) imp:n=1 \$Cinder Block
9413 14 -0.539 (-9413) imp:n=1 \$Cinder Block
c
c
c Basement1 Room 95
9501 14 -0.539 (-9501) imp:n=1 \$Cinder Block
9502 14 -0.539 (-9502) imp:n=1 \$Cinder Block
9503 14 -0.539 (-9503) imp:n=1 \$Cinder Block
9504 14 -0.539 (-9504) imp:n=1 \$Cinder Block
c
c
c Basement1 Room 96/96A
9601 14 -0.539 (-9601) imp:n=1 \$Cinder Block
9602 14 -0.539 (-9602) imp:n=1 \$Cinder Block
9603 13 -7.93 (-9603) imp:n=1 \$SS-304
9604 14 -0.539 (-9604) imp:n=1 \$Cinder Block
9605 14 -0.539 (-9605) imp:n=1 \$Cinder Block
9606 14 -0.539 (-9606) imp:n=1 \$Cinder Block

9607 14 -0.539 (-9607) imp:n=1 \$Cinder Block
 c
 c
 c Basement1 Room 97/97A
 9701 14 -0.539 (-9701) imp:n=1 \$Cinder Block
 9702 3 -2.3 (-9702) imp:n=1 \$Conc Filled
 9703 14 -0.539 (-9703) imp:n=1 \$Cinder Block
 9704 13 -7.93 (-9704) imp:n=1 \$\$\$-304
 9705 14 -0.539 (-9705) imp:n=1 \$Cinder Block
 9706 14 -0.539 (-9706) imp:n=1 \$Cinder Block
 9707 13 -7.93 (-9707) imp:n=1 \$\$\$-304
 c
 c
 c Basement Room 98
 9801 14 -0.539 (-9801) imp:n=1 \$Cinder Block
 c
 c
 c Basement Room 45
 4560 3 -2.3 (-4560) imp:n=1 \$Conc Filled
 4561 3 -2.3 (-4561) imp:n=1 \$Conc Filled
 4562 3 -2.3 (-4562) imp:n=1 \$Conc Filled
 4563 3 -2.3 (-4563) imp:n=1 \$Conc Filled
 4564 13 -7.93 (-4564) imp:n=1 \$\$\$-304
 4565 13 -7.93 (-4565) imp:n=1 \$\$\$-304
 4566 3 -2.3 (-4566) imp:n=1 \$Conc Filled
 4567 3 -2.3 (-4567) imp:n=1 \$Conc Filled
 4568 3 -2.3 (-4568) imp:n=1 \$Conc Filled
 4569 3 -2.3 (-4569) imp:n=1 \$Conc Filled
 c 4570 3 -2.3 (-4570) imp:n=1 \$Conc Filled
 c 4571 3 -2.3 (-4571) imp:n=1 \$Conc Filled
 c
 c
 c Basement Room 90/Elev Room
 9001 3 -2.3 (-9001) imp:n=1 \$Conc Filled
 9002 3 -2.3 (-9002) imp:n=1 \$Conc Filled
 9003 3 -2.3 (-9003) imp:n=1 \$Conc Filled
 9004 3 -2.3 (-9004) imp:n=1 \$Conc Filled
 9005 3 -2.3 (-9005) imp:n=1 \$Conc Filled
 9006 3 -2.3 (-9006) imp:n=1 \$Conc Filled
 9007 3 -2.3 (-9007) imp:n=1 \$Conc Filled
 9008 3 -2.3 (-9008) imp:n=1 \$Conc Filled
 9009 3 -2.3 (-9009) imp:n=1 \$Conc Filled
 9010 3 -2.3 (-9010) imp:n=1 \$Conc Filled
 9011 3 -2.3 (-9011) imp:n=1 \$Conc Filled
 9012 3 -2.3 (-9012) imp:n=1 \$Conc Filled
 9013 3 -2.3 (-9013) imp:n=1 \$Conc Filled
 9014 3 -2.3 (-9014) imp:n=1 \$Conc Filled
 9015 3 -2.3 (-9015) imp:n=1 \$Conc Filled
 9016 3 -2.3 (-9016) imp:n=1 \$Conc Filled
 c
 c
 c
 c
 c
 c Begin Northeast Section of the Central Section of Basement1
 c *****Notes for this section of Cells*****
 c
 c
 c Basement Room 45
 4575 13 -7.93 (-4575) imp:n=1 \$\$\$-304
 4576 13 -7.93 (-4576) imp:n=1 \$\$\$-304
 4577 13 -7.93 (-4577) imp:n=1 \$\$\$-304
 4578 13 -7.93 (-4578) imp:n=1 \$\$\$-304
 4579 13 -7.93 (-4579) imp:n=1 \$\$\$-304
 4580 13 -7.93 (-4580) imp:n=1 \$\$\$-304
 4581 13 -7.93 (-4581) imp:n=1 \$\$\$-304
 4582 13 -7.93 (-4582) imp:n=1 \$\$\$-304
 4583 13 -7.93 (-4583) imp:n=1 \$\$\$-304
 c
 c

c Basement1 Room 48
 4801 3 -2.3 (-4801) imp:n=1 \$Conc Filled
 4802 3 -2.3 (-4802) imp:n=1 \$Conc Filled
 4803 3 -2.3 (-4803) imp:n=1 \$Conc Filled
 4804 3 -2.3 (-4804) imp:n=1 \$Conc Filled
 4805 3 -2.3 (-4805) imp:n=1 \$Conc Filled
 4806 13 -7.93 (-4806) imp:n=1 \$\$\$-304
 4807 13 -7.93 (-4807) imp:n=1 \$\$\$-304

c
 c

c Basement Room 57/57W/57E
 5701 14 -0.539 (-5701) imp:n=1 \$Cinder Block
 5702 14 -0.539 (-5702) imp:n=1 \$Cinder Block
 5703 14 -0.539 (-5703) imp:n=1 \$Cinder Block
 5704 14 -0.539 (-5704) imp:n=1 \$Cinder Block
 5705 14 -0.539 (-5705) imp:n=1 \$Cinder Block
 5706 14 -0.539 (-5706) imp:n=1 \$Cinder Block
 5707 14 -0.539 (-5707) imp:n=1 \$Cinder Block
 5708 14 -0.539 (-5708) imp:n=1 \$Cinder Block
 5709 14 -0.539 (-5709) imp:n=1 \$Cinder Block
 5710 14 -0.539 (-5710) imp:n=1 \$Cinder Block

c
 c

c Basement Room 58
 5801 14 -0.539 (-5801) imp:n=1 \$Cinder Block
 5802 13 -7.93 (-5802) imp:n=1 \$\$\$-304
 5803 14 -0.539 (-5803) imp:n=1 \$Cinder Block
 5804 14 -0.539 (-5804) imp:n=1 \$Cinder Block
 5805 14 -0.539 (-5805) imp:n=1 \$Cinder Block
 5806 14 -0.539 (-5806) imp:n=1 \$Cinder Block
 5807 13 -7.93 (-5807) imp:n=1 \$\$\$-304
 5808 13 -7.93 (-5808) imp:n=1 \$\$\$-304

c
 c

c Basement Room 54
 5401 13 -7.93 (-5401) imp:n=1 \$\$\$-304
 5402 13 -7.93 (-5402) imp:n=1 \$\$\$-304
 5403 14 -0.539 (-5403) imp:n=1 \$Cinder Block
 5404 14 -0.539 (-5404) imp:n=1 \$Cinder Block
 5405 14 -0.539 (-5405) imp:n=1 \$Cinder Block
 5406 14 -0.539 (-5406) imp:n=1 \$Cinder Block
 5407 3 -2.3 (-5407) imp:n=1 \$Conc Filled

c
 c

c Basement Room 52
 5201 14 -0.539 (-5201) imp:n=1 \$Cinder Block
 5202 14 -0.539 (-5202) imp:n=1 \$Cinder Block
 5203 14 -0.539 (-5203) imp:n=1 \$Cinder Block
 5204 14 -0.539 (-5204) imp:n=1 \$Cinder Block
 5205 14 -0.539 (-5205) imp:n=1 \$Cinder Block
 5206 13 -7.93 (-5206) imp:n=1 \$\$\$-304

c
 c

c
 c

c
 c

c
 c

c Begin West Section of Basement1
 c *****Notes for this section of Cells*****

c
 c

c Basement1 Room 23B
 2310 3 -2.3 (-2310) imp:n=1 \$Conc Filled
 2311 3 -2.3 (-2311) imp:n=1 \$Conc Filled
 2312 13 -7.93 (-2312) imp:n=1 \$\$\$-304
 2313 13 -7.93 (-2313) imp:n=1 \$\$\$-304
 2314 13 -7.93 (-2314) imp:n=1 \$\$\$-304
 2315 3 -2.3 (-2315) imp:n=1 \$Conc Filled
 2316 3 -2.3 (-2316) imp:n=1 \$Conc Filled
 2317 3 -2.3 (-2317) imp:n=1 \$Conc Filled

2318	13	-7.93	(-2318)	imp:n=1	SSS-304
2319	13	-7.93	(-2319)	imp:n=1	SSS-304
2320	13	-7.93	(-2320)	imp:n=1	SSS-304
c					
c					
c Basement1 Room 45					
4501	3	-2.3	(-4501)	imp:n=1	\$Conc Filled
4502	3	-2.3	(-4502)	imp:n=1	\$Conc Filled
4503	3	-2.3	(-4503)	imp:n=1	\$Conc Filled
4504	3	-2.3	(-4504)	imp:n=1	\$Conc Filled
4505	3	-2.3	(-4505)	imp:n=1	\$Conc Filled
4506	3	-2.3	(-4506)	imp:n=1	\$Conc Filled
4507	3	-2.3	(-4507)	imp:n=1	\$Conc Filled
4508	3	-2.3	(-4508)	imp:n=1	\$Conc Filled
4509	3	-2.3	(-4509)	imp:n=1	\$Conc Filled
c					
c					
c Basement Room 32					
3201	13	-7.93	(-3201)	imp:n=1	SSS-304
3202	13	-7.93	(-3202)	imp:n=1	SSS-304
3203	13	-7.93	(-3203)	imp:n=1	SSS-304
3204	3	-2.3	(-3204)	imp:n=1	\$Conc Filled
3205	3	-2.3	(-3205)	imp:n=1	\$Conc Filled
3206	3	-2.3	(-3206)	imp:n=1	\$Conc Filled
3207	3	-2.3	(-3207)	imp:n=1	\$Conc Filled
3208	3	-2.3	(-3208)	imp:n=1	\$Conc Filled
3209	3	-2.3	(-3209)	imp:n=1	\$Conc Filled
3210	3	-2.3	(-3210)	imp:n=1	\$Conc Filled
3211	3	-2.3	(-3211)	imp:n=1	\$Conc Filled
3212	3	-2.3	(-3212)	imp:n=1	\$Conc Filled
3213	13	-7.93	(-3213)	imp:n=1	SSS-304
3214	3	-2.3	(-3214)	imp:n=1	\$Conc Filled
3215	3	-2.3	(-3215)	imp:n=1	\$Conc Filled
3216	3	-2.3	(-3216)	imp:n=1	\$Conc Filled
3217	3	-2.3	(-3217)	imp:n=1	\$Conc Filled
c					
c					
c					
c					
c					
c Begin South West Section of the Central Section of Basement1					
c *****Notes for this section of Cells*****					
c					
c					
c Basement Room 22					
2201	13	-7.93	(-2201)	imp:n=1	SSS-304
2202	13	-7.93	(-2202)	imp:n=1	SSS-304
2203	13	-7.93	(-2203)	imp:n=1	SSS-304
2204	3	-2.3	(-2204)	imp:n=1	\$Conc Filled
2205	13	-7.93	(-2205)	imp:n=1	SSS-304
2206	13	-7.93	(-2206)	imp:n=1	SSS-304
2207	3	-2.3	(-2207)	imp:n=1	\$Conc Filled
2208	13	-7.93	(-2208)	imp:n=1	SSS-304
2209	3	-2.3	(-2209)	imp:n=1	\$Conc Filled
2210	3	-2.3	(-2210)	imp:n=1	\$Conc Filled
2211	3	-2.3	(-2211)	imp:n=1	\$Conc Filled
2212	13	-7.93	(-2212)	imp:n=1	SSS-304
2213	3	-2.3	(-2213)	imp:n=1	\$Conc Filled
2214	13	-7.93	(-2214)	imp:n=1	SSS-304
2215	3	-2.3	(-2215)	imp:n=1	\$Conc Filled
2216	3	-2.3	(-2216)	imp:n=1	\$Conc Filled
2217	3	-2.3	(-2217)	imp:n=1	\$Conc Filled
c 2218	3	-2.3	(-2218)	imp:n=1	\$Conc Filled
2219	3	-2.3	(-2219)	imp:n=1	\$Conc Filled
2220	3	-2.3	(-2220)	imp:n=1	\$Conc Filled
2221	3	-2.3	(-2221)	imp:n=1	\$Conc Filled
c					
c					
c New Hot Cells					
2230	13	-7.93	(-2230)	imp:n=1	\$SW Mod Cell-1 Rm22

2231 13 -7.93 (-2231) imp:n=1 \$W Mod Cell-1 Rm22A
 2232 13 -7.93 (-2232) imp:n=1 \$\$ Big Cell-3 Rm30A
 2233 13 -7.93 (-2233) imp:n=1 \$N Metalographycell-2 Rm31A
 2234 13 -7.93 (-2234) imp:n=1 \$SE Mod Cell-1 Rm31
 2235 13 -7.93 (-2235) imp:n=1 \$NE Mod Cell-1 Rm33
 c
 c
 c
 c Basement1 Room 23a
 2301 3 -2.3 (-2301) imp:n=1 \$Conc Filled
 2302 3 -2.3 (-2302) imp:n=1 \$Conc Filled
 2303 3 -2.3 (-2303) imp:n=1 \$Conc Filled
 2304 3 -2.3 (-2304) imp:n=1 \$Conc Filled
 2305 13 -7.93 (-2305) imp:n=1 \$SS-304
 c
 c
 c Basement1 Room 30a
 3001 3 -2.3 (-3001) imp:n=1 \$Conc Filled
 3002 3 -2.3 (-3002) imp:n=1 \$Conc Filled
 3003 3 -2.3 (-3003) imp:n=1 \$Conc Filled
 3004 3 -2.3 (-3004) imp:n=1 \$Conc Filled
 3005 13 -7.93 (-3005) imp:n=1 \$SS-304
 3006 13 -7.93 (-3006) imp:n=1 \$SS-304
 c
 c
 c Basement1 Room 31 and Room 31A
 c 3101 3 -2.3 (-3101) imp:n=1 \$Conc Filled
 3102 3 -2.3 (-3102) imp:n=1 \$Conc Filled
 3103 3 -2.3 (-3103) imp:n=1 \$Conc Filled
 3104 3 -2.3 (-3104) imp:n=1 \$Conc Filled
 c 3105 3 -2.3 (-3105) imp:n=1 \$Conc Filled
 3106 3 -2.3 (-3106) imp:n=1 \$Conc Filled
 3107 3 -2.3 (-3107) imp:n=1 \$Conc Filled
 3108 13 -7.93 (-3108) imp:n=1 \$SS-304
 c
 c
 c Basement1 Room 33
 3301 3 -2.3 (-3301) imp:n=1 \$Conc Filled
 3302 13 -7.93 (-3302) imp:n=1 \$SS-304
 3303 3 -2.3 (-3303) imp:n=1 \$Conc Filled
 3304 3 -2.3 (-3304) imp:n=1 \$Conc Filled
 3305 3 -2.3 (-3305) imp:n=1 \$Conc Filled
 c
 c
 c Basement1 Room 45
 4584 13 -7.93 (-4584) imp:n=1 \$SS-304
 4585 13 -7.93 (-4585) imp:n=1 \$SS-304
 4586 13 -7.93 (-4586) imp:n=1 \$SS-304
 4587 13 -7.93 (-4587) imp:n=1 \$SS-304
 4588 13 -7.93 (-4588) imp:n=1 \$SS-304
 4589 13 -7.93 (-4589) imp:n=1 \$SS-304
 4590 13 -7.93 (-4590) imp:n=1 \$SS-304
 4591 13 -7.93 (-4591) imp:n=1 \$SS-304
 4592 13 -7.93 (-4592) imp:n=1 \$SS-304
 4593 13 -7.93 (-4593) imp:n=1 \$SS-304
 c
 c
 c
 c
 c
 c Begin South East Section of the Central Section of Basement1
 c *****Notes for this section of Cells*****
 c
 c
 c Basement1 Room 45
 c This room contains mainly columns. The SE corner has a wall that does
 c not appear in the other sections so I will include it in this section to be safe.
 c Surface numbers are continued from the SW section which also contains Room 45.
 4511 13 -7.93 (-4511) imp:n=1 \$SS-304
 4512 13 -7.93 (-4512) imp:n=1 \$SS-304

4301 3 -2.3 (-4301) imp:n=1 \$Conc Filled
4302 3 -2.3 (-4302) imp:n=1 \$Conc Filled
4303 3 -2.3 (-4303) imp:n=1 \$Conc Filled
4304 3 -2.3 (-4304) imp:n=1 \$Conc Filled
4305 3 -2.3 (-4305) imp:n=1 \$Conc Filled
4306 3 -2.3 (-4306) imp:n=1 \$Conc Filled
4307 3 -2.3 (-4307) imp:n=1 \$Conc Filled
4308 13 -7.93 (-4308) imp:n=1 \$\$\$-304
4309 3 -2.3 (-4309) imp:n=1 \$Conc Filled
4310 3 -2.3 (-4310) imp:n=1 \$Conc Filled
4311 3 -2.3 (-4311) imp:n=1 \$Conc Filled
4312 3 -2.3 (-4312) imp:n=1 \$Conc Filled
c
c
c
c
c
c Begin East Section of Basement1
c *****Notes for this section of Cells*****
c West Main structural wall was left out from this section to be
c included in a later model of the central basement area
4001 3 -2.3 (-4001) imp:n=1 \$Conc Filled
4002 3 -2.3 (-4002) imp:n=1 \$Conc Filled
4003 3 -2.3 (-4003) imp:n=1 \$Conc Filled
4004 3 -2.3 (-4004) imp:n=1 \$Conc Filled
4005 3 -2.3 (-4005) imp:n=1 \$Conc Filled
4006 3 -2.3 (-4006) imp:n=1 \$Conc Filled
4007 3 -2.3 (-4007) imp:n=1 \$Conc Filled
4008 13 -7.93 (-4008) imp:n=1 \$\$\$-304
4009 13 -7.93 (-4009) imp:n=1 \$\$\$-304
4010 3 -2.3 (-4010) imp:n=1 \$Conc Filled
4011 3 -2.3 (-4011) imp:n=1 \$Conc Filled
4012 3 -2.3 (-4012) imp:n=1 \$Conc Filled
4013 3 -2.3 (-4013) imp:n=1 \$Conc Filled
4014 3 -2.3 (-4014) imp:n=1 \$Conc Filled
4015 13 -7.93 (-4015) imp:n=1 \$\$\$-304
4016 13 -7.93 (-4016) imp:n=1 \$\$\$-304
4017 3 -2.3 (-4017) imp:n=1 \$Conc Filled
4018 3 -2.3 (-4018) imp:n=1 \$Conc Filled
4019 3 -2.3 (-4019) imp:n=1 \$Conc Filled
4020 3 -2.3 (-4020) imp:n=1 \$Conc Filled
4021 13 -7.93 (-4021) imp:n=1 \$\$\$-304
4022 3 -2.3 (-4022) imp:n=1 \$Conc Filled
4023 3 -2.3 (-4023) imp:n=1 \$Conc Filled
4024 3 -2.3 (-4024) imp:n=1 \$Conc Filled
4025 3 -2.3 (-4025) imp:n=1 \$Conc Filled
4026 3 -2.3 (-4026) imp:n=1 \$Conc Filled
4027 3 -2.3 (-4027) imp:n=1 \$Conc Filled
4028 3 -2.3 (-4028) imp:n=1 \$Conc Filled
4029 3 -2.3 (-4029) imp:n=1 \$Conc Filled
4030 3 -2.3 (-4030) imp:n=1 \$Conc Filled
4031 3 -2.3 (-4031) imp:n=1 \$Conc Filled
4032 3 -2.3 (-4032) imp:n=1 \$Conc Filled
4033 3 -2.3 (-4033) imp:n=1 \$Conc Filled
4034 3 -2.3 (-4034) imp:n=1 \$Conc Filled
4035 3 -2.3 (-4035) imp:n=1 \$Conc Filled
4036 3 -2.3 (-4036) imp:n=1 \$Conc Filled
4037 3 -2.3 (-4037) imp:n=1 \$Conc Filled
c
c
c Basement1 Room 40/40A
4038 3 -2.3 (-4038) imp:n=1 \$Conc Filled
4039 3 -2.3 (-4039) imp:n=1 \$Conc Filled
4040 3 -2.3 (-4040) imp:n=1 \$Conc Filled
4041 3 -2.3 (-4041) imp:n=1 \$Conc Filled
4042 3 -2.3 (-4042) imp:n=1 \$Conc Filled
4043 3 -2.3 (-4043) imp:n=1 \$Conc Filled
c
c
c Basement Room 50/50A

5001 3 -2.3 (-5001) imp:n=1 \$Conc Filled
5002 3 -2.3 (-5002) imp:n=1 \$Conc Filled
5003 3 -2.3 (-5003) imp:n=1 \$Conc Filled
5004 13 -7.93 (-5004) imp:n=1 \$SS-304
5005 13 -7.93 (-5005) imp:n=1 \$SS-304
5006 13 -7.93 (-5006) imp:n=1 \$SS-304
5007 3 -2.3 (-5007) imp:n=1 \$Conc Filled
5008 13 -7.93 (-5008) imp:n=1 \$SS-304
5009 13 -7.93 (-5009) imp:n=1 \$SS-304
5010 13 -7.93 (-5010) imp:n=1 \$SS-304
5011 13 -7.93 (-5011) imp:n=1 \$SS-304
5012 13 -7.93 (-5012) imp:n=1 \$SS-304
5013 13 -7.93 (-5013) imp:n=1 \$SS-304
5014 3 -2.3 (-5014) imp:n=1 \$Conc Filled
5015 3 -2.3 (-5015) imp:n=1 \$Conc Filled
5016 3 -2.3 (-5016) imp:n=1 \$Conc Filled
5017 3 -2.3 (-5017) imp:n=1 \$Conc Filled
5018 3 -2.3 (-5018) imp:n=1 \$Conc Filled
c
c
c
c
c Begin South Section of Basement 1
c *****Notes for this section of Cells*****
c
c
c Base1 Rm 7
701 5 0.00359833 (-701) imp:n=1 \$Metal wl
702 5 0.00359833 (-702) imp:n=1 \$Metal wl
703 5 0.00359833 (-703) imp:n=1 \$Metal wl
704 5 0.00359833 (-704) imp:n=1 \$Metal wl
705 5 0.00359833 (-705) imp:n=1 \$Metal wl
706 5 0.00359833 (-706) imp:n=1 \$Metal wl
707 5 0.00359833 (-707) imp:n=1 \$Metal wl
708 3 -2.3 (-708) imp:n=1 \$Conc Filled
709 3 -2.3 (-709) imp:n=1 \$Conc Filled
710 3 -2.3 (-710) imp:n=1 \$Conc Filled
711 3 -2.3 (-711) imp:n=1 \$Conc Filled
712 3 -2.3 (-712) imp:n=1 \$Conc Filled
713 3 -2.3 (-713) imp:n=1 \$Conc Filled
714 3 -2.3 (-714) imp:n=1 \$Conc Filled
715 3 -2.3 (-715) imp:n=1 \$Conc Filled
716 3 -2.3 (-716) imp:n=1 \$Conc Filled
717 3 -2.3 (-717) imp:n=1 \$Conc Filled
718 3 -2.3 (-718) imp:n=1 \$Conc Filled
719 3 -2.3 (-719) imp:n=1 \$Conc Filled
720 3 -2.3 (-720) imp:n=1 \$Conc Filled
721 3 -2.3 (-721) imp:n=1 \$Conc Filled
722 3 -2.3 (-722) imp:n=1 \$Conc Filled
723 3 -2.3 (-723) imp:n=1 \$Conc Filled
724 3 -2.3 (-724) imp:n=1 \$Conc Filled
c
c
c Base1 Rm 9
901 13 -7.93 (-901) imp:n=1 \$SS-304
902 5 0.00359833 (-902) imp:n=1 \$Metal wl
903 5 0.00359833 (-903) imp:n=1 \$Metal wl
c
c
c Base1 Rm 11
1101 5 0.00359833 (-1101) imp:n=1 \$Metal wl
1102 5 0.00359833 (-1102) imp:n=1 \$Metal wl
c
c
c Base1 Room 13
1301 5 0.00359833 (-1301) imp:n=1 \$Metal wl
1302 13 -7.93 (-1302) imp:n=1 \$SS-304
1303 5 0.00359833 (-1303) imp:n=1 \$Metal wl
c

c
c Base1 Room 15
1501 5 0.00359833 (-1501) imp:n=1 \$Metal wl
1502 5 0.00359833 (-1502) imp:n=1 \$Metal wl
c
c
c Base1 Room 17
1701 5 0.00359833 (-1701) imp:n=1 \$Metal wl
1702 5 0.00359833 (-1702) imp:n=1 \$Metal wl
1703 5 0.00359833 (-1703) imp:n=1 \$Metal wl
c
c
c Base1 Room 16
1601 5 0.00359833 (-1601) imp:n=1 \$Metal wl
1602 5 0.00359833 (-1602) imp:n=1 \$Metal wl
1603 5 0.00359833 (-1603) imp:n=1 \$Metal wl
1604 5 0.00359833 (-1604) imp:n=1 \$Metal wl
1605 5 0.00359833 (-1605) imp:n=1 \$Metal wl
c
c
c Base1 Room 18
1801 5 0.00359833 (-1801) imp:n=1 \$Metal wl
1802 5 0.00359833 (-1802) imp:n=1 \$Metal wl
c
c
c Base1 Room 20
2001 5 0.00359833 (-2001) imp:n=1 \$Metal wl
2002 5 0.00359833 (-2002) imp:n=1 \$Metal wl
2003 5 0.00359833 (-2003) imp:n=1 \$Metal wl
c
c
c Base1 Room
2004 5 0.00359833 (-2004) imp:n=1 \$Metal wl
2005 5 0.00359833 (-2005) imp:n=1 \$Metal wl
2006 5 0.00359833 (-2006) imp:n=1 \$Metal wl
2007 5 0.00359833 (-2007) imp:n=1 \$Metal wl
2008 5 0.00359833 (-2008) imp:n=1 \$Metal wl
2009 5 0.00359833 (-2009) imp:n=1 \$Metal wl
c
c
c Base1 Room 26
2601 5 0.00359833 (-2601) imp:n=1 \$Metal wl
2602 5 0.00359833 (-2602) imp:n=1 \$Metal wl
c
c
c Base1 Room 28
2801 5 0.00359833 (-2801) imp:n=1 \$Metal wl
2802 5 0.00359833 (-2802) imp:n=1 \$Metal wl
2803 5 0.00359833 (-2803) imp:n=1 \$Metal wl
c
c
c Base1 Room 70
7001 5 0.00359833 (-7001) imp:n=1 \$Metal wl
7002 5 0.00359833 (-7002) imp:n=1 \$Metal wl
7003 13 -7.93 (-7003) imp:n=1 \$\$S-304
7004 5 0.00359833 (-7004) imp:n=1 \$Metal wl
c
c
c Base1 Room 72
7201 5 0.00359833 (-7201) imp:n=1 \$Metal wl
7202 5 0.00359833 (-7202) imp:n=1 \$Metal wl
c
c
c Base1 Room
7401 5 0.00359833 (-7401) imp:n=1 \$Metal wl
7402 5 0.00359833 (-7402) imp:n=1 \$Metal wl
7403 13 -7.93 (-7403) imp:n=1 \$\$S-304
c
c
c Base1 Room

7601	5	0.00359833	(-7601)	imp:n=1	\$Metal wl
7602	5	0.00359833	(-7602)	imp:n=1	\$Metal wl
c					
c Base1 Room					
7801	5	0.00359833	(-7801)	imp:n=1	\$Metal wl
7802	5	0.00359833	(-7802)	imp:n=1	\$Metal wl
7803	5	0.00359833	(-7803)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 14					
1401	5	0.00359833	(-1401)	imp:n=1	\$Metal wl
1402	5	0.00359833	(-1402)	imp:n=1	\$Metal wl
1403	5	0.00359833	(-1403)	imp:n=1	\$Metal wl
1404	5	0.00359833	(-1404)	imp:n=1	\$Metal wl
1405	5	0.00359833	(-1405)	imp:n=1	\$Metal wl
1406	5	0.00359833	(-1406)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 12					
1201	5	0.00359833	(-1201)	imp:n=1	\$Metal wl
1202	5	0.00359833	(-1202)	imp:n=1	\$Metal wl
1203	13	-7.93	(-1203)	imp:n=1	\$\$\$-304
1204	5	0.00359833	(-1204)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 10					
1001	5	0.00359833	(-1001)	imp:n=1	\$Metal wl
1002	5	0.00359833	(-1002)	imp:n=1	\$Metal wl
1003	5	0.00359833	(-1003)	imp:n=1	\$Metal wl
1004	5	0.00359833	(-1004)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 27					
2701	5	0.00359833	(-2701)	imp:n=1	\$Metal wl
2702	5	0.00359833	(-2702)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 25					
2501	5	0.00359833	(-2501)	imp:n=1	\$Metal wl
2502	5	0.00359833	(-2502)	imp:n=1	\$Metal wl
2503	5	0.00359833	(-2503)	imp:n=1	\$Metal wl
2504	5	0.00359833	(-2504)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 8					
801	5	0.00359833	(-801)	imp:n=1	\$Metal wl
802	5	0.00359833	(-802)	imp:n=1	\$Metal wl
803	5	0.00359833	(-803)	imp:n=1	\$Metal wl
804	5	0.00359833	(-804)	imp:n=1	\$Metal wl
805	5	0.00359833	(-805)	imp:n=1	\$Metal wl
806	5	0.00359833	(-806)	imp:n=1	\$Metal wl
c					
c					
c Base1 Room 5					
501	5	0.00359833	(-501)	imp:n=1	\$Metal wl
502	5	0.00359833	(-502)	imp:n=1	\$Metal wl
503	5	0.00359833	(-503)	imp:n=1	\$Metal wl
504	13	-7.93	(-504)	imp:n=1	\$\$\$-304
505	5	0.00359833	(-505)	imp:n=1	\$Metal wl
506	13	-7.93	(-506)	imp:n=1	\$\$\$-304
507	5	0.00359833	(-507)	imp:n=1	\$Metal wl
508	5	0.00359833	(-508)	imp:n=1	\$Metal wl
509	5	0.00359833	(-509)	imp:n=1	\$Metal wl
510	5	0.00359833	(-510)	imp:n=1	\$Metal wl
511	5	0.00359833	(-511)	imp:n=1	\$Metal wl
512	5	0.00359833	(-512)	imp:n=1	\$Metal wl
513	5	0.00359833	(-513)	imp:n=1	\$Metal wl
514	5	0.00359833	(-514)	imp:n=1	\$Metal wl
515	5	0.00359833	(-515)	imp:n=1	\$Metal wl

```

516 13 -7.93 (-516) imp:n=1 $$$-304
517 13 -7.93 (-517) imp:n=1 $$$-304
c
c
c
c
c
c
c ///////////////////////////////////////////////////////////////////Begin Roomspace Fill Section of Basement1/////////////////////////////////////////////////////////////////
c This section contains all of the cells that define the interior of each Numbered Room
c These cells were all grouped together following the same regional layout in the floor -starting
c from the northwest section moving accross the floor to the east and then returning to the west.
c
c
c TAG=TAGb1roomfill
c
c
c Northwest, North-center, and Northeast Room Fill Sections
5514 8 -0.10907 (-5514) imp:n=1 $Roomspace 55 Partially Filled
5515 8 -0.10907 (-5515) imp:n=1 $Roomspace 55A
5516 8 -0.10907 (-5516) imp:n=1 $Roomspace 55B
5605 1 -0.001202 (-5605) imp:n=1 $Roomspace 56
9109 8 -0.10907 (-9109) imp:n=1 $Roomspace 91 Partially Filled
9319 8 -0.10907 (-9319) imp:n=1 $Roomspace 93 Partially Filled
9414 8 -0.10907 (-9414) imp:n=1 $Roomspace 94 Partially Filled
9415 1 -0.001202 (-9415) imp:n=1 $Roomspace 94B
9505 8 -0.10907 (-9505 9404) imp:n=1 $Roomspace 95
9608 8 -0.10907 (-9608 9603) imp:n=1 $Roomspace 96
9609 8 -0.10907 (-9609 9603) imp:n=1 $Roomspace 96A
9708 8 -0.10907 (-9708 9707) imp:n=1 $Roomspace 97
9709 8 -0.10907 (-9709) imp:n=1 $Roomspace 97A
9802 1 -0.001202 (-9802) imp:n=1 $Roomspace 98
9017 6 -0.04855 (-9017) imp:n=1 $Roomspace 90
4808 8 -0.10907 (-4808 4807 4806) imp:n=1 $Roomspace 48
5711 8 -0.10907 (-5711) imp:n=1 $Roomspace 57W
5712 8 -0.10907 (-5712) imp:n=1 $Roomspace 57
5713 8 -0.10907 (-5713) imp:n=1 $Roomspace 57E
5809 8 -0.10907 (-5809 5808) imp:n=1 $Roomspace 58
5408 8 -0.10907 (-5408 5401 5402) imp:n=1 $Roomspace 54
5207 8 -0.10907 (-5207 5206) imp:n=1 $Roomspace 52
c
c
c West, Southwest, Southeast, and East Room Fill Sections
c 2230 2231 2232 2233 2234 2235 Add these
c
2321 8 -0.10907 (-2321 2312 2313 2314) imp:n=1 $Roomspace 23B
2322 8 -0.10907 (-2322 2318 2319 2320) imp:n=1 $Roomspace 23
2222 1 -0.001202 (-2222 2214 2212 2231) imp:n=1 $Roomspace 22A Partially Filled
2306 8 -0.10907 (-2306 2305) imp:n=1 $Roomspace 23A
3007 8 -0.10907 (-3007 3006 2232) imp:n=1 $Roomspace 30A
3109 7 -0.05514 (-3109 2233) imp:n=1 $Roomspace 31A
3110 7 -0.05514 (-3110 3108 2234) imp:n=1 $Roomspace 31 Partially Filled
3306 7 -0.05514 (-3306 3108 3302 2235) imp:n=1 $Roomspace 33
3408 1 -0.001202 (-3408 3402) imp:n=1 $Roomspace 34
3508 7 -0.05514 (-3508 3505) imp:n=1 $Roomspace 35
3603 1 -0.001202 (-3603 3505) imp:n=1 $Roomspace 36
4605 3 -2.3 (-4605) imp:n=1 $Roomspace 46
4313 8 -0.10907 (-4313) imp:n=1 $Roomspace 43
4314 8 -0.10907 (-4314) imp:n=1 $Roomspace 43A
4315 1 -0.001202 (-4315) imp:n=1 $Roomspace 44
4045 1 -0.001202 (-4045 4009 4008) imp:n=1 $Roomspace TBF 40C
4046 1 -0.001202 (-4046 4032) imp:n=1 $Roomspace TBF 40A
4044 1 -0.001202 (-4044 4041 4040) imp:n=1 $Roomspace TBF 40B
5019 1 -0.001202 (-5019 5006 5008 5009
5010 5011 5012 5013 ) imp:n=1 $Roomspace TBF 50
5020 1 -0.001202 (-5020 5018 5016 5014
5007) imp:n=1 $Roomspace TBF 50A
c
c
c Southernmost Fill Sections

```

725 6 -0.04855 (-725) imp:n=1 \$Roomspace 7
 904 6 -0.04855 (-904 901) imp:n=1 \$Roomspace 9
 1103 6 -0.04855 (-1103 901) imp:n=1 \$Roomspace 11
 1304 6 -0.04855 (-1304 1302) imp:n=1 \$Roomspace 13
 1503 6 -0.04855 (-1503 1302) imp:n=1 \$Roomspace 15
 1704 6 -0.04855 (-1704) imp:n=1 \$Roomspace 17
 1606 6 -0.04855 (-1606) imp:n=1 \$Roomspace 16
 1803 6 -0.04855 (-1803) imp:n=1 \$Roomspace 18
 2010 6 -0.04855 (-2010 2002) imp:n=1 \$Roomspace 20
 2011 6 -0.04855 (-2011) imp:n=1 \$Roomspace Lunch Room
 2603 6 -0.04855 (-2603) imp:n=1 \$Roomspace 26
 2804 1 -0.001202 (-2804) imp:n=1 \$Roomspace 28 Partially Filled
 7005 6 -0.04855 (-7005 7003) imp:n=1 \$Roomspace 70
 7203 6 -0.04855 (-7203 7003) imp:n=1 \$Roomspace 72
 7404 6 -0.04855 (-7404 7403) imp:n=1 \$Roomspace 74
 7603 6 -0.04855 (-7603 7403) imp:n=1 \$Roomspace 76
 7804 6 -0.04855 (-7804) imp:n=1 \$Roomspace 78
 1407 6 -0.04855 (-1407) imp:n=1 \$Roomspace 14
 1205 6 -0.04855 (-1205 1203) imp:n=1 \$Roomspace 12
 1005 6 -0.04855 (-1005 1203) imp:n=1 \$Roomspace 10
 2703 6 -0.04855 (-2703) imp:n=1 \$Roomspace 27
 2505 6 -0.04855 (-2505) imp:n=1 \$Roomspace 25 Partially Filled
 807 1 -0.001202 (-807) imp:n=1 \$Roomspace 8 Partially Filled
 518 6 -0.04855 (-518 506 504 516 517) imp:n=1 \$Roomspace 5

c
c
c
c

c Cell that contains the entire basement and first floors

999 0 999 imp:n=0

c
c
c

c Void surrounding basement and first floors

990 0 (-999 990 991 992) imp:n=1 \$Void

c
c

c Cell that combines all of Basement1 subsections

400 0 (-990 401 402 9009 9005 #9306 #9008 403 404 405
 4569 406 407 408 409 #5407 410 411 412 413 414
 415 416 417 418 419 420 421 422 423 424 425 426
 427 428 #713 #3216 #3217 430 431 432 433 434
) imp:n=1

c
c

c Begin the NW Central section of Basement1

401 1 -0.001202 (-401 4536 4537 4538 4539 4541 4542 4543 4544 4545
 4546 4547 4548 4549 4550 4551 4552 4553 4554 4555
 4556 4557 4558 5501 5502 5503 5504 5505 5506 5507
 5508 5509 5510 5511 5512 5513 5601 5602 5603 5604
 5514 5515 5516 5605) imp:n=1 \$Air Filled \$Section Box

c
c

c Begin North-Center Section of the Central Section of Basement1

402 1 -0.001202 (-402 9001 9002 9003 9004 9006 9007 9008 9010 9011 9012
 9013 9014 9015 9016 9101 9102 9103 9104 9105 9106 9107
 9108 9109 9301 9302 9303 9304 9305 9306 9307 9308 9309
 9310 9311 9312 9313 9314 9315 9316 9317 9318 9319 9017
) imp:n=1 \$Air Filled \$W Section Box

c
c

403 1 -0.001202 (-403 4560 4561 4562 4563 4564 4565 4566 4567 4568 #4569

9701 9702 9703 9704 9705 9706 9707 9801 9401 9402 9403
 9404 9405 9406 9407 9408 9409 9410 9411 9412 9413 9501
 9502 9503 9504 9601 9602 9603 9604 9605 9606 9607 9414
 9415 9505 9608 9609 9708 9709 9802 #421
) imp:n=1 \$Air Filled \$NW Section Box

c
c

c Begin Northeast Section of the Central Section of Basement1

404 1 -0.001202 (-404 4575 4576 4577 5701 5702 5703 5704 5705 5706 5707
5708 5709 5710 5711 5712 5713 5801 5802 5803 5804 5805
5806 5807 5808 5809 5711 5712 5713 5809 4540 4545
#3216 #462) imp:n=1 \$Air Filled \$SW Section Box

c

c

405 1 -0.001202 (-405 4578 4579 4580 4581 4582 4583 4801 4802 4803 4804
4805 4806 4807 4808 5401 5402 5403 5404 5405 5406 5408
5201 5202 5203 5204 5205 5206 5207 5408 5207
) imp:n=1 \$Air Filled \$E Section Box

c

c

c Begin West Section of Basement1

406 1 -0.001202 (-406 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319
2320 4501 4502 4503 4504 4505 4506 4507 4508 4509 3201
3202 3203 3204 3205 3206 3207 3208 3209 3210 3211 3212
3213 3214 3215 3217 2321 2322 #425
) imp:n=1 \$Air Filled \$ Section Box

c

c

c Begin Southwest Section of the Central Section of Basement1

407 1 -0.001202 (-407 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210
2211 2212 2213 2214 2215 2216 2217 2219 2220 2221
2301 2302 2303 2304 2305 3001 3002 3003 3004 3005 3006
3102 3103 3104 3106 3107 3108 3301 3302 3303
3304 3305 4584 4585 4586 4587 4588 4589 4590 4591 4592
4593 2222 2306 3007 3109 3110 3306 #3216 461 2230
2231 2232 2233 2234 2235) imp:n=1 \$Air Filled \$ Section Box

c

c 3101 3105 2218

c Begin Southeast Section of the Central Section of Basement1

408 1 -0.001202 (-408 4511 4512 4513 4514 4515 4516 4517 4518 4519 4520
4521 4522 4523 4524 4525 4526 4527 4528 4529 4530 4531
4532 4533 4534 3401 3402 3403 3404 3405 3406 3407
3501 3502 3503 3504 3505 3506 3507 3601 3602 4601 4602
4603 4604 4301 4302 4303 4304 4305 4306 4307 4308 4309
4310 4311 4312 3408 3508 3603 4605 4313 4314 4315 462
463 4610 4612) imp:n=1 \$Air Filled \$ Section Box

c

c

c Begin East Section of Basement1

409 1 -0.001202 (-409 4001 4002 4003 4004 4005 4006 4007 4008 4009 4010
4011 4012 4013 4014 4015 4016 4017 4018 4019 4020 4021
4022 4023 4024 4025 4026 4027 4028 4029 4030 4031 4032
4033 4034 4035 4036 4037 4038 4039 4040 4041 4042 4043
5001 5002 5003 5004 5005 5006 5007 5008 5009 5010 5011
5012 5013 5014 5015 5016 5017 5018 4045 4046 4044 5019
5020 #5407 #422) imp:n=1 \$Air Filled \$ Section Box

c

c

410 1 -0.001202 (-410 701 702 703 704 705 706 707 708 709 710 711 712
901 902 903 1101 1102 1301 1302 1303 1501 1502 1701
1702 1703 725 904 1103 1304 1503 1704 #423
) imp:n=1 \$W Section Box

c

c

411 1 -0.001202 (-411 1601 1602 1603 1604 1605 1801 1802 2001 2002 2003
2004 2005 2006 2007 2008 2009 2601 2602 1606 1803 2010
2011 2603 714 715 716 717 718 719 720 #713 #2804 #423
) imp:n=1 \$S Section Box

c

c

412 1 -0.001202 (-412 2801 2802 2803 7001 7002 7003 7004 7201 7202
7401 7402 7403 7601 7602 7801 7802 7803 2804 7005
7203 7404 7603 7804 #713 721 722 723 724 #423
) imp:n=1 \$E Section Box

c

413 1 -0.001202 (-413 1001 1002 1003 1004 2701 2702 2501 2502 2503 2504
801 802 803 804 805 806 501 502 503 504 505 506 507
508 509 510 511 512 513 514 515 516 517 1401 1402 1403

70310	5	0.00359833	(-70310)	imp:n=1	\$Metal wl
70311	5	0.00359833	(-70311)	imp:n=1	\$Metal wl
70312	5	0.00359833	(-70312)	imp:n=1	\$Metal wl
70313	5	0.00359833	(-70313)	imp:n=1	\$Metal wl
70314	5	0.00359833	(-70314)	imp:n=1	\$Metal wl
70315	5	0.00359833	(-70315)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 320/421

32001	5	0.00359833	(-32001)	imp:n=1	\$Air Filled
32002	5	0.00359833	(-32002)	imp:n=1	\$Metal wl
32003	5	0.00359833	(-32003)	imp:n=1	\$Metal wl
32004	5	0.00359833	(-32004)	imp:n=1	\$Metal wl
32005	5	0.00359833	(-32005)	imp:n=1	\$Metal wl
32006	5	0.00359833	(-32006)	imp:n=1	\$Metal wl
32007	5	0.00359833	(-32007)	imp:n=1	\$Metal wl
32008	5	0.00359833	(-32008)	imp:n=1	\$Metal wl
32009	5	0.00359833	(-32009)	imp:n=1	\$Metal wl
32010	5	0.00359833	(-32010)	imp:n=1	\$Metal wl
32011	5	0.00359833	(-32011)	imp:n=1	\$Metal wl
32012	5	0.00359833	(-32012)	imp:n=1	\$Metal wl
32013	5	0.00359833	(-32013)	imp:n=1	\$Metal wl
32014	5	0.00359833	(-32014)	imp:n=1	\$Metal wl
32015	5	0.00359833	(-32015)	imp:n=1	\$Metal wl
32016	5	0.00359833	(-32016)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 324/425

32401	1	-0.001202	(-32401)	imp:n=1	\$Air Filled
32402	5	0.00359833	(-32402 32401)	imp:n=1	\$Metal wl
32403	1	-0.001202	(-32403)	imp:n=1	\$Air Filled
32404	5	0.00359833	(-32404 32403)	imp:n=1	\$Metal wl
32405	5	0.00359833	(-32405)	imp:n=1	\$Metal wl
32406	5	0.00359833	(-32406)	imp:n=1	\$Metal wl
32407	1	-0.001202	(-32407)	imp:n=1	\$Air Filled
32408	5	0.00359833	(-32408 32407)	imp:n=1	\$Metal wl
32409	5	0.00359833	(-32409)	imp:n=1	\$Metal wl
32410	5	0.00359833	(-32410)	imp:n=1	\$Metal wl
32411	5	0.00359833	(-32411)	imp:n=1	\$Metal wl
32412	5	0.00359833	(-32412)	imp:n=1	\$Metal wl
32413	5	0.00359833	(-32413)	imp:n=1	\$Metal wl
32414	1	-0.001202	(-32414)	imp:n=1	\$Air Filled
32415	5	0.00359833	(-32415 32414)	imp:n=1	\$Metal wl
32416	5	0.00359833	(-32416)	imp:n=1	\$Metal wl
32417	5	0.00359833	(-32417)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 325/Filter Building

32501	5	0.00359833	(-32501)	imp:n=1	\$Metal wl
32502	5	0.00359833	(-32502)	imp:n=1	\$Metal wl
32503	5	0.00359833	(-32503)	imp:n=1	\$Metal wl
32504	5	0.00359833	(-32504)	imp:n=1	\$Metal wl
32505	5	0.00359833	(-32505)	imp:n=1	\$Metal wl
32506	5	0.00359833	(-32506)	imp:n=1	\$Metal wl
32507	5	0.00359833	(-32507)	imp:n=1	\$Metal wl
32508	5	0.00359833	(-32508)	imp:n=1	\$Metal wl
32509	5	0.00359833	(-32509)	imp:n=1	\$Metal wl
32510	5	0.00359833	(-32510)	imp:n=1	\$Metal wl
32511	5	0.00359833	(-32511)	imp:n=1	\$Metal wl
32512	5	0.00359833	(-32512)	imp:n=1	\$Metal wl
32513	5	0.00359833	(-32513)	imp:n=1	\$Metal wl
32514	5	0.00359833	(-32514)	imp:n=1	\$Metal wl
32515	5	0.00359833	(-32515)	imp:n=1	\$Metal wl
32516	5	0.00359833	(-32516)	imp:n=1	\$Metal wl
32517	5	0.00359833	(-32517)	imp:n=1	\$Metal wl
32518	5	0.00359833	(-32518)	imp:n=1	\$Metal wl
32519	5	0.00359833	(-32519)	imp:n=1	\$Metal wl
32520	5	0.00359833	(-32520)	imp:n=1	\$Metal wl
32521	5	0.00359833	(-32521)	imp:n=1	\$Metal wl
32522	5	0.00359833	(-32522)	imp:n=1	\$Metal wl

```

32524 15 -0.4751 (-32524) imp:n=1 $Ext wl Filled
c
c
c Floor1 Room 330/427/Elevator
33001 5 0.00359833 (-33001) imp:n=1 $Metal wl
33002 5 0.00359833 (-33002) imp:n=1 $Metal wl
33003 5 0.00359833 (-33003) imp:n=1 $Metal wl
33004 5 0.00359833 (-33004) imp:n=1 $Metal wl
33005 5 0.00359833 (-33005) imp:n=1 $Metal wl
33006 5 0.00359833 (-33006) imp:n=1 $Metal wl
33007 5 0.00359833 (-33007) imp:n=1 $Metal wl
33008 5 0.00359833 (-33008) imp:n=1 $Metal wl
33009 5 0.00359833 (-33009) imp:n=1 $Metal wl
33010 5 0.00359833 (-33010) imp:n=1 $Metal wl
33011 5 0.00359833 (-33011) imp:n=1 $Metal wl
33012 5 0.00359833 (-33012) imp:n=1 $Metal wl
33013 5 0.00359833 (-33013) imp:n=1 $Metal wl
33014 5 0.00359833 (-33014) imp:n=1 $Metal wl
33015 5 0.00359833 (-33015) imp:n=1 $Metal wl
33016 5 0.00359833 (-33016) imp:n=1 $Metal wl
33017 5 0.00359833 (-33017) imp:n=1 $Metal wl
33018 5 0.00359833 (-33018) imp:n=1 $Metal wl
33019 5 0.00359833 (-33019) imp:n=1 $Metal wl
33020 5 0.00359833 (-33020) imp:n=1 $Metal wl
33021 5 0.00359833 (-33021) imp:n=1 $Metal wl
33022 5 0.00359833 (-33022) imp:n=1 $Metal wl
33023 5 0.00359833 (-33023) imp:n=1 $Metal wl
33024 5 0.00359833 (-33024) imp:n=1 $Metal wl
33025 5 0.00359833 (-33025) imp:n=1 $Metal wl
33026 5 0.00359833 (-33026) imp:n=1 $Metal wl
33027 5 0.00359833 (-33027) imp:n=1 $Metal wl
33028 5 0.00359833 (-33028) imp:n=1 $Metal wl
33031 15 -0.4751 (-33031) imp:n=1 $Ext wl Filled
33032 15 -0.4751 (-33032) imp:n=1 $Ext wl Filled
c
c
c Floor1 Room 327/327A
32701 5 0.00359833 (-32701) imp:n=1 $Metal wl
32702 5 0.00359833 (-32702) imp:n=1 $Metal wl
32703 5 0.00359833 (-32703) imp:n=1 $Metal wl
32704 5 0.00359833 (-32704) imp:n=1 $Metal wl
32705 5 0.00359833 (-32705) imp:n=1 $Metal wl
32706 5 0.00359833 (-32706) imp:n=1 $Metal wl
32707 5 0.00359833 (-32707) imp:n=1 $Metal wl
32708 5 0.00359833 (-32708) imp:n=1 $Metal wl
32709 5 0.00359833 (-32709) imp:n=1 $Metal wl
32710 5 0.00359833 (-32710) imp:n=1 $Metal wl
32711 5 0.00359833 (-32711) imp:n=1 $Metal wl
32712 5 0.00359833 (-32712) imp:n=1 $Metal wl
32713 5 0.00359833 (-32713) imp:n=1 $Metal wl
32714 5 0.00359833 (-32714) imp:n=1 $Metal wl
32715 5 0.00359833 (-32715) imp:n=1 $Metal wl
32718 15 -0.4751 (-32718) imp:n=1 $Ext wl Filled
c
c
c ///////////////////////////////////////////////////////////////////Begin Northeast Section of the central Section of Floor1/////////////////////////////////////////////////////////////////
c *****Notes for this section of Cells*****
c The origin was set as the SW corner of the inside wall of Room 711.
c
c
c Floor1 Room 711/Womens Rm
c *****Wall on W of womens rm ignored
71101 5 0.00359833 (-71101) imp:n=1 $Metal wl
71102 5 0.00359833 (-71102) imp:n=1 $Metal wl
71103 5 0.00359833 (-71103) imp:n=1 $Metal wl
71104 5 0.00359833 (-71104) imp:n=1 $Metal wl
71105 5 0.00359833 (-71105) imp:n=1 $Metal wl
71106 5 0.00359833 (-71106) imp:n=1 $Metal wl
71107 5 0.00359833 (-71107) imp:n=1 $Metal wl
71108 5 0.00359833 (-71108) imp:n=1 $Metal wl

```

71109	5	0.00359833	(-71109)	imp:n=1	\$Metal wl
71110	5	0.00359833	(-71110)	imp:n=1	\$Metal wl
71111	5	0.00359833	(-71111)	imp:n=1	\$Metal wl
71112	5	0.00359833	(-71112)	imp:n=1	\$Metal wl
71113	5	0.00359833	(-71113)	imp:n=1	\$Metal wl
71114	5	0.00359833	(-71114)	imp:n=1	\$Metal wl

c

c

Floor1 Room 420

42001	5	0.00359833	(-42001)	imp:n=1	\$Metal wl
42002	5	0.00359833	(-42002)	imp:n=1	\$Metal wl
42003	5	0.00359833	(-42003)	imp:n=1	\$Metal wl
42004	5	0.00359833	(-42004)	imp:n=1	\$Metal wl
42005	5	0.00359833	(-42005)	imp:n=1	\$Metal wl
42006	5	0.00359833	(-42006)	imp:n=1	\$Metal wl
42007	5	0.00359833	(-42007)	imp:n=1	\$Metal wl
42008	5	0.00359833	(-42008)	imp:n=1	\$Metal wl
42009	5	0.00359833	(-42009)	imp:n=1	\$Metal wl
42010	5	0.00359833	(-42010)	imp:n=1	\$Metal wl
42011	5	0.00359833	(-42011)	imp:n=1	\$Metal wl
42012	5	0.00359833	(-42012)	imp:n=1	\$Metal wl

c

c

Floor1 Room 525/Freezer

52501	5	0.00359833	(-52501)	imp:n=1	\$Metal wl
52502	5	0.00359833	(-52502)	imp:n=1	\$Metal wl
52503	5	0.00359833	(-52503)	imp:n=1	\$Metal wl
52504	5	0.00359833	(-52504)	imp:n=1	\$Metal wl
52505	5	0.00359833	(-52505)	imp:n=1	\$Metal wl
52506	5	0.00359833	(-52506)	imp:n=1	\$Metal wl
52507	5	0.00359833	(-52507)	imp:n=1	\$Metal wl
52508	5	0.00359833	(-52508)	imp:n=1	\$Metal wl
52509	5	0.00359833	(-52509)	imp:n=1	\$Metal wl
52510	5	0.00359833	(-52510)	imp:n=1	\$Metal wl
52511	5	0.00359833	(-52511)	imp:n=1	\$Metal wl
52512	5	0.00359833	(-52512)	imp:n=1	\$Metal wl
52513	5	0.00359833	(-52513)	imp:n=1	\$Metal wl
52514	5	0.00359833	(-52514)	imp:n=1	\$Metal wl
52515	5	0.00359833	(-52515)	imp:n=1	\$Metal wl
52516	5	0.00359833	(-52516)	imp:n=1	\$Metal wl
52517	5	0.00359833	(-52517)	imp:n=1	\$Metal wl
52518	5	0.00359833	(-52518)	imp:n=1	\$Metal wl
52519	5	0.00359833	(-52519)	imp:n=1	\$Metal wl

c

c

Floor1 Room 426/426A

42601	5	0.00359833	(-42601)	imp:n=1	\$Metal wl
42602	5	0.00359833	(-42602)	imp:n=1	\$Metal wl
42603	5	0.00359833	(-42603)	imp:n=1	\$Metal wl
42604	5	0.00359833	(-42604)	imp:n=1	\$Metal wl
42605	5	0.00359833	(-42605)	imp:n=1	\$Metal wl
42606	5	0.00359833	(-42606)	imp:n=1	\$Metal wl
42607	5	0.00359833	(-42607)	imp:n=1	\$Metal wl
42608	5	0.00359833	(-42608)	imp:n=1	\$Metal wl
42609	5	0.00359833	(-42609)	imp:n=1	\$Metal wl
42610	5	0.00359833	(-42610)	imp:n=1	\$Metal wl
42611	5	0.00359833	(-42611)	imp:n=1	\$Metal wl
42612	5	0.00359833	(-42612)	imp:n=1	\$Metal wl
42613	5	0.00359833	(-42613)	imp:n=1	\$Metal wl
42614	5	0.00359833	(-42614)	imp:n=1	\$Metal wl
42615	5	0.00359833	(-42615)	imp:n=1	\$Metal wl
42616	5	0.00359833	(-42616)	imp:n=1	\$Metal wl
42617	5	0.00359833	(-42617)	imp:n=1	\$Metal wl
42618	5	0.00359833	(-42618)	imp:n=1	\$Metal wl
42619	5	0.00359833	(-42619)	imp:n=1	\$Metal wl

c

c

Floor1 Room 430/Receiving Room

43001	5	0.00359833	(-43001)	imp:n=1	\$Metal wl
43002	5	0.00359833	(-43002)	imp:n=1	\$Metal wl

43003	5	0.00359833	(-43003)	imp:n=1	\$Metal	wl
43004	5	0.00359833	(-43004)	imp:n=1	\$Metal	wl
43005	5	0.00359833	(-43005)	imp:n=1	\$Metal	wl
43006	5	0.00359833	(-43006)	imp:n=1	\$Metal	wl
43007	5	0.00359833	(-43007)	imp:n=1	\$Metal	wl
43008	5	0.00359833	(-43008)	imp:n=1	\$Metal	wl
43009	5	0.00359833	(-43009)	imp:n=1	\$Metal	wl
43010	5	0.00359833	(-43010)	imp:n=1	\$Metal	wl
43011	5	0.00359833	(-43011)	imp:n=1	\$Metal	wl
43012	5	0.00359833	(-43012)	imp:n=1	\$Metal	wl
43013	5	0.00359833	(-43013)	imp:n=1	\$Metal	wl
43015	15	-0.4751	(-43015)	imp:n=1	\$Ext	wl Filled

c

c

c Floor1 Room 527/527A

52701	5	0.00359833	(-52701)	imp:n=1	\$Metal	wl
52702	5	0.00359833	(-52702)	imp:n=1	\$Metal	wl
52703	5	0.00359833	(-52703)	imp:n=1	\$Metal	wl
52704	5	0.00359833	(-52704)	imp:n=1	\$Metal	wl
52705	5	0.00359833	(-52705)	imp:n=1	\$Metal	wl
52706	5	0.00359833	(-52706)	imp:n=1	\$Metal	wl
52707	5	0.00359833	(-52707)	imp:n=1	\$Metal	wl
52708	5	0.00359833	(-52708)	imp:n=1	\$Metal	wl
52709	5	0.00359833	(-52709)	imp:n=1	\$Metal	wl
52710	5	0.00359833	(-52710)	imp:n=1	\$Metal	wl
52711	5	0.00359833	(-52711)	imp:n=1	\$Metal	wl
52712	5	0.00359833	(-52712)	imp:n=1	\$Metal	wl
52713	5	0.00359833	(-52713)	imp:n=1	\$Metal	wl
52714	5	0.00359833	(-52714)	imp:n=1	\$Metal	wl
52715	5	0.00359833	(-52715)	imp:n=1	\$Metal	wl
52716	5	0.00359833	(-52716)	imp:n=1	\$Metal	wl
52717	5	0.00359833	(-52717)	imp:n=1	\$Metal	wl
52718	5	0.00359833	(-52718)	imp:n=1	\$Metal	wl
52719	5	0.00359833	(-52719)	imp:n=1	\$Metal	wl
52720	5	0.00359833	(-52720)	imp:n=1	\$Metal	wl
52721	5	0.00359833	(-52721)	imp:n=1	\$Metal	wl
52722	5	0.00359833	(-52722)	imp:n=1	\$Metal	wl
52723	5	0.00359833	(-52723)	imp:n=1	\$Metal	wl
52726	15	-0.4751	(-52726)	imp:n=1	\$Ext	wl Filled

c

c

c Floor1 Room 529

52901	5	0.00359833	(-52901)	imp:n=1	\$Metal	wl
52902	5	0.00359833	(-52902)	imp:n=1	\$Metal	wl
52903	5	0.00359833	(-52903)	imp:n=1	\$Metal	wl
52904	5	0.00359833	(-52904)	imp:n=1	\$Metal	wl
52905	5	0.00359833	(-52905)	imp:n=1	\$Metal	wl
52906	5	0.00359833	(-52906)	imp:n=1	\$Metal	wl
52907	5	0.00359833	(-52907)	imp:n=1	\$Metal	wl
52908	5	0.00359833	(-52908)	imp:n=1	\$Metal	wl
52909	5	0.00359833	(-52909)	imp:n=1	\$Metal	wl
52910	5	0.00359833	(-52910)	imp:n=1	\$Metal	wl
52911	5	0.00359833	(-52911)	imp:n=1	\$Metal	wl
52912	5	0.00359833	(-52912)	imp:n=1	\$Metal	wl
52913	5	0.00359833	(-52913)	imp:n=1	\$Metal	wl
52914	3	-2.3	(-52914)	imp:n=1	\$Conc.	Filled
52915	3	-2.3	(-52915)	imp:n=1	\$Conc.	Filled

c

c

c Floor1 Room 520

52001	5	0.00359833	(-52001)	imp:n=1	\$Metal	wl
52002	5	0.00359833	(-52002)	imp:n=1	\$Metal	wl
52003	5	0.00359833	(-52003)	imp:n=1	\$Metal	wl
52004	5	0.00359833	(-52004)	imp:n=1	\$Metal	wl
52005	5	0.00359833	(-52005)	imp:n=1	\$Metal	wl
52006	5	0.00359833	(-52006)	imp:n=1	\$Metal	wl
52007	5	0.00359833	(-52007)	imp:n=1	\$Metal	wl
52008	5	0.00359833	(-52008)	imp:n=1	\$Metal	wl
52009	5	0.00359833	(-52009)	imp:n=1	\$Metal	wl
52010	5	0.00359833	(-52010)	imp:n=1	\$Metal	wl

```

52011 5 0.00359833 (-52011) imp:n=1 $Metal wl
52012 5 0.00359833 (-52012) imp:n=1 $Metal wl
52013 5 0.00359833 (-52013) imp:n=1 $Metal wl
52014 5 0.00359833 (-52014) imp:n=1 $Metal wl
52015 5 0.00359833 (-52015) imp:n=1 $Metal wl
c
c Floor1 Room 524
52401 5 0.00359833 (-52401) imp:n=1 $Metal wl
52402 5 0.00359833 (-52402) imp:n=1 $Metal wl
52403 5 0.00359833 (-52403) imp:n=1 $Metal wl
52404 5 0.00359833 (-52404) imp:n=1 $Metal wl
52405 5 0.00359833 (-52405) imp:n=1 $Metal wl
52406 5 0.00359833 (-52406) imp:n=1 $Metal wl
52407 5 0.00359833 (-52407) imp:n=1 $Metal wl
52408 5 0.00359833 (-52408) imp:n=1 $Metal wl
52409 5 0.00359833 (-52409) imp:n=1 $Metal wl
c
c
c Floor1 Room 528
52801 5 0.00359833 (-52801) imp:n=1 $Metal wl
52802 5 0.00359833 (-52802) imp:n=1 $Metal wl
52803 5 0.00359833 (-52803) imp:n=1 $Metal wl
52804 5 0.00359833 (-52804) imp:n=1 $Metal wl
52805 5 0.00359833 (-52805) imp:n=1 $Metal wl
52806 5 0.00359833 (-52806) imp:n=1 $Metal wl
52807 5 0.00359833 (-52807) imp:n=1 $Metal wl
52808 5 0.00359833 (-52808) imp:n=1 $Metal wl
52809 15 -0.4751 (-52809) imp:n=1 $Ext wl Filled
52810 5 0.00359833 (-52810) imp:n=1 $Metal wl
52812 15 -0.4751 (-52812) imp:n=1 $Ext wl Filled
c
c
c Floor1 Room 530/North Cylinder Dock
53001 5 0.00359833 (-53001) imp:n=1 $Metal wl
53002 5 0.00359833 (-53002) imp:n=1 $Metal wl
53003 5 0.00359833 (-53003) imp:n=1 $Metal wl
53004 5 0.00359833 (-53004) imp:n=1 $Metal wl
53005 5 0.00359833 (-53005) imp:n=1 $Metal wl
53006 5 0.00359833 (-53006) imp:n=1 $Metal wl
53007 5 0.00359833 (-53007) imp:n=1 $Metal wl
53008 5 0.00359833 (-53008) imp:n=1 $Metal wl
53009 3 -2.3 (-53009) imp:n=1 $Conc. Filled
53010 3 -2.3 (-53010) imp:n=1 $Conc. Filled
53011 3 -2.3 (-53011) imp:n=1 $Conc. Filled
53012 3 -2.3 (-53012) imp:n=1 $Conc. Filled
53013 3 -2.3 (-53013) imp:n=1 $Conc. Filled
53014 3 -2.3 (-53014) imp:n=1 $Conc. Filled
53015 3 -2.3 (-53015) imp:n=1 $Conc. Filled
53016 5 0.00359833 (-53016) imp:n=1 $Metal wl
53018 15 -0.4751 (-53018) imp:n=1 $Ext wl Filled
c
c
c
c ////////////////////////////////////////////////////////////////////Begin West Section of Floor1//////////////////////////////////////////////////////////////////
c *****Notes for this section of Cells*****
c The origin was set as the SW corner of the inside wall of Room 209.
c
c
c
c Floor1 Room 209
20901 5 0.00359833 (-20901) imp:n=1 $Metal wl
20902 5 0.00359833 (-20902) imp:n=1 $Metal wl
20903 5 0.00359833 (-20903) imp:n=1 $Metal wl
20904 5 0.00359833 (-20904) imp:n=1 $Metal wl
20905 5 0.00359833 (-20905) imp:n=1 $Metal wl
20906 5 0.00359833 (-20906) imp:n=1 $Metal wl
20907 5 0.00359833 (-20907) imp:n=1 $Metal wl
20908 5 0.00359833 (-20908) imp:n=1 $Metal wl
20909 13 -7.92 (-20909) imp:n=1 $SS
20910 5 0.00359833 (-20910) imp:n=1 $Metal wl

```

20911	5	0.00359833	(-20911)	imp:n=1	\$Metal wl
20912	5	0.00359833	(-20912)	imp:n=1	\$Metal wl
20913	5	0.00359833	(-20913)	imp:n=1	\$Metal wl
20914	5	0.00359833	(-20914)	imp:n=1	\$Metal wl
20915	5	0.00359833	(-20915)	imp:n=1	\$Metal wl
20916	5	0.00359833	(-20916)	imp:n=1	\$Metal wl
20917	5	0.00359833	(-20917)	imp:n=1	\$Metal wl
20918	5	0.00359833	(-20918)	imp:n=1	\$Metal wl
20920	5	0.00359833	(-20920)	imp:n=1	\$Metal wl
20921	15	-0.4751	(-20921)	imp:n=1	\$Ext wl Filled
20922	15	-0.4751	(-20922)	imp:n=1	\$Ext wl Filled

c
c

c Floor1 Room 202/203

20201	5	0.00359833	(-20201)	imp:n=1	\$Metal wl
20202	5	0.00359833	(-20202)	imp:n=1	\$Metal wl
20203	15	-0.4751	(-20203)	imp:n=1	\$Ext wl Filled
20204	5	0.00359833	(-20204)	imp:n=1	\$Metal wl
20205	15	-0.4751	(-20205)	imp:n=1	\$Ext wl Filled
20206	5	0.00359833	(-20206)	imp:n=1	\$Metal wl
20207	5	0.00359833	(-20207)	imp:n=1	\$Metal wl
20208	5	0.00359833	(-20208)	imp:n=1	\$Metal wl
20209	5	0.00359833	(-20209)	imp:n=1	\$Metal wl
20210	5	0.00359833	(-20210)	imp:n=1	\$Metal wl
20211	5	0.00359833	(-20211)	imp:n=1	\$Metal wl
20212	5	0.00359833	(-20212)	imp:n=1	\$Metal wl
20213	5	0.00359833	(-20213)	imp:n=1	\$Metal wl
20214	5	0.00359833	(-20214)	imp:n=1	\$Metal wl
20215	5	0.00359833	(-20215)	imp:n=1	\$Metal wl
20216	5	0.00359833	(-20216)	imp:n=1	\$Metal wl
20217	5	0.00359833	(-20217)	imp:n=1	\$Metal wl
20218	5	0.00359833	(-20218)	imp:n=1	\$Metal wl
20219	5	0.00359833	(-20219)	imp:n=1	\$Metal wl
20220	15	-0.4751	(-20220)	imp:n=1	\$Ext wl Filled

c

c

c Floor1 Room 200

20001	5	0.00359833	(-20001)	imp:n=1	\$Metal wl
20002	5	0.00359833	(-20002)	imp:n=1	\$Metal wl
20003	5	0.00359833	(-20003)	imp:n=1	\$Metal wl
20004	5	0.00359833	(-20004)	imp:n=1	\$Metal wl
20005	5	0.00359833	(-20005)	imp:n=1	\$Metal wl
20006	5	0.00359833	(-20006)	imp:n=1	\$Metal wl
20007	5	0.00359833	(-20007)	imp:n=1	\$Metal wl
20008	5	0.00359833	(-20008)	imp:n=1	\$Metal wl
20009	5	0.00359833	(-20009)	imp:n=1	\$Metal wl
20010	5	0.00359833	(-20010)	imp:n=1	\$Metal wl
20011	5	0.00359833	(-20011)	imp:n=1	\$Metal wl
20012	5	0.00359833	(-20012)	imp:n=1	\$Metal wl
20013	5	0.00359833	(-20013)	imp:n=1	\$Metal wl
20014	5	0.00359833	(-20014)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 201

c *****This room contains the SAL hot cellsL*****

c Neglected thin wall strip in NE border region

20101	13	-7.92	(-20101)	imp:n=1	\$\$\$
20102	5	0.00359833	(-20102)	imp:n=1	\$Metal wl
20103	13	-7.92	(-20103)	imp:n=1	\$\$\$
20104	13	-7.92	(-20104)	imp:n=1	\$\$\$
20105	5	0.00359833	(-20105)	imp:n=1	\$Metal wl
20106	5	0.00359833	(-20106)	imp:n=1	\$Metal wl
20107	5	0.00359833	(-20107)	imp:n=1	\$Metal wl
20108	5	0.00359833	(-20108)	imp:n=1	\$Metal wl
20109	5	0.00359833	(-20109)	imp:n=1	\$Metal wl
20110	5	0.00359833	(-20110)	imp:n=1	\$Metal wl
20111	5	0.00359833	(-20111)	imp:n=1	\$Metal wl
20112	15	-0.4751	(-20112)	imp:n=1	\$Ext wl Filled
20113	5	0.00359833	(-20113)	imp:n=1	\$Metal wl
20114	5	0.00359833	(-20114)	imp:n=1	\$Metal wl

31303	5	0.00359833	(-31303)	imp:n=1	\$Metal wl
31304	5	0.00359833	(-31304)	imp:n=1	\$Metal wl
31305	5	0.00359833	(-31305)	imp:n=1	\$Metal wl
31306	5	0.00359833	(-31306)	imp:n=1	\$Metal wl
31307	5	0.00359833	(-31307)	imp:n=1	\$Metal wl
31308	5	0.00359833	(-31308)	imp:n=1	\$Metal wl
31309	5	0.00359833	(-31309)	imp:n=1	\$Metal wl
31310	5	0.00359833	(-31310)	imp:n=1	\$Metal wl
31311	5	0.00359833	(-31311)	imp:n=1	\$Metal wl
31312	5	0.00359833	(-31312)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 317

31701	5	0.00359833	(-31701)	imp:n=1	\$Metal wl
31702	5	0.00359833	(-31702)	imp:n=1	\$Metal wl
31703	5	0.00359833	(-31703)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 319/319A

31901	5	0.00359833	(-31901)	imp:n=1	\$Metal wl
31902	5	0.00359833	(-31902)	imp:n=1	\$Metal wl
31903	5	0.00359833	(-31903)	imp:n=1	\$Metal wl
31904	5	0.00359833	(-31904)	imp:n=1	\$Metal wl
31905	5	0.00359833	(-31905)	imp:n=1	\$Metal wl
31906	5	0.00359833	(-31906)	imp:n=1	\$Metal wl
31907	5	0.00359833	(-31907)	imp:n=1	\$Metal wl
31908	5	0.00359833	(-31908)	imp:n=1	\$Metal wl
31909	5	0.00359833	(-31909)	imp:n=1	\$Metal wl
31910	5	0.00359833	(-31910)	imp:n=1	\$Metal wl
31911	5	0.00359833	(-31911)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 300

30001	5	0.00359833	(-30001)	imp:n=1	\$Metal wl
30002	5	0.00359833	(-30002)	imp:n=1	\$Metal wl
30003	5	0.00359833	(-30003)	imp:n=1	\$Metal wl
30004	5	0.00359833	(-30004)	imp:n=1	\$Metal wl
30005	5	0.00359833	(-30005)	imp:n=1	\$Metal wl
30006	5	0.00359833	(-30006)	imp:n=1	\$Metal wl
30007	5	0.00359833	(-30007)	imp:n=1	\$Metal wl
30008	5	0.00359833	(-30008)	imp:n=1	\$Metal wl
30009	5	0.00359833	(-30009)	imp:n=1	\$Metal wl
30010	5	0.00359833	(-30010)	imp:n=1	\$Metal wl
30011	5	0.00359833	(-30011)	imp:n=1	\$Metal wl
30012	5	0.00359833	(-30012)	imp:n=1	\$Metal wl
30013	5	0.00359833	(-30013)	imp:n=1	\$Metal wl
30014	5	0.00359833	(-30014)	imp:n=1	\$Metal wl
30015	5	0.00359833	(-30015)	imp:n=1	\$Metal wl
30016	5	0.00359833	(-30016)	imp:n=1	\$Metal wl
30017	5	0.00359833	(-30017)	imp:n=1	\$Metal wl
30018	5	0.00359833	(-30018)	imp:n=1	\$Metal wl
30019	5	0.00359833	(-30019)	imp:n=1	\$Metal wl
30020	5	0.00359833	(-30020)	imp:n=1	\$Metal wl
30021	5	0.00359833	(-30021)	imp:n=1	\$Metal wl
30022	5	0.00359833	(-30022)	imp:n=1	\$Metal wl
30023	5	0.00359833	(-30023)	imp:n=1	\$Metal wl

c

c

c

c Floor1 Room 306

30601	5	0.00359833	(-30601)	imp:n=1	\$Metal wl
30602	5	0.00359833	(-30602)	imp:n=1	\$Metal wl
30603	5	0.00359833	(-30603)	imp:n=1	\$Metal wl
30604	5	0.00359833	(-30604)	imp:n=1	\$Metal wl
30605	5	0.00359833	(-30605)	imp:n=1	\$Metal wl
30606	5	0.00359833	(-30606)	imp:n=1	\$Metal wl
30607	5	0.00359833	(-30607)	imp:n=1	\$Metal wl
30608	5	0.00359833	(-30608)	imp:n=1	\$Metal wl
30609	5	0.00359833	(-30609)	imp:n=1	\$Metal wl
30610	5	0.00359833	(-30610)	imp:n=1	\$Metal wl

30611	5	0.00359833	(-30611)	imp:n=1	\$Metal wl
c					
c					
c Floor1 Room 310					
31001	5	0.00359833	(-31001)	imp:n=1	\$Metal wl
31002	5	0.00359833	(-31002)	imp:n=1	\$Metal wl
31003	5	0.00359833	(-31003)	imp:n=1	\$Metal wl
31004	5	0.00359833	(-31004)	imp:n=1	\$Metal wl
31005	5	0.00359833	(-31005)	imp:n=1	\$Metal wl
c					
c					
c Floor1 Room 312					
31201	5	0.00359833	(-31201)	imp:n=1	\$Metal wl
31202	5	0.00359833	(-31202)	imp:n=1	\$Metal wl
31203	5	0.00359833	(-31203)	imp:n=1	\$Metal wl
31204	5	0.00359833	(-31204)	imp:n=1	\$Metal wl
31205	5	0.00359833	(-31205)	imp:n=1	\$Metal wl
31206	5	0.00359833	(-31206)	imp:n=1	\$Metal wl
31207	5	0.00359833	(-31207)	imp:n=1	\$Metal wl
31208	5	0.00359833	(-31208)	imp:n=1	\$Metal wl
31209	5	0.00359833	(-31209)	imp:n=1	\$Metal wl
31210	5	0.00359833	(-31210)	imp:n=1	\$Metal wl
31211	5	0.00359833	(-31211)	imp:n=1	\$Metal wl
31212	5	0.00359833	(-31212)	imp:n=1	\$Metal wl
31213	5	0.00359833	(-31213)	imp:n=1	\$Metal wl
31214	5	0.00359833	(-31214)	imp:n=1	\$Metal wl
31215	5	0.00359833	(-31215)	imp:n=1	\$Metal wl
31216	5	0.00359833	(-31216)	imp:n=1	\$Metal wl
c					
c					
c Floor1 Room 316					
31601	5	0.00359833	(-31601)	imp:n=1	\$Metal wl
31602	13	-7.92	(-31602)	imp:n=1	\$SS
31603	5	0.00359833	(-31603)	imp:n=1	\$Metal wl
31604	5	0.00359833	(-31604)	imp:n=1	\$Metal wl
31605	5	0.00359833	(-31605)	imp:n=1	\$Metal wl
31606	5	0.00359833	(-31606)	imp:n=1	\$Metal wl
31607	5	0.00359833	(-31607)	imp:n=1	\$Metal wl
31608	5	0.00359833	(-31608)	imp:n=1	\$Metal wl
31609	5	0.00359833	(-31609)	imp:n=1	\$Metal wl
31610	5	0.00359833	(-31610)	imp:n=1	\$Metal wl
31611	5	0.00359833	(-31611)	imp:n=1	\$Metal wl
c					
c					
c Floor1 Room 401/403					
40101	5	0.00359833	(-40101)	imp:n=1	\$Metal wl
40102	5	0.00359833	(-40102)	imp:n=1	\$Metal wl
40103	5	0.00359833	(-40103)	imp:n=1	\$Metal wl
40104	5	0.00359833	(-40104)	imp:n=1	\$Metal wl
40105	5	0.00359833	(-40105)	imp:n=1	\$Metal wl
40106	5	0.00359833	(-40106)	imp:n=1	\$Metal wl
40107	5	0.00359833	(-40107)	imp:n=1	\$Metal wl
40108	5	0.00359833	(-40108)	imp:n=1	\$Metal wl
40109	5	0.00359833	(-40109)	imp:n=1	\$Metal wl
40110	5	0.00359833	(-40110)	imp:n=1	\$Metal wl
40111	5	0.00359833	(-40111)	imp:n=1	\$Metal wl
40112	5	0.00359833	(-40112)	imp:n=1	\$Metal wl
40113	5	0.00359833	(-40113)	imp:n=1	\$Metal wl
40114	5	0.00359833	(-40114)	imp:n=1	\$Metal wl
40115	5	0.00359833	(-40115)	imp:n=1	\$Metal wl
c					
c					
c Floor1 Room 405					
40501	5	0.00359833	(-40501)	imp:n=1	\$Metal wl
40502	5	0.00359833	(-40502)	imp:n=1	\$Metal wl
40503	5	0.00359833	(-40503)	imp:n=1	\$Metal wl
40504	5	0.00359833	(-40504)	imp:n=1	\$Metal wl
40505	5	0.00359833	(-40505)	imp:n=1	\$Metal wl
40506	5	0.00359833	(-40506)	imp:n=1	\$Metal wl
40507	5	0.00359833	(-40507)	imp:n=1	\$Metal wl

```

40508 5 0.00359833 (-40508) imp:n=1 $Metal wl
40509 5 0.00359833 (-40509) imp:n=1 $Metal wl
40510 5 0.00359833 (-40510) imp:n=1 $Metal wl
40511 5 0.00359833 (-40511) imp:n=1 $Metal wl
40512 5 0.00359833 (-40512) imp:n=1 $Metal wl
40513 5 0.00359833 (-40513) imp:n=1 $Metal wl
c
c
c Floor1 Room 409
40901 5 0.00359833 (-40901) imp:n=1 $Metal wl
c
c
c Floor1 Room 411
41101 5 0.00359833 (-41101) imp:n=1 $Metal wl
41102 5 0.00359833 (-41102) imp:n=1 $Metal wl
41103 5 0.00359833 (-41103) imp:n=1 $Metal wl
41104 5 0.00359833 (-41104) imp:n=1 $Metal wl
41105 5 0.00359833 (-41105) imp:n=1 $Metal wl
41106 5 0.00359833 (-41106) imp:n=1 $Metal wl
41107 5 0.00359833 (-41107) imp:n=1 $Metal wl
41108 5 0.00359833 (-41108) imp:n=1 $Metal wl
41109 5 0.00359833 (-41109) imp:n=1 $Metal wl
41110 5 0.00359833 (-41110) imp:n=1 $Metal wl
41111 5 0.00359833 (-41111) imp:n=1 $Metal wl
41112 5 0.00359833 (-41112) imp:n=1 $Metal wl
41113 5 0.00359833 (-41113) imp:n=1 $Metal wl
41114 5 0.00359833 (-41114) imp:n=1 $Metal wl
41115 5 0.00359833 (-41115) imp:n=1 $Metal wl
41116 5 0.00359833 (-41116) imp:n=1 $Metal wl
41117 5 0.00359833 (-41117) imp:n=1 $Metal wl
41118 5 0.00359833 (-41118) imp:n=1 $Metal wl
c
c
c Floor1 Room 419
41901 5 0.00359833 (-41901) imp:n=1 $Metal wl
41902 5 0.00359833 (-41902) imp:n=1 $Metal wl
41903 5 0.00359833 (-41903) imp:n=1 $Metal wl
41904 5 0.00359833 (-41904) imp:n=1 $Metal wl
41905 5 0.00359833 (-41905) imp:n=1 $Metal wl
41906 5 0.00359833 (-41906) imp:n=1 $Metal wl
41907 5 0.00359833 (-41907) imp:n=1 $Metal wl
c
c
c ///////////////////////////////////////////////////////////////////Begin SouthEast Section of Floor1\////////////////////////////////////
c *****Notes for this section of Cells*****
c The origin was set as the outside corner of the Southwesternmost wall of Room 400
c
c Floor1 Room 400
40001 5 0.00359833 (-40001) imp:n=1 $Metal wl
40002 5 0.00359833 (-40002) imp:n=1 $Metal wl
40003 5 0.00359833 (-40003) imp:n=1 $Metal wl
40004 5 0.00359833 (-40004) imp:n=1 $Metal wl
40005 5 0.00359833 (-40005) imp:n=1 $Metal wl
40006 5 0.00359833 (-40006) imp:n=1 $Metal wl
40007 5 0.00359833 (-40007) imp:n=1 $Metal wl
40008 5 0.00359833 (-40008) imp:n=1 $Metal wl
40009 5 0.00359833 (-40009) imp:n=1 $Metal wl
40010 5 0.00359833 (-40010) imp:n=1 $Metal wl
40011 5 0.00359833 (-40011) imp:n=1 $Metal wl
40012 5 0.00359833 (-40012) imp:n=1 $Metal wl
40013 5 0.00359833 (-40013) imp:n=1 $Metal wl
40014 5 0.00359833 (-40014) imp:n=1 $Metal wl
40015 5 0.00359833 (-40015) imp:n=1 $Metal wl
c
c
c Floor1 Room 501
50101 5 0.00359833 (-50101) imp:n=1 $Metal wl
50102 5 0.00359833 (-50102) imp:n=1 $Metal wl
50103 5 0.00359833 (-50103) imp:n=1 $Metal wl
50104 5 0.00359833 (-50104) imp:n=1 $Metal wl

```

50105	5	0.00359833	(-50105)	imp:n=1	\$Metal wl
50106	5	0.00359833	(-50106)	imp:n=1	\$Metal wl
50107	5	0.00359833	(-50107)	imp:n=1	\$Metal wl
50108	5	0.00359833	(-50108)	imp:n=1	\$Metal wl
50109	5	0.00359833	(-50109)	imp:n=1	\$Metal wl
50110	5	0.00359833	(-50110)	imp:n=1	\$Metal wl
50111	5	0.00359833	(-50111)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 500

50001	5	0.00359833	(-50001)	imp:n=1	\$Metal wl
50002	5	0.00359833	(-50002)	imp:n=1	\$Metal wl
50003	5	0.00359833	(-50003)	imp:n=1	\$Metal wl
50004	5	0.00359833	(-50004)	imp:n=1	\$Metal wl
50005	5	0.00359833	(-50005)	imp:n=1	\$Metal wl
50006	5	0.00359833	(-50006)	imp:n=1	\$Metal wl
50007	5	0.00359833	(-50007)	imp:n=1	\$Metal wl
50008	5	0.00359833	(-50008)	imp:n=1	\$Metal wl
50009	5	0.00359833	(-50009)	imp:n=1	\$Metal wl
50010	5	0.00359833	(-50010)	imp:n=1	\$Metal wl
50011	5	0.00359833	(-50011)	imp:n=1	\$Metal wl
50012	5	0.00359833	(-50012)	imp:n=1	\$Metal wl
50013	5	0.00359833	(-50013)	imp:n=1	\$Metal wl
50014	5	0.00359833	(-50014)	imp:n=1	\$Metal wl
50015	5	0.00359833	(-50015)	imp:n=1	\$Metal wl
50016	5	0.00359833	(-50016)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 404

40401	5	0.00359833	(-40401)	imp:n=1	\$Metal wl
40402	5	0.00359833	(-40402)	imp:n=1	\$Metal wl
40403	5	0.00359833	(-40403)	imp:n=1	\$Metal wl
40404	5	0.00359833	(-40404)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 505

50501	13	-7.92	(-50501)	imp:n=1	\$SS
50502	5	0.00359833	(-50502)	imp:n=1	\$Metal wl
50503	5	0.00359833	(-50503)	imp:n=1	\$Metal wl
50504	5	0.00359833	(-50504)	imp:n=1	\$Metal wl
50505	5	0.00359833	(-50505)	imp:n=1	\$Metal wl
50506	5	0.00359833	(-50506)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 504/504A

50401	5	0.00359833	(-50401)	imp:n=1	\$Metal wl
50402	5	0.00359833	(-50402)	imp:n=1	\$Metal wl
50403	5	0.00359833	(-50403)	imp:n=1	\$Metal wl
50404	5	0.00359833	(-50404)	imp:n=1	\$Metal wl
50405	5	0.00359833	(-50405)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 406

40601	13	-7.92	(-40601)	imp:n=1	\$SS
40602	5	0.00359833	(-40602)	imp:n=1	\$Metal wl
40603	5	0.00359833	(-40603)	imp:n=1	\$Metal wl
40604	5	0.00359833	(-40604)	imp:n=1	\$Metal wl
40605	5	0.00359833	(-40605)	imp:n=1	\$Metal wl
40606	5	0.00359833	(-40606)	imp:n=1	\$Metal wl
40607	5	0.00359833	(-40607)	imp:n=1	\$Metal wl
40608	5	0.00359833	(-40608)	imp:n=1	\$Metal wl
40609	5	0.00359833	(-40609)	imp:n=1	\$Metal wl
40610	5	0.00359833	(-40610)	imp:n=1	\$Metal wl
40611	5	0.00359833	(-40611)	imp:n=1	\$Metal wl
40612	5	0.00359833	(-40612)	imp:n=1	\$Metal wl
40613	5	0.00359833	(-40613)	imp:n=1	\$Metal wl
40614	5	0.00359833	(-40614)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 507
50701 5 0.00359833 (-50701) imp:n=1 \$Metal wl
50702 5 0.00359833 (-50702) imp:n=1 \$Metal wl
50703 5 0.00359833 (-50703) imp:n=1 \$Metal wl
50704 5 0.00359833 (-50704) imp:n=1 \$Metal wl
50705 5 0.00359833 (-50705) imp:n=1 \$Metal wl
50706 5 0.00359833 (-50706) imp:n=1 \$Metal wl
50707 5 0.00359833 (-50707) imp:n=1 \$Metal wl
50708 5 0.00359833 (-50708) imp:n=1 \$Metal wl
50709 5 0.00359833 (-50709) imp:n=1 \$Metal wl
50710 5 0.00359833 (-50710) imp:n=1 \$Metal wl
50711 5 0.00359833 (-50711) imp:n=1 \$Metal wl

c

c

c Floor1 Room 506
50601 5 0.00359833 (-50601) imp:n=1 \$Metal wl
50602 5 0.00359833 (-50602) imp:n=1 \$Metal wl
50603 5 0.00359833 (-50603) imp:n=1 \$Metal wl
50604 5 0.00359833 (-50604) imp:n=1 \$Metal wl
50605 5 0.00359833 (-50605) imp:n=1 \$Metal wl
50606 5 0.00359833 (-50606) imp:n=1 \$Metal wl
50607 5 0.00359833 (-50607) imp:n=1 \$Metal wl
50608 5 0.00359833 (-50608) imp:n=1 \$Metal wl
50609 5 0.00359833 (-50609) imp:n=1 \$Metal wl
50610 5 0.00359833 (-50610) imp:n=1 \$Metal wl
50611 5 0.00359833 (-50611) imp:n=1 \$Metal wl
50612 5 0.00359833 (-50612) imp:n=1 \$Metal wl
50613 5 0.00359833 (-50613) imp:n=1 \$Metal wl

c

c

c Floor1 Room 410
41001 5 0.00359833 (-41001) imp:n=1 \$Metal wl
41002 5 0.00359833 (-41002) imp:n=1 \$Metal wl
41003 5 0.00359833 (-41003) imp:n=1 \$Metal wl
41004 5 0.00359833 (-41004) imp:n=1 \$Metal wl
41005 5 0.00359833 (-41005) imp:n=1 \$Metal wl
41006 13 -7.92 (-41006) imp:n=1 \$SS
41007 5 0.00359833 (-41007) imp:n=1 \$Metal wl
41008 5 0.00359833 (-41008) imp:n=1 \$Metal wl
41009 5 0.00359833 (-41009) imp:n=1 \$Metal wl
41010 5 0.00359833 (-41010) imp:n=1 \$Metal wl
41011 5 0.00359833 (-41011) imp:n=1 \$Metal wl
41012 5 0.00359833 (-41012) imp:n=1 \$Metal wl
41013 5 0.00359833 (-41013) imp:n=1 \$Metal wl

c

c

c Floor1 Room 511
51101 5 0.00359833 (-51101) imp:n=1 \$Metal wl
51102 5 0.00359833 (-51102) imp:n=1 \$Metal wl
51103 5 0.00359833 (-51103) imp:n=1 \$Metal wl
51104 5 0.00359833 (-51104) imp:n=1 \$Metal wl
51105 5 0.00359833 (-51105) imp:n=1 \$Metal wl
51106 5 0.00359833 (-51106) imp:n=1 \$Metal wl
51107 5 0.00359833 (-51107) imp:n=1 \$Metal wl
51108 5 0.00359833 (-51108) imp:n=1 \$Metal wl
51109 5 0.00359833 (-51109) imp:n=1 \$Metal wl

c

c

c Floor1 Room 510
51001 5 0.00359833 (-51001) imp:n=1 \$Metal wl
51002 5 0.00359833 (-51002) imp:n=1 \$Metal wl
51003 5 0.00359833 (-51003) imp:n=1 \$Metal wl
51004 5 0.00359833 (-51004) imp:n=1 \$Metal wl
51005 5 0.00359833 (-51005) imp:n=1 \$Metal wl
51006 5 0.00359833 (-51006) imp:n=1 \$Metal wl
51007 5 0.00359833 (-51007) imp:n=1 \$Metal wl
51008 5 0.00359833 (-51008) imp:n=1 \$Metal wl
51009 5 0.00359833 (-51009) imp:n=1 \$Metal wl

c

c

```

c Floor1 Room 514
51401 5 0.00359833 (-51401) imp:n=1 $Metal wl
51402 5 0.00359833 (-51402) imp:n=1 $Metal wl
51403 5 0.00359833 (-51403) imp:n=1 $Metal wl
c
c
c Floor1 Room 414
41401 5 0.00359833 (-41401) imp:n=1 $Metal wl
41402 5 0.00359833 (-41402) imp:n=1 $Metal wl
41403 5 0.00359833 (-41403) imp:n=1 $Metal wl
c
c
c Floor1 Room 416
41601 5 0.00359833 (-41601) imp:n=1 $Metal wl
41602 5 0.00359833 (-41602) imp:n=1 $Metal wl
41603 5 0.00359833 (-41603) imp:n=1 $Metal wl
41604 5 0.00359833 (-41604) imp:n=1 $Metal wl
41605 13 -7.92 (-41605) imp:n=1 $SS
41606 5 0.00359833 (-41606) imp:n=1 $Metal wl
41607 5 0.00359833 (-41607) imp:n=1 $Metal wl
41608 5 0.00359833 (-41608) imp:n=1 $Metal wl
41609 5 0.00359833 (-41609) imp:n=1 $Metal wl
41610 5 0.00359833 (-41610) imp:n=1 $Metal wl
41611 5 0.00359833 (-41611) imp:n=1 $Metal wl
41612 5 0.00359833 (-41612) imp:n=1 $Metal wl
41613 5 0.00359833 (-41613) imp:n=1 $Metal wl
41614 5 0.00359833 (-41614) imp:n=1 $Metal wl
c
c
c Floor1 Room 515
51501 5 0.00359833 (-51501) imp:n=1 $Metal wl
c
c
c Floor1 Room 517
51701 5 0.00359833 (-51701) imp:n=1 $Metal wl
51702 5 0.00359833 (-51702) imp:n=1 $Metal wl
51703 5 0.00359833 (-51703) imp:n=1 $Metal wl
51704 5 0.00359833 (-51704) imp:n=1 $Metal wl
51705 5 0.00359833 (-51705) imp:n=1 $Metal wl
51706 5 0.00359833 (-51706) imp:n=1 $Metal wl
51707 5 0.00359833 (-51707) imp:n=1 $Metal wl
51708 5 0.00359833 (-51708) imp:n=1 $Metal wl
51709 5 0.00359833 (-51709) imp:n=1 $Metal wl
51710 5 0.00359833 (-51710) imp:n=1 $Metal wl
c
c
c Floor1 Room 516
51601 5 0.00359833 (-51601) imp:n=1 $Metal wl
51602 5 0.00359833 (-51602) imp:n=1 $Metal wl
51603 5 0.00359833 (-51603) imp:n=1 $Metal wl
51604 5 0.00359833 (-51604) imp:n=1 $Metal wl
51605 5 0.00359833 (-51605) imp:n=1 $Metal wl
51606 5 0.00359833 (-51606) imp:n=1 $Metal wl
51607 5 0.00359833 (-51607) imp:n=1 $Metal wl
51608 5 0.00359833 (-51608) imp:n=1 $Metal wl
51609 5 0.00359833 (-51609) imp:n=1 $Metal wl
51610 5 0.00359833 (-51610) imp:n=1 $Metal wl
51611 5 0.00359833 (-51611) imp:n=1 $Metal wl
51612 5 0.00359833 (-51612) imp:n=1 $Metal wl
51613 5 0.00359833 (-51613) imp:n=1 $Metal wl
c
c
c ////////////////////////////////////////////////////////////////////Begin East Section of Floor1//////////////////////////////////////////////////////////////////
c *****Notes for this section of Cells*****
c The origin was set as the inside corner of the Southwesternmost wall of the east Section.
c There is no specific number for this area but the origin is directly west of Room 600.
c
c
c Floor1 Room 600
60001 5 0.00359833 (-60001) imp:n=1 $Metal wl

```

60002 3 -2.3 (-60002) imp:n=1 \$Conc Filled
60003 5 0.00359833 (-60003) imp:n=1 \$Metal wl
60004 5 0.00359833 (-60004) imp:n=1 \$Metal wl
60005 3 -2.3 (-60005) imp:n=1 \$Conc Filled
60006 5 0.00359833 (-60006) imp:n=1 \$Metal wl
60007 5 0.00359833 (-60007) imp:n=1 \$Metal wl
60008 5 0.00359833 (-60008) imp:n=1 \$Metal wl
60009 5 0.00359833 (-60009) imp:n=1 \$Metal wl
60010 5 0.00359833 (-60010) imp:n=1 \$Metal wl
60011 5 0.00359833 (-60011) imp:n=1 \$Metal wl
60012 5 0.00359833 (-60012) imp:n=1 \$Metal wl
60013 5 0.00359833 (-60013) imp:n=1 \$Metal wl
60014 5 0.00359833 (-60014) imp:n=1 \$Metal wl
60015 5 0.00359833 (-60015) imp:n=1 \$Metal wl
60017 15 -0.4751 (-60017) imp:n=1 \$Ext wl Filled

c

c

c Floor1 Room 602/605/606

c ****These rooms were all combined because it is*****

c difficult to distinguish between them.

60201 5 0.00359833 (-60201) imp:n=1 \$Metal wl
60202 5 0.00359833 (-60202) imp:n=1 \$Metal wl
60203 5 0.00359833 (-60203) imp:n=1 \$Metal wl
60204 5 0.00359833 (-60204) imp:n=1 \$Metal wl
60205 5 0.00359833 (-60205) imp:n=1 \$Metal wl
60206 5 0.00359833 (-60206) imp:n=1 \$Metal wl
60207 5 0.00359833 (-60207) imp:n=1 \$Metal wl
60208 5 0.00359833 (-60208) imp:n=1 \$Metal wl
60209 5 0.00359833 (-60209) imp:n=1 \$Metal wl
60210 5 0.00359833 (-60210) imp:n=1 \$Metal wl
60211 5 0.00359833 (-60211) imp:n=1 \$Metal wl
60212 5 0.00359833 (-60212) imp:n=1 \$Metal wl
60213 5 0.00359833 (-60213) imp:n=1 \$Metal wl
60214 5 0.00359833 (-60214) imp:n=1 \$Metal wl
60215 5 0.00359833 (-60215) imp:n=1 \$Metal wl
60216 5 0.00359833 (-60216) imp:n=1 \$Metal wl
60217 5 0.00359833 (-60217) imp:n=1 \$Metal wl
60218 5 0.00359833 (-60218) imp:n=1 \$Metal wl
60219 5 0.00359833 (-60219) imp:n=1 \$Metal wl
60220 5 0.00359833 (-60220) imp:n=1 \$Metal wl
60221 5 0.00359833 (-60221) imp:n=1 \$Metal wl
60222 5 0.00359833 (-60222) imp:n=1 \$Metal wl
60223 5 0.00359833 (-60223) imp:n=1 \$Metal wl
60224 5 0.00359833 (-60224) imp:n=1 \$Metal wl
60225 5 0.00359833 (-60225) imp:n=1 \$Metal wl
60226 5 0.00359833 (-60226) imp:n=1 \$Metal wl
60227 5 0.00359833 (-60227) imp:n=1 \$Metal wl
60228 5 0.00359833 (-60228) imp:n=1 \$Metal wl
60232 15 -0.4751 (-60232) imp:n=1 \$Ext wl Filled

c

c

c Floor1 Room 610 Truck Lock

c *****Note: a .5cm thick material t

61001 15 -0.4751 (-61001) imp:n=1 \$Ext wl Filled
61002 5 0.00359833 (-61002) imp:n=1 \$Metal wl
61003 5 0.00359833 (-61003) imp:n=1 \$Metal wl
61004 13 -7.92 (-61004) imp:n=1 \$\$\$
61005 13 -7.92 (-61005) imp:n=1 \$\$\$
61006 13 -7.92 (-61006) imp:n=1 \$\$\$
61007 5 0.00359833 (-61007) imp:n=1 \$Metal wl
61008 5 0.00359833 (-61008) imp:n=1 \$Metal wl
61009 5 0.00359833 (-61009) imp:n=1 \$Metal wl
61010 5 0.00359833 (-61010) imp:n=1 \$Metal wl
61011 5 0.00359833 (-61011) imp:n=1 \$Metal wl
61012 5 0.00359833 (-61012) imp:n=1 \$Metal wl
61013 5 0.00359833 (-61013) imp:n=1 \$Metal wl
61014 5 0.00359833 (-61014) imp:n=1 \$Metal wl
61015 13 -7.92 (-61015) imp:n=1 \$\$\$
61016 5 0.00359833 (-61016) imp:n=1 \$Metal wl
61017 5 0.00359833 (-61017) imp:n=1 \$Metal wl

61018	5	0.00359833	(-61018)	imp:n=1	\$Metal wl
61019	13	-7.92	(-61019)	imp:n=1	\$\$\$
61020	5	0.00359833	(-61020)	imp:n=1	\$Metal wl
61021	5	0.00359833	(-61021)	imp:n=1	\$Metal wl
61022	15	-0.4751	(-61022)	imp:n=1	\$Ext wl Filled
61023	5	0.00359833	(-61023)	imp:n=1	\$Metal wl
61024	15	-0.4751	(-61024)	imp:n=1	\$Ext wl Filled
61025	5	0.00359833	(-61025)	imp:n=1	\$Metal wl
61026	15	-0.4751	(-61026)	imp:n=1	\$Ext wl Filled
61027	5	0.00359833	(-61027)	imp:n=1	\$Metal wl
61028	15	-0.4751	(-61028)	imp:n=1	\$Ext wl Filled
61029	5	0.00359833	(-61029)	imp:n=1	\$Metal wl
61030	15	-0.4751	(-61030)	imp:n=1	\$Ext wl Filled
61031	13	-7.92	(-61031)	imp:n=1	\$\$\$
61032	13	-7.92	(-61032)	imp:n=1	\$\$\$
61033	13	-7.92	(-61033)	imp:n=1	\$\$\$
61034	13	-7.92	(-61034)	imp:n=1	\$\$\$
61035	5	0.00359833	(-61035)	imp:n=1	\$Metal wl
61036	5	0.00359833	(-61036)	imp:n=1	\$Metal wl
61037	5	0.00359833	(-61037)	imp:n=1	\$Metal wl
61038	5	0.00359833	(-61038)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 603

60301	5	0.00359833	(-60301)	imp:n=1	\$Metal wl
60302	15	-0.4751	(-60302)	imp:n=1	\$Ext wl Filled
60303	13	-7.92	(-60303)	imp:n=1	\$\$\$
60304	13	-7.92	(-60304)	imp:n=1	\$\$\$
60305	13	-7.92	(-60305)	imp:n=1	\$\$\$
60306	13	-7.92	(-60306)	imp:n=1	\$\$\$
60307	5	0.00359833	(-60307)	imp:n=1	\$Metal wl
60308	15	-0.4751	(-60308)	imp:n=1	\$Ext wl Filled
60309	13	-7.92	(-60309)	imp:n=1	\$\$\$
60310	13	-7.92	(-60310)	imp:n=1	\$\$\$
60311	5	0.00359833	(-60311)	imp:n=1	\$Metal wl
60312	5	0.00359833	(-60312)	imp:n=1	\$Metal wl
60313	5	0.00359833	(-60313)	imp:n=1	\$Metal wl
60314	5	0.00359833	(-60314)	imp:n=1	\$Metal wl
60315	5	0.00359833	(-60315)	imp:n=1	\$Metal wl
60316	5	0.00359833	(-60316)	imp:n=1	\$Metal wl
60317	5	0.00359833	(-60317)	imp:n=1	\$Metal wl
60318	5	0.00359833	(-60318)	imp:n=1	\$Metal wl
60319	15	-0.4751	(-60319)	imp:n=1	\$Ext wl Filled
60320	5	0.00359833	(-60320)	imp:n=1	\$Metal wl
60321	5	0.00359833	(-60321)	imp:n=1	\$Metal wl
60322	5	0.00359833	(-60322)	imp:n=1	\$Metal wl
60323	5	0.00359833	(-60323)	imp:n=1	\$Metal wl
60324	5	0.00359833	(-60324)	imp:n=1	\$Metal wl
60325	5	0.00359833	(-60325)	imp:n=1	\$Metal wl
60326	13	-7.92	(-60326)	imp:n=1	\$\$\$
60327	5	0.00359833	(-60327)	imp:n=1	\$Metal wl
60328	5	0.00359833	(-60328)	imp:n=1	\$Metal wl
60329	5	0.00359833	(-60329)	imp:n=1	\$Metal wl
60330	5	0.00359833	(-60330)	imp:n=1	\$Metal wl
60331	3	-2.3	(-60331)	imp:n=1	\$Conc Filled Blank Concrete Box
60336	15	-0.4751	(-60336)	imp:n=1	\$Ext wl Filled

c

c

c Floor1 Room 601

60101	13	-7.92	(-60101)	imp:n=1	\$\$\$
60102	13	-7.92	(-60102)	imp:n=1	\$\$\$
60103	13	-7.92	(-60103)	imp:n=1	\$\$\$
60104	5	0.00359833	(-60104)	imp:n=1	\$Metal wl
60105	5	0.00359833	(-60105)	imp:n=1	\$Metal wl

c

c

c Floor1 Room 604

60401	5	0.00359833	(-60401)	imp:n=1	\$Metal wl
60403	5	0.00359833	(-60403)	imp:n=1	\$Metal wl
60404	15	-0.4751	(-60404)	imp:n=1	\$Ext wl Filled

```

60405 5 0.00359833 (-60405) imp:n=1 $Metal wl
60406 5 0.00359833 (-60406) imp:n=1 $Metal wl
60407 5 0.00359833 (-60407) imp:n=1 $Metal wl
60408 5 0.00359833 (-60408) imp:n=1 $Metal wl
60409 13 -7.92 (-60409) imp:n=1 $$$
60410 13 -7.92 (-60410) imp:n=1 $$$
60411 13 -7.92 (-60411) imp:n=1 $$$
60412 5 0.00359833 (-60412) imp:n=1 $Metal wl
60413 5 0.00359833 (-60413) imp:n=1 $Metal wl
60414 5 0.00359833 (-60414) imp:n=1 $Metal wl
60415 5 0.00359833 (-60415) imp:n=1 $Metal wl
60416 5 0.00359833 (-60416) imp:n=1 $Metal wl
c
c
c ///////////////////////////////////////////////////////////////////Begin Southernmost Section of Floor1/////////////////////////////////////////////////////////////////
c *****Notes for this section of Cells*****
c The origin was set as the outside corner of the Southwesternmost wall of the south west section
c This is the Southwesternmost point of the entire section as well as that for Room 206
c
c Floor1 Room 206
20601 5 0.00359833 (-20601) imp:n=1 $Metal wl
20602 5 0.00359833 (-20602) imp:n=1 $Metal wl
20603 5 0.00359833 (-20603) imp:n=1 $Metal wl
20604 5 0.00359833 (-20604) imp:n=1 $Metal wl
20605 5 0.00359833 (-20605) imp:n=1 $Metal wl
20606 5 0.00359833 (-20606) imp:n=1 $Metal wl
20607 5 0.00359833 (-20607) imp:n=1 $Metal wl
20608 5 0.00359833 (-20608) imp:n=1 $Metal wl
20609 5 0.00359833 (-20609) imp:n=1 $Metal wl
20610 5 0.00359833 (-20610) imp:n=1 $Metal wl
20611 5 0.00359833 (-20611) imp:n=1 $Metal wl
20612 13 -7.92 (-20612) imp:n=1 $$$
20613 5 0.00359833 (-20613) imp:n=1 $Metal wl
20614 5 0.00359833 (-20614) imp:n=1 $Metal wl
20615 5 0.00359833 (-20615) imp:n=1 $Metal wl
20616 5 0.00359833 (-20616) imp:n=1 $Metal wl
20617 13 -7.92 (-20617) imp:n=1 $$$
20618 13 -7.92 (-20618) imp:n=1 $$$
20619 13 -7.92 (-20619) imp:n=1 $$$
20620 13 -7.92 (-20620) imp:n=1 $$$
20621 13 -7.92 (-20621) imp:n=1 $$$
20622 15 -0.4751 (-20622) imp:n=1 $Ext wl Filled
20623 15 -0.4751 (-20623) imp:n=1 $Ext wl Filled
20624 15 -0.4751 (-20624) imp:n=1 $Ext wl Filled
c
c
c Floor1 Room 204/205
20401 5 0.00359833 (-20401) imp:n=1 $Metal wl
20402 5 0.00359833 (-20402) imp:n=1 $Metal wl
20403 5 0.00359833 (-20403) imp:n=1 $Metal wl
20404 5 0.00359833 (-20404) imp:n=1 $Metal wl
c
c
c Floor1 Room 101/102/102A
10101 5 0.00359833 (-10101) imp:n=1 $Metal wl
10102 5 0.00359833 (-10102) imp:n=1 $Metal wl
10103 5 0.00359833 (-10103) imp:n=1 $Metal wl
10104 5 0.00359833 (-10104) imp:n=1 $Metal wl
10105 5 0.00359833 (-10105) imp:n=1 $Metal wl
10106 5 0.00359833 (-10106) imp:n=1 $Metal wl
10107 5 0.00359833 (-10107) imp:n=1 $Metal wl
10108 5 0.00359833 (-10108) imp:n=1 $Metal wl
10109 5 0.00359833 (-10109) imp:n=1 $Metal wl
10110 5 0.00359833 (-10110) imp:n=1 $Metal wl
10111 5 0.00359833 (-10111) imp:n=1 $Metal wl
10112 5 0.00359833 (-10112) imp:n=1 $Metal wl
10113 5 0.00359833 (-10113) imp:n=1 $Metal wl
10114 5 0.00359833 (-10114) imp:n=1 $Metal wl
c
c

```


c //Begin Southernmost East Section of Floor1//

c *****Notes for this section of Cells*****

c The origin was set as the outside corner of the Southwesternmost wall of the south east section

c The origin lies directly on the border of this section and that to the west. The southern half

c of this section has several rooms labeled with words rather than numbers. I.E. Lunch Room, Men Change Room, etc..

c Because of the labling system I am using the majority of the SW corner will be designated with the room ID

c of 109. Concordingly the SE corner of this section will be designated the room ID of 110.

c

c

c Floor1 Room 109

10901	5	0.00359833	(-10901)	imp:n=1	\$Metal wl
10902	5	0.00359833	(-10902)	imp:n=1	\$Metal wl
10903	5	0.00359833	(-10903)	imp:n=1	\$Metal wl
10904	5	0.00359833	(-10904)	imp:n=1	\$Metal wl
10905	5	0.00359833	(-10905)	imp:n=1	\$Metal wl
10906	5	0.00359833	(-10906)	imp:n=1	\$Metal wl
10907	5	0.00359833	(-10907)	imp:n=1	\$Metal wl
10908	5	0.00359833	(-10908)	imp:n=1	\$Metal wl
10909	5	0.00359833	(-10909)	imp:n=1	\$Metal wl
10910	5	0.00359833	(-10910)	imp:n=1	\$Metal wl
10911	13	-7.92	(-10911)	imp:n=1	\$SS
10912	13	-7.92	(-10912)	imp:n=1	\$SS

c Mens Change Room Below here - MCR

10913	13	-7.92	(-10913)	imp:n=1	\$SS
10914	13	-7.92	(-10914)	imp:n=1	\$SS
10915	13	-7.92	(-10915)	imp:n=1	\$SS
10916	5	0.00359833	(-10916)	imp:n=1	\$Metal wl
10917	5	0.00359833	(-10917)	imp:n=1	\$Metal wl
10918	5	0.00359833	(-10918)	imp:n=1	\$Metal wl
10919	13	-7.92	(-10919)	imp:n=1	\$SS
10920	5	0.00359833	(-10920)	imp:n=1	\$Metal wl
10921	5	0.00359833	(-10921)	imp:n=1	\$Metal wl
10922	5	0.00359833	(-10922)	imp:n=1	\$Metal wl

c Room 109/109A Below here

10923	5	0.00359833	(-10923)	imp:n=1	\$Metal wl
10924	5	0.00359833	(-10924)	imp:n=1	\$Metal wl
10925	5	0.00359833	(-10925)	imp:n=1	\$Metal wl

c Main lobby area - MLA

10926	13	-7.92	(-10926)	imp:n=1	\$SS
10927	5	0.00359833	(-10927)	imp:n=1	\$Metal wl
10928	5	0.00359833	(-10928)	imp:n=1	\$Metal wl

c Second half of Mens Change Room - MCR/Showers - SH/Pipe Chase - PC/Mens Bathroom - MB

10929	13	-7.92	(-10929)	imp:n=1	\$SS
10930	5	0.00359833	(-10930)	imp:n=1	\$Metal wl
10931	5	0.00359833	(-10931)	imp:n=1	\$Metal wl
10932	5	0.00359833	(-10932)	imp:n=1	\$Metal wl
10933	5	0.00359833	(-10933)	imp:n=1	\$Metal wl
10934	5	0.00359833	(-10934)	imp:n=1	\$Metal wl
10935	5	0.00359833	(-10935)	imp:n=1	\$Metal wl
10936	5	0.00359833	(-10936)	imp:n=1	\$Metal wl
10937	5	0.00359833	(-10937)	imp:n=1	\$Metal wl
10938	5	0.00359833	(-10938)	imp:n=1	\$Metal wl
10939	5	0.00359833	(-10939)	imp:n=1	\$Metal wl
10940	5	0.00359833	(-10940)	imp:n=1	\$Metal wl
10941	5	0.00359833	(-10941)	imp:n=1	\$Metal wl
10942	5	0.00359833	(-10942)	imp:n=1	\$Metal wl
10943	5	0.00359833	(-10943)	imp:n=1	\$Metal wl
10944	5	0.00359833	(-10944)	imp:n=1	\$Metal wl
10945	5	0.00359833	(-10945)	imp:n=1	\$Metal wl
10946	5	0.00359833	(-10946)	imp:n=1	\$Metal wl
10947	5	0.00359833	(-10947)	imp:n=1	\$Metal wl
10948	5	0.00359833	(-10948)	imp:n=1	\$Metal wl
10949	5	0.00359833	(-10949)	imp:n=1	\$Metal wl
10950	5	0.00359833	(-10950)	imp:n=1	\$Metal wl
10951	5	0.00359833	(-10951)	imp:n=1	\$Metal wl
10952	5	0.00359833	(-10952)	imp:n=1	\$Metal wl
10953	5	0.00359833	(-10953)	imp:n=1	\$Metal wl
10954	5	0.00359833	(-10954)	imp:n=1	\$Metal wl
10955	5	0.00359833	(-10955)	imp:n=1	\$Metal wl
10956	5	0.00359833	(-10956)	imp:n=1	\$Metal wl

10957 5 0.00359833 (-10957) imp:n=1 \$Metal wl
 c Hallway above Room 109 and below Room 108
 10958 5 0.00359833 (-10958) imp:n=1 \$Metal wl
 10959 5 0.00359833 (-10959) imp:n=1 \$Metal wl
 10960 5 0.00359833 (-10960) imp:n=1 \$Metal wl
 10961 5 0.00359833 (-10961) imp:n=1 \$Metal wl
 10966 15 -0.4751 (-10966) imp:n=1 \$Ext wl Filled
 10967 15 -0.4751 (-10967) imp:n=1 \$Ext wl Filled
 c
 c
 c
 c Floor1 Room 110/ Men B Room Women B Room/ Conf Room Women change room/ copy room
 c Mens Room - MR/Pipe Chase -PC/Womens Room - WR
 11001 5 0.00359833 (-11001) imp:n=1 \$Metal wl
 11002 5 0.00359833 (-11002) imp:n=1 \$Metal wl
 11003 5 0.00359833 (-11003) imp:n=1 \$Metal wl
 11004 5 0.00359833 (-11004) imp:n=1 \$Metal wl
 11005 5 0.00359833 (-11005) imp:n=1 \$Metal wl
 11006 5 0.00359833 (-11006) imp:n=1 \$Metal wl
 11007 5 0.00359833 (-11007) imp:n=1 \$Metal wl
 11008 5 0.00359833 (-11008) imp:n=1 \$Metal wl
 11009 5 0.00359833 (-11009) imp:n=1 \$Metal wl
 11010 5 0.00359833 (-11010) imp:n=1 \$Metal wl
 11011 5 0.00359833 (-11011) imp:n=1 \$Metal wl
 c Room 110/Conf Room - CR starts below here
 11012 5 0.00359833 (-11012) imp:n=1 \$Metal wl
 11013 5 0.00359833 (-11013) imp:n=1 \$Metal wl
 11014 5 0.00359833 (-11014) imp:n=1 \$Metal wl
 11015 5 0.00359833 (-11015) imp:n=1 \$Metal wl
 11016 5 0.00359833 (-11016) imp:n=1 \$Metal wl
 11017 5 0.00359833 (-11017) imp:n=1 \$Metal wl
 11018 5 0.00359833 (-11018) imp:n=1 \$Metal wl
 11019 5 0.00359833 (-11019) imp:n=1 \$Metal wl
 11020 5 0.00359833 (-11020) imp:n=1 \$Metal wl
 11021 5 0.00359833 (-11021) imp:n=1 \$Metal wl
 11022 5 0.00359833 (-11022) imp:n=1 \$Metal wl
 11023 5 0.00359833 (-11023) imp:n=1 \$Metal wl
 11024 5 0.00359833 (-11024) imp:n=1 \$Metal wl
 11025 5 0.00359833 (-11025) imp:n=1 \$Metal wl
 11026 5 0.00359833 (-11026) imp:n=1 \$Metal wl
 11027 5 0.00359833 (-11027) imp:n=1 \$Metal wl
 c Room 110A - A/Room110C - C/Room 110B - B/Copy Room - copy/
 11028 5 0.00359833 (-11028) imp:n=1 \$Metal wl
 11029 5 0.00359833 (-11029) imp:n=1 \$Metal wl
 11030 5 0.00359833 (-11030) imp:n=1 \$Metal wl
 11031 5 0.00359833 (-11031) imp:n=1 \$Metal wl
 11032 5 0.00359833 (-11032) imp:n=1 \$Metal wl
 11033 5 0.00359833 (-11033) imp:n=1 \$Metal wl
 11034 5 0.00359833 (-11034) imp:n=1 \$Metal wl
 11035 5 0.00359833 (-11035) imp:n=1 \$Metal wl
 11036 5 0.00359833 (-11036) imp:n=1 \$Metal wl
 11037 5 0.00359833 (-11037) imp:n=1 \$Metal wl
 11038 5 0.00359833 (-11038) imp:n=1 \$Metal wl
 11039 5 0.00359833 (-11039) imp:n=1 \$Metal wl
 11040 5 0.00359833 (-11040) imp:n=1 \$Metal wl
 11041 5 0.00359833 (-11041) imp:n=1 \$Metal wl
 11042 5 0.00359833 (-11042) imp:n=1 \$Metal wl
 11043 5 0.00359833 (-11043) imp:n=1 \$Metal wl
 11044 5 0.00359833 (-11044) imp:n=1 \$Metal wl
 11045 5 0.00359833 (-11045) imp:n=1 \$Metal wl
 c Women change room below here - WCR
 11046 5 0.00359833 (-11046) imp:n=1 \$Metal wl
 11047 5 0.00359833 (-11047) imp:n=1 \$Metal wl
 11048 5 0.00359833 (-11048) imp:n=1 \$Metal wl
 11049 5 0.00359833 (-11049) imp:n=1 \$Metal wl
 11050 5 0.00359833 (-11050) imp:n=1 \$Metal wl
 c Wall above copy room and 110B but below Room 111 and the North Eastern Womens restroom below here
 11051 5 0.00359833 (-11051) imp:n=1 \$Metal wl
 11052 13 -7.92 (-11052) imp:n=1 \$\$\$

11053	5	0.00359833	(-11053)	imp:n=1	\$Metal wl
11054	5	0.00359833	(-11054)	imp:n=1	\$Metal wl
11055	5	0.00359833	(-11055)	imp:n=1	\$Metal wl
11056	5	0.00359833	(-11056)	imp:n=1	\$Metal wl
11057	5	0.00359833	(-11057)	imp:n=1	\$Metal wl
c Womens lounge - WL					
11058	5	0.00359833	(-11058)	imp:n=1	\$Metal wl
11059	5	0.00359833	(-11059)	imp:n=1	\$Metal wl
11060	5	0.00359833	(-11060)	imp:n=1	\$Metal wl
11061	5	0.00359833	(-11061)	imp:n=1	\$Metal wl
11062	5	0.00359833	(-11062)	imp:n=1	\$Metal wl
11063	5	0.00359833	(-11063)	imp:n=1	\$Metal wl
11064	5	0.00359833	(-11064)	imp:n=1	\$Metal wl
11065	5	0.00359833	(-11065)	imp:n=1	\$Metal wl
11066	5	0.00359833	(-11066)	imp:n=1	\$Metal wl
11067	5	0.00359833	(-11067)	imp:n=1	\$Metal wl
11068	5	0.00359833	(-11068)	imp:n=1	\$Metal wl
11069	5	0.00359833	(-11069)	imp:n=1	\$Metal wl
11075	15	-0.4751	(-11075)	imp:n=1	\$Ext wl Filled S wl MR-PC-WR
11076	5	0.00359833	(-11076)	imp:n=1	\$Metal wl
11077	5	0.00359833	(-11077)	imp:n=1	\$Metal wl
11078	15	-0.4751	(-11078)	imp:n=1	\$Ext wl Filled S o wl MR-PC-WR

c
c

c Floor1 Room 111/Room 111A/NW Women Rest Room - NWW/Women change and shower room - WSR

11101	5	0.00359833	(-11101)	imp:n=1	\$Metal wl
11102	5	0.00359833	(-11102)	imp:n=1	\$Metal wl
11103	5	0.00359833	(-11103)	imp:n=1	\$Metal wl
11104	5	0.00359833	(-11104)	imp:n=1	\$Metal wl
11105	5	0.00359833	(-11105)	imp:n=1	\$Metal wl
11106	5	0.00359833	(-11106)	imp:n=1	\$Metal wl
11107	5	0.00359833	(-11107)	imp:n=1	\$Metal wl
11108	5	0.00359833	(-11108)	imp:n=1	\$Metal wl
11109	5	0.00359833	(-11109)	imp:n=1	\$Metal wl
11110	5	0.00359833	(-11110)	imp:n=1	\$Metal wl
11111	5	0.00359833	(-11111)	imp:n=1	\$Metal wl
11112	5	0.00359833	(-11112)	imp:n=1	\$Metal wl
11113	5	0.00359833	(-11113)	imp:n=1	\$Metal wl
11114	5	0.00359833	(-11114)	imp:n=1	\$Metal wl
11115	5	0.00359833	(-11115)	imp:n=1	\$Metal wl
11116	5	0.00359833	(-11116)	imp:n=1	\$Metal wl
11117	5	0.00359833	(-11117)	imp:n=1	\$Metal wl
11118	5	0.00359833	(-11118)	imp:n=1	\$Metal wl
11119	5	0.00359833	(-11119)	imp:n=1	\$Metal wl
11120	5	0.00359833	(-11120)	imp:n=1	\$Metal wl
11121	5	0.00359833	(-11121)	imp:n=1	\$Metal wl
11122	5	0.00359833	(-11122)	imp:n=1	\$Metal wl
11123	5	0.00359833	(-11123)	imp:n=1	\$Metal wl
11124	5	0.00359833	(-11124)	imp:n=1	\$Metal wl
11125	5	0.00359833	(-11125)	imp:n=1	\$Metal wl
11126	5	0.00359833	(-11126)	imp:n=1	\$Metal wl
11127	5	0.00359833	(-11127)	imp:n=1	\$Metal wl
11128	5	0.00359833	(-11128)	imp:n=1	\$Metal wl
11129	5	0.00359833	(-11129)	imp:n=1	\$Metal wl
11130	5	0.00359833	(-11130)	imp:n=1	\$Metal wl

c
c

c Floor1 Room 107/108

10701	5	0.00359833	(-10701)	imp:n=1	\$Metal wl
10702	5	0.00359833	(-10702)	imp:n=1	\$Metal wl
10703	5	0.00359833	(-10703)	imp:n=1	\$Metal wl
10704	5	0.00359833	(-10704)	imp:n=1	\$Metal wl
10705	5	0.00359833	(-10705)	imp:n=1	\$Metal wl
10706	5	0.00359833	(-10706)	imp:n=1	\$Metal wl
10707	5	0.00359833	(-10707)	imp:n=1	\$Metal wl

c
c

c Floor1 Room 103/104/104A

10301	5	0.00359833	(-10301)	imp:n=1	\$Metal wl
10302	5	0.00359833	(-10302)	imp:n=1	\$Metal wl

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10303 5 0.00359833 (-10303) imp:n=1 $Metal wl
10304 5 0.00359833 (-10304) imp:n=1 $Metal wl
10305 5 0.00359833 (-10305) imp:n=1 $Metal wl
10306 5 0.00359833 (-10306) imp:n=1 $Metal wl
10307 5 0.00359833 (-10307) imp:n=1 $Metal wl
10308 5 0.00359833 (-10308) imp:n=1 $Metal wl
10309 5 0.00359833 (-10309) imp:n=1 $Metal wl
10310 5 0.00359833 (-10310) imp:n=1 $Metal wl
10311 5 0.00359833 (-10311) imp:n=1 $Metal wl
10312 5 0.00359833 (-10312) imp:n=1 $Metal wl
c
c
c Floor1 Room 112/112A/113/114/115
11201 5 0.00359833 (-11201) imp:n=1 $Metal wl
11202 5 0.00359833 (-11202) imp:n=1 $Metal wl
11203 5 0.00359833 (-11203) imp:n=1 $Metal wl
11204 5 0.00359833 (-11204) imp:n=1 $Metal wl
11205 5 0.00359833 (-11205) imp:n=1 $Metal wl
11206 5 0.00359833 (-11206) imp:n=1 $Metal wl
11207 5 0.00359833 (-11207) imp:n=1 $Metal wl
11208 5 0.00359833 (-11208) imp:n=1 $Metal wl
11209 5 0.00359833 (-11209) imp:n=1 $Metal wl
11210 5 0.00359833 (-11210) imp:n=1 $Metal wl
11211 5 0.00359833 (-11211) imp:n=1 $Metal wl
11212 5 0.00359833 (-11212) imp:n=1 $Metal wl
c
c
c Floor1 Room 116/117/118/119
11601 5 0.00359833 (-11601) imp:n=1 $Metal wl
11602 5 0.00359833 (-11602) imp:n=1 $Metal wl
11603 5 0.00359833 (-11603) imp:n=1 $Metal wl
11604 5 0.00359833 (-11604) imp:n=1 $Metal wl
11605 5 0.00359833 (-11605) imp:n=1 $Metal wl
11606 5 0.00359833 (-11606) imp:n=1 $Metal wl
11607 5 0.00359833 (-11607) imp:n=1 $Metal wl
11608 5 0.00359833 (-11608) imp:n=1 $Metal wl
11609 5 0.00359833 (-11609) imp:n=1 $Metal wl
11610 5 0.00359833 (-11610) imp:n=1 $Metal wl
c
c
c
c ///////////////////////////////////////////////////////////////////Begin Roomspace Fill Section of Floor1/////////////////////////////////////////////////////////////////
c This section contains all of the cells that define the interior of each Numbered Room
c These cells were all grouped together following the same regional layout in the floor -starting
c from the northwest section moving accross the floor to the east and then returning to the west.
c
c
c TAG=TAGf1roomfill
c
c
c Northwest and Northeast Room Fill Sections
70017 8 -0.10907 (-70017) imp:n=1 $Roomspace 700
70107 8 -0.10907 (-70107) imp:n=1 $Roomspace 701
70207 8 -0.10907 (-70207) imp:n=1 $Roomspace 702
70316 8 -0.10907 (-70316 70302 70301) imp:n=1 $Roomspace 703
32017 8 -0.10907 (-32017) imp:n=1 $Roomspace 320/421
32418 8 -0.10907 (-32418) imp:n=1 $Roomspace 324
32419 8 -0.10907 (-32419) imp:n=1 $Roomspace 425 Partially Filled
33029 8 -0.10907 (-33029) imp:n=1 $Roomspace 330
33030 1 -0.001202 (-33030) imp:n=1 $Roomspace 427 Partially Filled
32523 8 -0.10907 (-32523 32504 32505 32506) imp:n=1 $Roomspace 325 Partially Filled
32716 8 -0.10907 (-32716 32712 32711) imp:n=1 $Roomspace 327
32717 8 -0.10907 (-32717) imp:n=1 $Roomspace 327A
71115 8 -0.10907 (-71115) imp:n=1 $Roomspace 327
42013 8 -0.10907 (-42013) imp:n=1 $Roomspace 420
42014 8 -0.10907 (-42014) imp:n=1 $Roomspace 420
52520 8 -0.10907 (-52520) imp:n=1 $Roomspace 525
52521 8 -0.10907 (-52521) imp:n=1 $Roomspace 525
52522 8 -0.10907 (-52522) imp:n=1 $Roomspace 525
42620 8 -0.10907 (-42620) imp:n=1 $Roomspace 426A

```

42621 8 -0.10907 (-42621) imp:n=1 \$Roomspace 426
43014 1 -0.001202 (-43014 43003) imp:n=1 \$Roomspace 430
52724 8 -0.10907 (-52724) imp:n=1 \$Roomspace 527
52725 6 -0.04855 (-52725) imp:n=1 \$Roomspace 527A
52916 1 -0.001202 (-52916 52911 52912) imp:n=1 \$Roomspace 529
52016 1 -0.001202 (-52016) imp:n=1 \$Roomspace 520
52017 8 -0.10907 (-52017) imp:n=1 \$Roomspace 520N
52410 8 -0.10907 (-52410) imp:n=1 \$Roomspace 524
52811 8 -0.10907 (-52811 52807) imp:n=1 \$Roomspace 528 Partially Filled
53017 1 -0.001202 (-53017 53007 53008) imp:n=1 \$Roomspace 530

c

c

c West and Southwest Room Fill Sections

20221 8 -0.10907 (-20221) imp:n=1 \$Roomspace 202
20222 8 -0.10907 (-20222) imp:n=1 \$Roomspace 203
20919 7 -0.05514 (-20919 20909) imp:n=1 \$Roomspace 209
30113 6 -0.04855 (-30113 30111) imp:n=1 \$Roomspace 301
30309 1 -0.001202 (-30309) imp:n=1 \$Roomspace 303
30512 8 -0.10907 (-30512) imp:n=1 \$Roomspace 305 Partially Filled
30913 8 -0.10907 (-30913) imp:n=1 \$Roomspace 309
31313 8 -0.10907 (-31313) imp:n=1 \$Roomspace 313
31704 8 -0.10907 (-31704) imp:n=1 \$Roomspace 317
31912 6 -0.04855 (-31912) imp:n=1 \$Roomspace 319A
31913 6 -0.04855 (-31913) imp:n=1 \$Roomspace 319
30024 8 -0.10907 (-30024 30003 30005) imp:n=1 \$Roomspace 300
30025 8 -0.10907 (-30025) imp:n=1 \$Roomspace TBF 300
30612 8 -0.10907 (-30612 30602) imp:n=1 \$Roomspace 306
31006 8 -0.10907 (-31006) imp:n=1 \$Roomspace 310
31007 8 -0.10907 (-31007) imp:n=1 \$Roomspace 310 East
31217 8 -0.10907 (-31217 31201) imp:n=1 \$Roomspace 312
31612 8 -0.10907 (-31612 31602) imp:n=1 \$Roomspace 316
40116 8 -0.10907 (-40116 30003) imp:n=1 \$Roomspace 401 Partially Filled
40117 8 -0.10907 (-40117) imp:n=1 \$Roomspace 403
40514 8 -0.10907 (-40514 30006 40501) imp:n=1 \$Roomspace 405 Partially Filled
40902 8 -0.10907 (-40902 30603) imp:n=1 \$Roomspace 409 Partially Filled
41119 8 -0.10907 (-41119 31202) imp:n=1 \$Roomspace 411
41908 8 -0.10907 (-41908 31602) imp:n=1 \$Roomspace 419

c

c

c Southeast and East Room Fill Sections

40016 8 -0.10907 (-40016) imp:n=1 \$Roomspace 400 Partially Filled
50112 8 -0.10907 (-50112) imp:n=1 \$Roomspace 501 Partially Filled
50017 8 -0.10907 (-50017) imp:n=1 \$Roomspace 500
40405 1 -0.001202 (-40405) imp:n=1 \$Roomspace 404
50507 7 -0.05514 (-50507) imp:n=1 \$Roomspace 505 Partially Filled
50406 6 -0.02427 (-50407) imp:n=1 \$Roomspace 504 Partially Filled
50407 6 -0.02427 (-50406) imp:n=1 \$Roomspace 504A
40615 8 -0.10907 (-40615) imp:n=1 \$Roomspace 406 Partially Filled
50712 8 -0.10907 (-50712) imp:n=1 \$Roomspace 507 Partially Filled
50614 8 -0.10907 (-50614) imp:n=1 \$Roomspace 506
41014 8 -0.10907 (-41014) imp:n=1 \$Roomspace 410 Partially Filled
51110 8 -0.10907 (-51110) imp:n=1 \$Roomspace 511 Partially Filled
51010 8 -0.10907 (-51010) imp:n=1 \$Roomspace 510
51404 1 -0.001202 (-51404) imp:n=1 \$Roomspace 514
51502 8 -0.10907 (-51502) imp:n=1 \$Roomspace 515
41404 8 -0.10907 (-41404) imp:n=1 \$Roomspace 414
41615 8 -0.10907 (-41615) imp:n=1 \$Roomspace 416 Partially Filled
51711 8 -0.10907 (-51711) imp:n=1 \$Roomspace 517 Partially Filled
51614 8 -0.10907 (-51614) imp:n=1 \$Roomspace 516
60016 8 -0.10907 (-60016) imp:n=1 \$Roomspace 600
60231 8 -0.10907 (-60231) imp:n=1 \$Roomspace 606

c

c

c Southernmost and Southeasternmost Room Fill Sections

20405 6 -0.04855 (-20405) imp:n=1 \$Roomspace 204
20406 1 -0.001202 (-20406) imp:n=1 \$Roomspace 205 Partially Filled
20407 1 -0.001202 (-20407) imp:n=1 \$Roomspace 205
10115 6 -0.04855 (-10115) imp:n=1 \$Roomspace 101
10116 6 -0.04855 (-10116) imp:n=1 \$Roomspace 102
10117 6 -0.04855 (-10117 10108 10109) imp:n=1 \$Roomspace 102A

c
c
103 1 -0.001202 (-103 70302 70303 70304 70305 70306 70307 70308 70309
70310 70311 70312 70313 70314 70315 70316 32001 32002
32003 32015 32016 #32017
) imp:n=1 \$Air Filled Section Box

c
c
c
104 1 -0.001202 (-104 32004 32005 32006 32007 32008 32009 32010 32011
32012 32013 32014 32401 32402 32403 32404 32405 32406
32407 32408 32409 32410 32411 32412 32413 32414 32415
32416 32417 70316 32017 32418 32419 33029 33030 33001
33002 33003 33004 33005 33006 33007 33008 33009 33010
33011 33012 33013 33014 33015 33016 33017 33018 33019
33020 33021 33022 33023 33024 33025 33026 33027 33028
33031 33032) imp:n=1 \$Air Filled Section Box

c
c
c
Begin Northeast Section of the Central Section of Floor1
105 1 -0.001202 (-105 71101 71102 71103 71104 71105 71106 71107 71108
71109 71110 71111 71112 71113 71114 71115 42001 42002
42003 42004 42005 42006 42007 42008 42009 42010 42011
42012 42013 42014 52501 52502 52503 52504 52505 52506
52507 52508 52509 52511 52510 52512 52513 52514 52515
52516 52517 52518 52519 52520 52521 52522 42601 42602
42619 42620 #42621
) imp:n=1 \$ NE Air Filled Section Box

c
c
c
106 1 -0.001202 (-106 42603 42604 42605 42606 42607 42608 42609 42610
42611 42612 42613 42614 42615 42616 42617 42618 42621
43001 43002 43003 43004 43006 43013 43014 52701
52702 52703 52704 52705 52706 52707 52708 52709 52710
52711 52712 52714 52715 52716 52717 52718 52719
52720 52721 52722 52723 52724 52725 52901 52902 52903
52904 52905 52906 52907 52908 52909 52910 52911 52912
52913 52916 #52519 #52510 #52512 #52513
) imp:n=1 \$ NE Air Filled Section Box

c
c
c
134 1 -0.001202 (-134 43007 43008 43009 43010 43011 43012 52914 52713
52915 52726 43005 43015) imp:n=1 \$ NW Air Filled Section Box

c
c
c
107 1 -0.001202 (-107 52001 52002 52003 52004 52005 52006 52007 52008
52009 52010 52011 52012 52013 52014 52015 52016 52017
52401 52402 52403 52404 52405 52406 52407 52408 52409
52410 52801 52802 52803 52804 52805 52806 52807 52808
52809 52810 52811 52812 53001 53002 53003 53004 53005
53006 53007 53008 53009 53010 53011 53012 53013 53014
53015 53016 53017 53018 #60406 #60408 60403 60404
60405 60409 60317 60318 60319) imp:n=1 \$ E Air Filled Section Box

c
c
c
Begin West Section of Floor1
108 1 -0.001202 (-108 20001 20002 20003 20004 20005 20006 20007 20008
20009 20010 20011 20012 20013 20014 20905 20906 20907
20908 20909 20915 20916 20917 20918 20919 20920 20921
20101 20102 20103 20104 20105 20106 20107 20108 20109
20110 20111 20112 20113 20114 20115 20116 20117 20118
20201 20202 20203 20204 20205 20206 20207 20208 20209
20210 20211 20212 20213 20214 20215 20216 20217 20218
20219 20220 20221 20222) imp:n=1 \$Air Filled N Section Box

c
c
c

109 1 -0.001202 (-109 20901 20902 20903 20904 20910 20911 20912
20913 20914 20922 #20908 #20919
) imp:n=1 \$Air Filled S Section Box

c
c
c Begin SouthWest Section of Floor1

110 1 -0.001202 (-110 30101 30102 30103 30104 30105 30106 30107 30108
30109 30110 30111 30112 30113 30301 30302 30303 30304
30305 30306 30307 30308 30309 30501 30502 30503 30504
30505 30506 30507 30508 30509 30510 30511 30512 30901
30902 30903 30904 30905 30906 30907 30908 30909 30910
30911 30912 30913 #31904 #31313 31303 #20920
) imp:n=1 \$Air Filled SW Section Box

c
c
c

111 1 -0.001202 (-111 31301 31302 31304 31305 31306 31307 31308
31309 31310 31311 31312 31313 31701 31702 31703 31704
31901 31902 31903 31904 31905 31906 31907 31908 31909
31910 31911 31912 31913) imp:n=1 \$Air Filled NW Section Box

c
c
c

112 1 -0.001202 (-112 30001 30002 30003 30004 30005 30006 30007
30008 30009 30010 30011 30012 30013 30014 30015
30016 30017 30018 30019 30020 30021 30022 30023
30024 40101 40102 40103 40104 40105 40106 40107
40108 40109 40110 40111 40112 40113 40114 40115
40116 40117 40501 #40514 #30601 30025 40505
40506 40507 40508 40509 #30612
) imp:n=1 \$Air Filled SE Section Box

c
c
c

113 1 -0.001202 (-113 40502 40503 40504 40510 40511 40512 40513
40514 40901 40902 30601 30602 30603 30604 30605
30606 30607 30608 30609 30610 30611 31001 31002
31003 31004 31005 31006 31007 31201 31202 31203
31204 31205 31206 31207 31208 31209 31210 31211
31212 41102 41103 41104 41105 41106 41107 41108
41109 41110 41111 41112 41113 #30024 #31217 #41119
30612) imp:n=1 \$Air Filled E Section Box

c
c
c

114 1 -0.001202 (-114 31213 31214 31215 31216 31217 41114 41115
41116 41117 41118 41119 31601 31602 31603 31604
31605 31606 31607 31608 31609 31610 31611 31612
41901 41902 41903 41904 41905 41906 41907 41908
#31001 31202 31203 41101 466
) imp:n=1 \$Air Filled NE Section Box

c
c
c Begin SouthEast Section of Floor1

115 1 -0.001202 (-115 40001 40002 40003 40004 40005 40006 40007
40008 40009 40010 40011 40012 40013 40014 40015
40016 50101 50102 50103 50104 50105 50106 50107
50108 50109 50110 50111 50112 40401 40402 40403
40404 40405 50501 50502 50503 50504 50505 50506
50507 #40615 #50712 40606 40607 40608 50703
50704 50705) imp:n=1 \$Air Filled SW Section Box

c
c
c

116 1 -0.001202 (-116 40601 40602 40603 40604 40605 40609 40610
40611 40612 40613 40614 40615 50701 50702 50706
50707 50708 50709 50710 50711 50712 41001 41005
41006 41007 41008 41009 41010 41014 51101 51104
51105 51106 51110 #50502
) imp:n=1 \$Air Filled W Section Box

c
c
c
117 1 -0.001202 (-117 41011 41012 41013 51107 51108 51109 51501
51502 41401 41402 41403 41404 41601 41602 41603
41604 41605 41606 41607 41608 41609 41610 41611
41612 41613 41614 41615 51701 51702 51703 51704
51705 51706 51707 51708 51709 51710 51711
#41014 #51110 #41005 41004 41002 41003 51102
51103) imp:n=1 \$Air Filled NW Section Box

c
c
c
118 1 -0.001202 (-118 50001 50002 50003 50004 50005 50006 50007
50008 50009 50010 50011 50012 50013 50014 50015
50016 50017 50401 50402 50403 50404 50405 50406
50407 50601 50602 50603 50604 50605 50606 50607
50608 50609 50610 50611 50612 50613 50614 51001
51002 51003 51004 51005 51006 51007 51008 51009
51010 51401 51402 51403 51404 51601 51602 51603
51604 51605 51606 51607 51608 51609 51610 51611
51612 51613 51614 464
) imp:n=1 \$Air Filled E Section Box

c
c
c Begin East Section of Floor1
119 1 -0.001202 (-119 60001 60002 60003 60004 60005 60006 60007
60008 60009 60010 60011 60012 60013 60014 60015
60016 60017 60201
) imp:n=1 \$Air Filled Section Box

c
c
c
120 1 -0.001202 (-120 60202 60203 60204 60223 60224 60226 60231
60205 60206 60207 60208 60209 60210 60211 60216
60217 60218 60219 467) imp:n=1 \$Air Filled Section Box

c
c
c
121 1 -0.001202 (-121 #60007 #60008 #60224 #60017 60220 60221
60222 60225) imp:n=1 \$Air Filled Section Box

c
c
c
122 1 -0.001202 (-122 60212 60213 60214 60215 60220 60221 60222
60223 60224 60225 60226 60227 60228 60231 60232
#60224 #60017 #60007 #60008 #61002
) imp:n=1 \$Air Filled Section Box

c
c
c
123 1 -0.001202 (-123 60311 60312 60313 60314 60315 60316 60317
60320 60321 60322 60323 60324 60325 60326 60327
60328 60329 60330 60331 60336 #60227 61007 61008
61003 #61002 #61013 #61014 61009 61010 61011
#60301 #60302 60101 60102 60103 60104 60105 60401
#60406 60407 60408 60409 60410 60411 60412 60413
60414 60415 60416 #60004 #60005 #60006
468) imp:n=1 \$Air Filled Section Box

c
c
c
124 1 -0.001202 (-124 60301 60302 60303 60304 60305 60306 60307
60308 60309 60310 61001 61002 61004 61005 61006
61012 61013 61014 61015 61016 61017 61018 61019
61020 61021 61022 61023 61024 61025 61026 61027
61028 61029 61030 61031 61032 61033 61034 61035
61036 61037 61038
) imp:n=1 \$E Truck Lock Air Filled Section Box

c

c
c
125 1 -0.001202 (-125 #60318 #60319 60317 60320 #60311 #60312
#60336) imp:n=1 \$NE Air Filled Section Box
c
c
c Begin Southernmost Section of Floor1
126 1 -0.001202 (-126 20601 20602 20603 20604 20605 20606 20607
20617 20619 20621 20622 20623 #20615 10113 10114
#20616 #20624) imp:n=1 \$Air Filled Section Box
c
c
c
127 1 -0.001202 (-127 20607 20608 20609 20610 20611 20612 20613
20614 20615 20616 20618 20620 20624 20401 20402
20403 20404 20405 20406 20407 10101 10102 10103
10104 10105 10106 10107 10108 10109 10110 10111
10112 10115 10116 10117 #108
) imp:n=1 \$Air Filled Section Box
c
c
c
128 1 -0.001202 (-128) imp:n=1 \$Air Filled NW Small Section Box
c
c
c Begin Southernmost East Section of Floor1
129 1 -0.001202 (-129 10901 10902 10903 10904 10905 10906 10907
10908 10909 10910 10911 10912 10913 10914 10915
10916 10917 10918 10919 10920 10921 10922 10923
10924 10925 10926 10929 10958 10959 10960 10961
10962 10963 10966) imp:n=1 \$Air Filled Section Box
c
c
c
130 1 -0.001202 (-130 10701 10702 10703 10704 10705 10706 10707
10708 10709 10301 10302 10303 10304 10305 10306
10307 10308 10309 10310 10311 10312 10313 10314
10315 10316 10317 10930 10931 10932 10933 10934
10935 10936 10937 10938 10939 10940 10941 10942
10943 10944 10945 10946 10947 10948 10949 10950
10951 10952 10953 10954 10955 10956 10957 #10901
#10902 #10105 #10117) imp:n=1 \$Air Filled Section Box
c
c
c
131 1 -0.001202 (-131 11001 11002 11003 11004 11005 11006 11007
11008 11009 11010 11011 11012 11015 11016 11017
11021 11022 11023 11024 11025 11026 11027
10928 11070 11129 11130 10967
11075 11076 11077 10927 11078) imp:n=1 \$Air Filled Section Box
c
c
c
132 1 -0.001202 (-132 11013 11014 11019 11020 11018 11028 11029
11030 11031 11032 11033 11034 11035 11036 11037
11038 11039 11040 11041 11042 11043 11044 11045
11046 11047 11048 11049 11050 11051 11052 11053
11054 11055 11056 11057 11058 11061 11062 11063
11064 11065 11066 11067 11068 11069 11071 11072
11073 11074 #11129
#11130 #11059 11104) imp:n=1 \$Air Filled Section Box
c
c
c
133 1 -0.001202 (-133 11101 11102 11103 11105 11106 11107
11108 11109 11110 11111 11112 11113 11114 11115
11116 11117 11118 11119 11120 11121 11122 11123
11124 11125 11126 11127 11128 #11129 #11130 11131
11132 11201 11202 11203 11204 11205 11206 11207
11208 11209 11210 11211 11212 11213 11214 11215

91803	5	0.00359833	(-91803)	imp:n=1	\$Metal wl
91804	5	0.00359833	(-91804)	imp:n=1	\$Metal wl
91805	5	0.00359833	(-91805)	imp:n=1	\$Metal wl
91806	5	0.00359833	(-91806)	imp:n=1	\$Metal wl
91807	5	0.00359833	(-91807)	imp:n=1	\$Metal wl
91808	5	0.00359833	(-91808)	imp:n=1	\$Metal wl
91809	5	0.00359833	(-91809)	imp:n=1	\$Metal wl
91810	5	0.00359833	(-91810)	imp:n=1	\$Metal wl
91811	5	0.00359833	(-91811)	imp:n=1	\$Metal wl
91812	5	0.00359833	(-91812)	imp:n=1	\$Metal wl
91813	5	0.00359833	(-91813)	imp:n=1	\$Metal wl
91814	5	0.00359833	(-91814)	imp:n=1	\$Metal wl
91815	5	0.00359833	(-91815)	imp:n=1	\$Metal wl
91816	5	0.00359833	(-91816)	imp:n=1	\$Metal wl
91817	5	0.00359833	(-91817)	imp:n=1	\$Metal wl
91818	5	0.00359833	(-91818)	imp:n=1	\$Metal wl
91819	15	-0.4751	(-91819)	imp:n=1	\$Ext wl
91820	5	0.00359833	(-91820)	imp:n=1	\$Metal wl

c

c

Floor2 Room 927/933/935/926/937/925/939 section contains some hallway remnants

92701	5	0.00359833	(-92701)	imp:n=1	\$Metal wl
92702	5	0.00359833	(-92702)	imp:n=1	\$Metal wl
92703	5	0.00359833	(-92703)	imp:n=1	\$Metal wl
92704	5	0.00359833	(-92704)	imp:n=1	\$Metal wl
92705	5	0.00359833	(-92705)	imp:n=1	\$Metal wl
92706	5	0.00359833	(-92706)	imp:n=1	\$Metal wl
92707	5	0.00359833	(-92707)	imp:n=1	\$Metal wl
92708	5	0.00359833	(-92708)	imp:n=1	\$Metal wl
92709	5	0.00359833	(-92709)	imp:n=1	\$Metal wl
92710	5	0.00359833	(-92710)	imp:n=1	\$Metal wl
92711	5	0.00359833	(-92711)	imp:n=1	\$Metal wl
92712	5	0.00359833	(-92712)	imp:n=1	\$Metal wl
92713	5	0.00359833	(-92713)	imp:n=1	\$Metal wl
92714	5	0.00359833	(-92714)	imp:n=1	\$Metal wl
92715	5	0.00359833	(-92715)	imp:n=1	\$Metal wl
92716	5	0.00359833	(-92716)	imp:n=1	\$Metal wl
92717	5	0.00359833	(-92717)	imp:n=1	\$Metal wl
92718	5	0.00359833	(-92718)	imp:n=1	\$Metal wl
92719	5	0.00359833	(-92719)	imp:n=1	\$Metal wl
92720	5	0.00359833	(-92720)	imp:n=1	\$Metal wl
92721	5	0.00359833	(-92721)	imp:n=1	\$Metal wl
92722	5	0.00359833	(-92722)	imp:n=1	\$Metal wl
92723	5	0.00359833	(-92723)	imp:n=1	\$Metal wl
92724	5	0.00359833	(-92724)	imp:n=1	\$Metal wl
92725	5	0.00359833	(-92725)	imp:n=1	\$Metal wl
92726	5	0.00359833	(-92726)	imp:n=1	\$Metal wl
92727	5	0.00359833	(-92727)	imp:n=1	\$Metal wl

c

c

Floor2 Room 920/927/924/968/965/967/964

92001	5	0.00359833	(-92001)	imp:n=1	\$Metal wl
92002	5	0.00359833	(-92002)	imp:n=1	\$Metal wl
92003	5	0.00359833	(-92003)	imp:n=1	\$Metal wl
92004	5	0.00359833	(-92004)	imp:n=1	\$Metal wl
92005	5	0.00359833	(-92005)	imp:n=1	\$Metal wl
92006	5	0.00359833	(-92006)	imp:n=1	\$Metal wl
92007	5	0.00359833	(-92007)	imp:n=1	\$Metal wl
92008	5	0.00359833	(-92008)	imp:n=1	\$Metal wl
92009	5	0.00359833	(-92009)	imp:n=1	\$Metal wl
92010	5	0.00359833	(-92010)	imp:n=1	\$Metal wl
92011	5	0.00359833	(-92011)	imp:n=1	\$Metal wl
92012	5	0.00359833	(-92012)	imp:n=1	\$Metal wl
92013	5	0.00359833	(-92013)	imp:n=1	\$Metal wl
92014	5	0.00359833	(-92014)	imp:n=1	\$Metal wl
92015	5	0.00359833	(-92015)	imp:n=1	\$Metal wl
92016	5	0.00359833	(-92016)	imp:n=1	\$Metal wl
92017	5	0.00359833	(-92017)	imp:n=1	\$Metal wl
92018	5	0.00359833	(-92018)	imp:n=1	\$Metal wl
92019	5	0.00359833	(-92019)	imp:n=1	\$Metal wl

92020	5	0.00359833	(-92020)	imp:n=1	\$Metal wl
92021	5	0.00359833	(-92021)	imp:n=1	\$Metal wl
92022	5	0.00359833	(-92022)	imp:n=1	\$Metal wl
92023	15	-0.4751	(-92023)	imp:n=1	\$Exterior wl
92024	5	0.00359833	(-92024)	imp:n=1	\$Metal wl
92025	5	0.00359833	(-92025)	imp:n=1	\$Metal wl
92026	5	0.00359833	(-92026)	imp:n=1	\$Metal wl

c

c

c Floor2 Room 930/932/934/936/938/941/943/945/947/949

93001	5	0.00359833	(-93001)	imp:n=1	\$Metal wl
93002	5	0.00359833	(-93002)	imp:n=1	\$Metal wl
93003	5	0.00359833	(-93003)	imp:n=1	\$Metal wl
93004	5	0.00359833	(-93004)	imp:n=1	\$Metal wl
93005	5	0.00359833	(-93005)	imp:n=1	\$Metal wl
93006	5	0.00359833	(-93006)	imp:n=1	\$Metal wl
93007	5	0.00359833	(-93007)	imp:n=1	\$Metal wl
93008	5	0.00359833	(-93008)	imp:n=1	\$Metal wl
93009	5	0.00359833	(-93009)	imp:n=1	\$Metal wl
93010	5	0.00359833	(-93010)	imp:n=1	\$Metal wl
93011	5	0.00359833	(-93011)	imp:n=1	\$Metal wl
93012	5	0.00359833	(-93012)	imp:n=1	\$Metal wl
93013	5	0.00359833	(-93013)	imp:n=1	\$Metal wl
93014	5	0.00359833	(-93014)	imp:n=1	\$Metal wl
93015	5	0.00359833	(-93015)	imp:n=1	\$Metal wl
93016	5	0.00359833	(-93016)	imp:n=1	\$Metal wl
93017	5	0.00359833	(-93017)	imp:n=1	\$Metal wl
93018	5	0.00359833	(-93018)	imp:n=1	\$Metal wl
93019	5	0.00359833	(-93019)	imp:n=1	\$Metal wl
93020	5	0.00359833	(-93020)	imp:n=1	\$Metal wl
93021	5	0.00359833	(-93021)	imp:n=1	\$Metal wl
93022	5	0.00359833	(-93022)	imp:n=1	\$Metal wl
93023	5	0.00359833	(-93023)	imp:n=1	\$Metal wl
93024	5	0.00359833	(-93024)	imp:n=1	\$Metal wl
93025	5	0.00359833	(-93025)	imp:n=1	\$Metal wl
93026	5	0.00359833	(-93026)	imp:n=1	\$Metal wl
93027	5	0.00359833	(-93027)	imp:n=1	\$Metal wl

c

c

c Floor2 Room 940/942/944/946/948/954/955/956/957/958

94001	5	0.00359833	(-94001)	imp:n=1	\$Metal wl
94002	5	0.00359833	(-94002)	imp:n=1	\$Metal wl
94003	5	0.00359833	(-94003)	imp:n=1	\$Metal wl
94004	5	0.00359833	(-94004)	imp:n=1	\$Metal wl
94005	5	0.00359833	(-94005)	imp:n=1	\$Metal wl
94006	5	0.00359833	(-94006)	imp:n=1	\$Metal wl
94007	5	0.00359833	(-94007)	imp:n=1	\$Metal wl
94008	5	0.00359833	(-94008)	imp:n=1	\$Metal wl
94009	5	0.00359833	(-94009)	imp:n=1	\$Metal wl
94010	5	0.00359833	(-94010)	imp:n=1	\$Metal wl
94011	5	0.00359833	(-94011)	imp:n=1	\$Metal wl
94012	5	0.00359833	(-94012)	imp:n=1	\$Metal wl
94013	5	0.00359833	(-94013)	imp:n=1	\$Metal wl
94014	5	0.00359833	(-94014)	imp:n=1	\$Metal wl
94015	5	0.00359833	(-94015)	imp:n=1	\$Metal wl
94016	5	0.00359833	(-94016)	imp:n=1	\$Metal wl
94017	5	0.00359833	(-94017)	imp:n=1	\$Metal wl
94018	5	0.00359833	(-94018)	imp:n=1	\$Metal wl
94019	5	0.00359833	(-94019)	imp:n=1	\$Metal wl
94020	5	0.00359833	(-94020)	imp:n=1	\$Metal wl
94021	5	0.00359833	(-94021)	imp:n=1	\$Metal wl
94022	5	0.00359833	(-94022)	imp:n=1	\$Metal wl
94023	5	0.00359833	(-94023)	imp:n=1	\$Metal wl
94024	5	0.00359833	(-94024)	imp:n=1	\$Metal wl
94025	5	0.00359833	(-94025)	imp:n=1	\$Metal wl
94026	5	0.00359833	(-94026)	imp:n=1	\$Metal wl
94027	5	0.00359833	(-94027)	imp:n=1	\$Metal wl
94028	5	0.00359833	(-94028)	imp:n=1	\$Metal wl
94029	5	0.00359833	(-94029)	imp:n=1	\$Metal wl

c

c

c Floor2 Room 961/960/951/952/950 with the Elevator

96101	5	0.00359833	(-96101)	imp:n=1	\$Metal	wl
96102	5	0.00359833	(-96102)	imp:n=1	\$Metal	wl
96103	5	0.00359833	(-96103)	imp:n=1	\$Metal	wl
96104	5	0.00359833	(-96104)	imp:n=1	\$Metal	wl
96105	5	0.00359833	(-96105)	imp:n=1	\$Metal	wl
96106	5	0.00359833	(-96106)	imp:n=1	\$Metal	wl
96107	5	0.00359833	(-96107)	imp:n=1	\$Metal	wl
96108	5	0.00359833	(-96108)	imp:n=1	\$Metal	wl
96109	5	0.00359833	(-96109)	imp:n=1	\$Metal	wl
96110	5	0.00359833	(-96110)	imp:n=1	\$Metal	wl
96111	5	0.00359833	(-96111)	imp:n=1	\$Metal	wl
96112	5	0.00359833	(-96112)	imp:n=1	\$Metal	wl
96113	5	0.00359833	(-96113)	imp:n=1	\$Metal	wl
96114	5	0.00359833	(-96114)	imp:n=1	\$Metal	wl
96115	5	0.00359833	(-96115)	imp:n=1	\$Metal	wl
96116	5	0.00359833	(-96116)	imp:n=1	\$Metal	wl
96117	5	0.00359833	(-96117)	imp:n=1	\$Metal	wl
96118	5	0.00359833	(-96118)	imp:n=1	\$Metal	wl
96119	5	0.00359833	(-96119)	imp:n=1	\$Metal	wl
96120	5	0.00359833	(-96120)	imp:n=1	\$Metal	wl
96121	5	0.00359833	(-96121)	imp:n=1	\$Metal	wl
96122	5	0.00359833	(-96122)	imp:n=1	\$Metal	wl
96123	5	0.00359833	(-96123)	imp:n=1	\$Metal	wl
96124	5	0.00359833	(-96124)	imp:n=1	\$Metal	wl
96125	5	0.00359833	(-96125)	imp:n=1	\$Metal	wl
96126	5	0.00359833	(-96126)	imp:n=1	\$Metal	wl
96127	5	0.00359833	(-96127)	imp:n=1	\$Metal	wl
96128	5	0.00359833	(-96128)	imp:n=1	\$Metal	wl
96129	5	0.00359833	(-96129)	imp:n=1	\$Metal	wl
96130	5	0.00359833	(-96130)	imp:n=1	\$Metal	wl
96131	5	0.00359833	(-96131)	imp:n=1	\$Metal	wl
96132	5	0.00359833	(-96132)	imp:n=1	\$Metal	wl
96133	5	0.00359833	(-96133)	imp:n=1	\$Metal	wl
96134	5	0.00359833	(-96134)	imp:n=1	\$Metal	wl
96135	5	0.00359833	(-96135)	imp:n=1	\$Metal	wl
96136	5	0.00359833	(-96136)	imp:n=1	\$Metal	wl
96137	5	0.00359833	(-96137)	imp:n=1	\$Metal	wl
96138	5	0.00359833	(-96138)	imp:n=1	\$Metal	wl
96139	5	0.00359833	(-96139)	imp:n=1	\$Metal	wl
96140	5	0.00359833	(-96140)	imp:n=1	\$Metal	wl
96141	5	0.00359833	(-96141)	imp:n=1	\$Metal	wl
96142	5	0.00359833	(-96142)	imp:n=1	\$Metal	wl
96143	5	0.00359833	(-96143)	imp:n=1	\$Metal	wl
96144	5	0.00359833	(-96144)	imp:n=1	\$Metal	wl

c

c

c

c Floor2 Room 900/Change Room - CR

c This room contains all of the surfaces for this section

90001	5	0.00359833	(-90001)	imp:n=1	\$Metal	wl
90002	5	0.00359833	(-90002)	imp:n=1	\$Metal	wl
90003	5	0.00359833	(-90003)	imp:n=1	\$Metal	wl
90004	5	0.00359833	(-90004)	imp:n=1	\$Metal	wl
90005	5	0.00359833	(-90005)	imp:n=1	\$Metal	wl
90006	5	0.00359833	(-90006)	imp:n=1	\$Metal	wl
90007	5	0.00359833	(-90007)	imp:n=1	\$Metal	wl
90008	5	0.00359833	(-90008)	imp:n=1	\$Metal	wl
90009	15	-0.4751	(-90009)	imp:n=1	\$Exterior	wl
90010	15	-0.4751	(-90010)	imp:n=1	\$Exterior	wl
90011	15	-0.4751	(-90011)	imp:n=1	\$Exterior	wl

c

c

c //Begin South Section of Floor2//

c

c

c Floor2 Room 903/904/South Mechanical - Mech/Roofs

90301	15	-0.4751	(-90301)	imp:n=1	\$Ext	wl
90302	15	-0.4751	(-90302)	imp:n=1	\$Ext	wl


```

60950 3 -2.3 (-60950) imp:n=1 $Conc Filled
60951 3 -2.3 (-60951) imp:n=1 $Conc Filled
60952 3 -2.3 (-60952) imp:n=1 $Conc Filled
60953 3 -2.3 (-60953) imp:n=1 $Conc Filled
60954 13 -7.92 (-60954) imp:n=1 $$$
c 60955 3 -2.3 (-60955) imp:n=1 $
60956 15 -0.4751 (-60956) imp:n=1 $Ext wl
c
c
c ///////////////////////////////////////////////////////////////////Begin Roomspace Fill Section of Floor2/////////////////////////////////////////////////////////////////
c This section contains all of the cells that define the interior of each Numbered Room
c These cells were all grouped together regardless of their regional location within the floor
c
c
c TAG=TAGf2roomfill
c
c
91013 6 -0.04855 (-91013) imp:n=1 $Roomspace 910
91014 6 -0.04855 (-91014) imp:n=1 $Roomspace 911
91209 6 -0.02427 (-91209) imp:n=1 $Roomspace 912
91210 6 -0.04855 (-91210) imp:n=1 $Roomspace 914
91211 8 -0.10907 (-91211) imp:n=1 $Roomspace 916
91315 1 -0.001202 (-91315) imp:n=1 $Roomspace 913
91316 6 -0.04855 (-91316) imp:n=1 $Roomspace 915
91317 6 -0.04855 (-91317) imp:n=1 $Roomspace 928
91318 6 -0.04855 (-91318) imp:n=1 $Roomspace 929
91821 6 -0.04855 (-91821) imp:n=1 $Roomspace 918
91822 6 -0.04855 (-91822) imp:n=1 $Roomspace 917
91823 6 -0.04855 (-91823) imp:n=1 $Roomspace 905
91824 6 -0.04855 (-91824) imp:n=1 $Roomspace 919
91825 6 -0.04855 (-91825 91817) imp:n=1 $Roomspace 921
91826 6 -0.04855 (-91826) imp:n=1 $Roomspace 923
92728 6 -0.04855 (-92728) imp:n=1 $Roomspace 927
92729 6 -0.04855 (-92729) imp:n=1 $Roomspace 926
92730 6 -0.04855 (-92730) imp:n=1 $Roomspace 925
92731 6 -0.04855 (-92731 #92706) imp:n=1 $Roomspace 933
92732 6 -0.04855 (-92732 #92711) imp:n=1 $Roomspace 935
92733 6 -0.04855 (-92733) imp:n=1 $Roomspace 937
92734 6 -0.04855 (-92734) imp:n=1 $Roomspace 939 Room Partial Fill
92027 6 -0.04855 (-92027) imp:n=1 $Roomspace 920
92028 6 -0.04855 (-92028) imp:n=1 $Roomspace 927
92029 6 -0.04855 (-92029) imp:n=1 $Roomspace 924
92030 6 -0.04855 (-92030) imp:n=1 $Roomspace 968
92031 6 -0.04855 (-92031) imp:n=1 $Roomspace 965
92032 6 -0.04855 (-92032) imp:n=1 $Roomspace 967
92033 6 -0.04855 (-92033) imp:n=1 $Roomspace 964-Conf. Room Partial Fill
93028 6 -0.04855 (-93028) imp:n=1 $Roomspace 930
93029 6 -0.04855 (-93029) imp:n=1 $Roomspace 932
93030 6 -0.04855 (-93030) imp:n=1 $Roomspace 934
93031 6 -0.04855 (-93031) imp:n=1 $Roomspace 936
93032 6 -0.02427 (-93032) imp:n=1 $Roomspace 938
93033 6 -0.04855 (-93033 #93025) imp:n=1 $Roomspace 941
93034 6 -0.04855 (-93034) imp:n=1 $Roomspace 943
93035 6 -0.04855 (-93035 #93026) imp:n=1 $Roomspace 945
93036 6 -0.04855 (-93036) imp:n=1 $Roomspace 947
93037 6 -0.04855 (-93037 #93027) imp:n=1 $Roomspace 949
94030 6 -0.04855 (-94030 #94015) imp:n=1 $Roomspace 940
94031 6 -0.04855 (-94031) imp:n=1 $Roomspace 942
94032 6 -0.04855 (-94032 #94016) imp:n=1 $Roomspace 944
94033 6 -0.04855 (-94033) imp:n=1 $Roomspace 946
94034 6 -0.04855 (-94034 #94017) imp:n=1 $Roomspace 948
94035 6 -0.04855 (-94035) imp:n=1 $Roomspace 954
94036 6 -0.04855 (-94036) imp:n=1 $Roomspace 955
94037 6 -0.04855 (-94037) imp:n=1 $Roomspace 956
94038 6 -0.04855 (-94038) imp:n=1 $Roomspace 957
94039 6 -0.04855 (-94039) imp:n=1 $Roomspace 958
96145 6 -0.04855 (-96145) imp:n=1 $Roomspace 961
96146 6 -0.04855 (-96146) imp:n=1 $Roomspace 960 Room Partial Fill
96147 6 -0.04855 (-96147) imp:n=1 $Roomspace Empty LR
90317 6 -0.04855 (-90317) imp:n=1 $Roomspace 903 Room Partial Fill

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90318 6 -0.04855 (-90318) imp:n=1 $Roomspace 904
60957 6 -0.04855 (-60957) imp:n=1 $Roomspace 609 Room Partial Fill
60958 6 -0.04855 (-60958) imp:n=1 $Roomspace 608
60959 6 -0.04855 (-60959) imp:n=1 $Roomspace 607
60960 1 -0.001202 (-60960) imp:n=1 $Roomspace 607N
c
c
c Begin Northwest Section of Floor3
c *****Notes for this section of Cells*****
c
c Floor3 Room 611/Top of the Hot Cells
61101 3 -2.3 (-61101) imp:n=1 $Conc Filled
61102 3 -2.3 (-61102) imp:n=1 $Conc Filled
61103 3 -2.3 (-61103) imp:n=1 $Conc Filled
61104 3 -2.3 (-61104) imp:n=1 $Conc Filled
61105 5 0.00359833 (-61105) imp:n=1 $Metal wl
61106 5 0.00359833 (-61106) imp:n=1 $Metal wl
61107 5 0.00359833 (-61107) imp:n=1 $Metal wl
61108 5 0.00359833 (-61108) imp:n=1 $Metal wl
61109 3 -2.3 (-61109) imp:n=1 $Conc Filled
61110 3 -2.3 (-61110) imp:n=1 $Conc Filled
61111 3 -2.3 (-61111) imp:n=1 $Conc Filled
61112 3 -2.3 (-61112) imp:n=1 $Conc Filled
61113 3 -2.3 (-61113) imp:n=1 $Conc Filled
61114 3 -2.3 (-61114) imp:n=1 $Conc Filled
61115 3 -2.3 (-61115) imp:n=1 $Conc Filled
61116 3 -2.3 (-61116) imp:n=1 $Conc Filled
61117 3 -2.3 (-61117) imp:n=1 $Conc Filled
61118 3 -2.3 (-61118) imp:n=1 $Conc Filled
61119 3 -2.3 (-61119) imp:n=1 $Conc Filled
61120 13 -7.92 (-61120) imp:n=1 $$$
61121 13 -7.92 (-61121) imp:n=1 $$$
61122 13 -7.92 (-61122) imp:n=1 $$$
61123 13 -7.92 (-61123) imp:n=1 $$$
61124 13 -7.92 (-61124) imp:n=1 $$$
61125 13 -7.92 (-61125) imp:n=1 $$$
c
c
c
c
c
c
c Cell that combines all of the 2nd floors subsections
201 0 (-992 201 212 213 214 215 218 90311 90312 90313
90314 90315 90316 90319 90320 92023 90318 #60956
#90301 ) imp:n=1
c
c
c
c Begin Cells for NW Section of Floor2
c
c Largest cell that envelopes all of the NW Section
202 1 -0.001202 (-201 203 204 205 206 207 #91012 #91819 #92701
#92728 #92703 208 #92023 209 210 211 #96104
#92023 #90318 #90301 #90308) imp:n=1 $NW Section Box
c
c
c SW Box
203 1 -0.001202 (-203 91002 91003 91004 91005 91006 91013 91007
91008 91014 90308 90301 ) imp:n=1
c
c
c W Box
204 1 -0.001202 (-204 91011 91201 91202 91203 91204 91205 91206 91207
91208 91209 91210 91211 91805 ) imp:n=1
c
c
c NW Box
205 1 -0.001202 (-205 91301 91302 91303 91304 91305 91306 91307 91308
91309 91310 91311 91312 91313 91314 91315 91316 91317

```

91318 91801 91802 91803 91804 91806 91807 91808 91809
 91810 91811 91812 91813 91814 91815 91816 91818 91821
 91822 91823 91824 91825 91826) imp:n=1
 c
 c
 c S1 Box
 206 1 -0.001202 (-206 91009 91010 92724 92725 92726 92727 #92701
 #92728 92702 #90308 #90318) imp:n=1
 c
 c
 c S2 Box
 207 1 -0.001202 (-207 #92703 92704 92705 92706 92707 92708 92709
 92710 92711 92712 92713 92714 92715 92716 92717
 92718 92719 92720 92721 92722 92723 92728 92729
 92730 92731 92732 92733 92734 93001) imp:n=1
 c
 c
 c N Box
 208 1 -0.001202 (-208 92001 92002 92003 92004 92005 92006 92007
 92008 92009 92010 92011 92012 92013 92014 92015
 92016 92017 92018 92019 92020 92021 92022 92024
 92025 92026 92027 92028 92029 92030 92031 92032
 92033 91820 #96104) imp:n=1
 c
 c
 c SE1 Box
 209 1 -0.001202 (-209 93002 93003 93004 93005 93006 93007 93008
 93009 93010 93011 93012 93013 93014 93015 93016
 93017 93018 93019 93020 93021 93022 93023 93024
 93025 93026 93027 93028 93029 93030 93031 93032
 93033 93034 93035 93036 93037) imp:n=1
 c
 c
 c SE2 Box
 210 1 -0.001202 (-210 94001 94002 94003 94004 94005 94006 94007
 94008 94009 94010 94011 94012 94013 94014 94015
 94016 94017 94018 94019 94020 94021 94022 94023
 94024 94025 94026 94027 94028 94029 94030 94031
 94032 94033 94034 94035 94036 94037 94038 94039
) imp:n=1
 c
 c
 c NE Box
 211 1 -0.001202 (-211 96101 96102 96103 96105 96106 96107 96108
 96109 96110 96111 96112 96113 96114 96115 96116
 96117 96118 96119 96120 96121 96122 96123 96124
 96125 96126 96127 96128 96129 96130 96131 96132
 96133 96134 96135 96136 96137 96138 96139 96140
 96141 96142 96143 96144 96145 96146 96147 #96104
) imp:n=1
 c
 c
 c
 c Begin Cells for NE Section of Floor2
 c
 212 1 -0.001202 (-212 90001 90002 90003 90004 90005 90006 90007
 90008 90009 90010 90011 #92023 #60956 #61101
) imp:n=1
 c
 c
 c Begin Cells for S Section of Floor2
 c
 213 1 -0.001202 (-213 90301 90302 90303 90304 90305 90306 90307
 90309 90310 90317 #90318 #60956 #90308
) imp:n=1
 c
 c
 c
 c Begin Cells for E Section of Floor2
 c

214 1 -0.001202 (-214 60901 60902 60903 60905 60906 60907 60908
60909 60910 60911 60912 60913 60914 60915 60916
60917 60918 60919 60935 60940 60941 60942 60943
60944 60945 60946 60947 60948 60949 60950 60951
60952 60953 60954 60956 60957 60958 60959 60960
60920 60921 60930 60931) imp:n=1

c
c
c

215 1 -0.001202 (-215 60936 60937 60938 60939 60940 60922 60923
60924 60925 60926 60927 60928 60929 60932 60933
60934) imp:n=1

c

218 1 -0.001202 (-218 61101 61102 61103 61104 61105 61106 61107
61108 61109 61110 61111 61112 61113 61114 61115
61116 61117 61118 61119 61120 61121 61122 61123
61124 61125 #60956) imp:n=1 \$Air Filled

c
c
c
c
c
c
c
c
c
c
c
c
c
c -----BLANK LINE FOLLOWS THIS LINE-----

c
c =====
c

c #####
c # Surface definition cards#
c #####
c *****Surface Notes*****
c Format of Surface Cards is as follows: ##@ @, ## is the room number as designated by
c the set of Drawings taken from meridian. @ @ runs from 01-99 and represents a surface
c in that room. Descriptions of each surface follow every card using the cardinal
c directions in the orientation listed on the drawings from meridian.

c
c
c

BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB

c

BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB
c BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB Basement 1
BB

c

BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB

c

BB
BBBBBBBBBBBBBBBBBBBBBBBBBBBB
c
c
c
c

c TAG=TAGbasementsurfaces
c
c
c Start of boxes used to group the surfaces.
c
c
c All of the following surfaces are used to group



c the cells together. This had to be done to avoid overloading the data type associated with
 c cell cards. These boxes are purely for the codes sake and in no way affect the actual geometry
 c of the model.

c
 999 rpp -1200 4000 -3000 4000 -304.8 1498.6 \$Void

c
 c Void box surrounding model

990 rpp -1200 4000 -3000 4000 -304.8 442 \$Void

c
 c NW Section of Basement 1

401 46 rpp -4.5 817 -290 1091.5 0 432.5 \$Cell box NW Section

c
 c Begin North-Center Section of the Central Section of Basement 1

402 45 rpp -48 526 -96 549.5 0 432.5 \$Cell box W

403 45 rpp 526 998 -96 621.5 0 432.5 \$Cell box E

c
 c Begin Northeast Section of the Central Section of Basement 1

404 44 rpp -407 639 -290 446 0 432.5 \$Cell box SW

405 44 rpp 639 1123.5 -290 1091.5 0 432.5 \$Cell box E

c
 c Begin West Section of Basement 1

406 41 rpp -179 242 0 1152 0 432.5 \$Cell box W Section

c
 c Begin Southwest Section of the Central Section of Basement 1

407 rpp -10 1187.5 -10 998.5 0 432.5 \$Cell box S Section

c
 c Begin Southeast Section of the Central Section of Basement 1

408 42 rpp -41 1123.5 -15.5 993 0 432.5 \$Section Cell box

c
 c Begin East Section of Basement 1

409 43 rpp -10 1083 -10 1600 0 432.5 \$Section Cell box

c
 c Begin South Section of Basement 1

410 47 rpp -12.8 245 -101.75 867.5 152.4 432.5 \$W Cell box

411 47 rpp 245 1080 -101.75 200 152.4 432.5 \$S Cell box

412 47 rpp 1080 1335.2 -101.75 867.5 152.4 432.5 \$E Cell box

413 47 rpp 245 1080 200 867.5 152.4 432.5 \$Central Cell box

c
 c Below are the Decks of Basement 1 and the Sand surrounding the building
 c The southern mezzanine section is set 5ft above the B1 Deck. This is an observed measured distance because
 c I have found no blueprint that clearly defines this distance. There is a small gap between Rm23B and the
 c top of Rm32 where there is no sand and just air. This gap was left for the sake of saving time. No conservancy
 c is lost. There is no sand up to the grade height in the SE corner of the building. This was done to be conservative.
 c There are numerous areas in the SE that do not have a backfill to the same grade as the rest of the building.
 c There is also a loading dock located in the SE corner which is simply free space.

414 rpp -10 2390 -10 2390 -30.5 0 \$Central Section of Basement foundation Deck

415 rpp 2390 2931.5 -10 1551.5 -30.5 0 \$East Section of B1 foundation Deck

416 rpp 501.8 1849.8 -903 -10 121.9 152.4 \$South Section of B1 foundation Deck

417 rpp -264 -10 121 538.5 -30.5 0 \$SW B1 foundation Deck

418 rpp -431 -10 538.5 1186.5 -30.5 0 \$W B1 foundation Deck

419 rpp -1000 4000 -2000 4000 -304.8 -30.5 \$Sand 10ft thick under building

420 rpp 501.8 1849.8 -903 -10 -30.5 121.9 \$Sand filling the gap below South Section of B1

421 rpp -10 2390 2390 2999.6 -30.5 327.7 \$N of B1 20ft Thick sand up to a building grade of 327.7cm

422 rpp 2390 2999.6 1551.5 2999.6 -30.5 327.7 \$NE of B1 20ft Thick sand up to a building grade of 327.7cm

423 rpp 501.8 1849.8 -1512.6 -903 -30.5 327.7 \$S of B1 20ft Thick sand up to a building grade of 327.7cm

424 rpp -619.6 501.8 -1512.6 -10 -30.5 327.7 \$S2 20ft Thick sand up to a building grade of 327.7cm

425 rpp -873.6 -264 121 536.5 -30.5 327.7 \$SW 20ft Thick sand up to a building grade of 327.7cm

426 rpp -1040.6 -431 536.5 1186.5 -30.5 327.7 \$W 20ft Thick sand up to a building grade of 327.7cm

427 rpp -609.6 -10 -10 121 -30.5 327.7 \$SW B1 20ft Thick sand up to a building grade of 327.7cm

428 rpp -609.6 -10 1186.5 2999.6 -30.5 327.7 \$NW 20ft Thick sand up to a building grade of 327.7cm

c
c
c
c Basement1 ceiling/First Floor Deck From the previous methodology of NCS99 the ceiling of B1 was smeared
c to a slab with a thickness of 3.75". It was found from investigation that 3.75" was the approximate
c average of the thickness of the ceiling. Drawing H-3-306083-2.DWG shows the structure of the ceiling and is to scale.

430	rpp	-10	2390	-10	2390	432.5	442	\$Central Section of Basement ceiling
431	rpp	2390	2931.5	-10	1551.5	432.5	442	\$East Section of B1 ceiling
432	rpp	501.8	1849.8	-903	-10	432.5	442	\$South Section of B1 ceiling
433	rpp	-264	-10	121	548.5	432.5	442	\$SW B1 ceiling
434	rpp	-431	-10	548.5	1186.5	432.5	442	\$W B1 ceiling

c
c
c First Crack at a minimum accident TAG=TAGPuPu
440 44 s 950 1000 50 19.54 \$ Pu Sphere N Rm52 in Rm45
440 s 390 200 50 19.54 \$ Pu Sphere in Rm22
c 440 s 2303.5 1228.5 50 19.54 \$ Pu Sphere in Rm48 in cells 405 and 4808
c 440 s 1314.5 2300.5 50 19.54 \$ Pu Sphere in Rm90
c 440 46 s 40 1288.5 50 19.54 \$ Pu Sphere in NW corner B1 Rm45
c 440 46 s 1140 -260 50 19.54 \$ Pu Sphere in SW corner of NW section -Center of B1
c 440 41 s 50 50 50 19.54 \$ Pu Sphere in SW corner of Rm23B in cell 425 2321
c 440 41 s 50 353 50 19.54 \$ Pu Sphere in W of Rm23 in cell 425 2322
c 440 41 s 160 800 50 19.54 \$ Pu Sphere in E of Rm32 (Under SAL) in cell 426
c 440 41 s -130 1020 50 19.54 \$ Pu Sphere in NW of Rm32 (Under SAL)
c 440 42 s 525 675 50 19.54 \$ Pu Sphere in Rm34 B1
c 440 47 s 820 30 202.5 19.54 \$ Pu Sphere in LR Mezzanine
c 440 43 s 520 40 50 19.54 \$ Pu Sphere in Rm40c

c
c
c First Floor Accident Locations
c 440 12 s -370 1000 492 19.54 \$ Pu Sphere in Rm203
c 440 17 s 50 50 492 19.54 \$ Pu Sphere in LR
c 440 18 s 40 780 492 19.54 \$ Pu Sphere in Rm327A
c 440 11 s 1075 810 492 19.54 \$ Pu Sphere in Rm528
c 440 15 s 1020 400 492 19.54 \$ Pu Sphere in Truck Lock
c 440 17 s 1770 925 492 19.54 \$ Pu Sphere in Rm119
c 440 14 s 165 720 492 19.54 \$ Pu Sphere in Rm410

c
c
c Second Floor Accident Locations
c
c 440 s 2875 1520 1122 19.54 \$ Pu Sphere Above Rm 603 in cell 214
c 440 s 44.5 2350 934 19.54 \$ Pu Sphere Above Rm 327 in Rm903 cell202

c
c
c 440 s 50 19.54 \$ Pu Sphere in Rm

c
c
c
c Below are all of the Detectors for all of building 325. The detectors are all in one section
c Because doing so makes it much easier to iterate their locations throughout the model TAG=TAGdetectors

c
c Location of the Surface the detector is attached to
c rpp 257 267 269.5 277.5 0 432.5
461 rcc 272.7 263.35 412.2 0 20.3 0 5.7 \$B1 N Column Rm22
c rpp 267 297.5 258.25 288.75 391.9 432.5

c
c
c Location of the Surface the detector is attached to
c 42 rpp 302 312 983 993 391.9 432.5
462 42 rcc 317.7 977.85 412.2 0 20.3 0 5.7 \$B1 Next(2nd) Column moving E

c
c 42 rpp 312 342.5 972.75 1003.25 391.9 432.5

c
c Location of the Surface the detector is attached to
c 42 rpp 0 10 504 512 391.9 432.5
463 42 rcc 15.7 497.85 412.2 0 20.3 0 5.7 \$B1 W Column above(4516) 2nd column above origin
c 42 rpp 10 40.5 492.75 523.25 391.9 432.5

c

```

c
c Location of the Surface the detector is attached to
c 14 rpp 719 722 1156.5 1200 843.3 883.9
464 14 rcc 713.3 1174.65 863.6 0 20.3 0 5.7 $F1 W wl Rm516 Placed at the NW corner
c 464 14 s 708.3 1174.65 863.6 8.66
c
c
c 14 rpp 688.5 719 1169.5 1200 843.3 883.9
c
c
c Location of the Surface the detector is attached to
c 17 rpp 1252 1422 1050.75 1053.75 843.3 883.9
465 17 rcc 1315.25 1059.45 863.6 20.3 0 0 5.7 $F1 N wl Rm115 Placed Approx. where observed
c
c 17 rpp 1300 1330.5 1053.75 1084.25 843.3 883.9
c
c Location of the Surface the detector is attached to
c 13 rpp 108 111 1033.5 1117.25 843.3 883.9
466 13 rcc 102.3 1176.5 863.6 0 20.3 0 5.7 $F1 W block wl Rm316
c 466 13 s 97.3 1179.5 863.6 8.66
c
c
c 13 rpp 77.5 108 1086.75 1117.25 843.3 883.9
c
c Location of the Surface the detector is attached to
c 15 rpp 287 405.75 199.25 204.25 843.3 883.9
467 15 rcc 390.5 209.95 863.6 20.3 0 0 5.7 $F1 N wl Rm605
c 15 rpp 375.25 405.75 204.25 234.75 843.3 883.9
c
c
c Location of the Surface the detector is attached to
c 15 rpp 360 361.5 1057.5 1217.5 843.3 883.9
468 15 rcc 367.2 1115.25 863.6 0 20.3 0 5.7 $F1 Central wl Rm603 Placed Approx. where observed
c
c 15 rpp 361.5 392 1100 1130.5 843.3 883.9
c
c
c
c
c
c
c Start of Wing Surfaces =====
c
c
c
c
c
c
c ///////////////////////////////////////////////////////////////////Begin Northwest Section of the Central Section of Basement1\\/////////////////////////////////
c *****Notes for this section of Surfaces*****
c The origin (0,0,0) was designated as the south west corner of the south westernmost pillar of
c the exploded basement drawing H-3-305009-1.DWG. This pillar is not under the yellow dashed line
c because these pillars were included in the south west Section model. Main structural wall was
c left out from this section to be included in a later model of the central basement area
c
c
c
c Basement1 Room 45
c This room contains mainly columns and is a continuation of Room45 in both the
c Southwest and Southeast sections. Room 45 is the number given to the largest room/open
c space of Basement1. Immediatly following this comment block will be the start of all of
c the columns for room 45. The first column will be the South Westernmost column from the exploded
c basement drawing. The numbering will go east from this column then return to the western edge
c once a terminating surface is encountered. The numbering will then continue with the closest northern column.
4536 46 rpp 0 10 0 10 0 432.5 $SW Column ORIGIN Designated (0,0,0) Here
4537 46 rpp 252.5 262.5 0 10 0 432.5 $Next(2nd) Column moving Eastward Rm45
4538 46 rpp 505 515 0 10 0 432.5 $3rd Column moving East Rm45
4539 46 rpp 807 817 0 10 0 432.5 $4th Column moving East Rm45
4540 46 rpp 1109 1119 0 10 0 432.5 $5th Column moving East Rm45 Farthest SE Column
4541 46 rpp 0 10 249 259 0 432.5 $West Column Above Origin(4536)
4542 46 rpp 252.5 262.5 249 259 0 432.5 $Next(2nd) Column moving Eastward Rm45
4543 46 rpp 505 515 249 259 0 432.5 $3rd Column moving East Rm45

```

4544 46 rpp 807 817 249 259 0 432.5 \$4th Column moving East Rm45
 4545 46 rpp 1109 1119 249 259 0 432.5 \$5th Column moving East Rm45
 4546 46 rpp 0 10 537 547 0 432.5 \$W Column above(4541) 2nd column above origin
 4547 46 rpp 252.5 262.5 537 547 0 432.5 \$Next(2nd) Column moving Eastward Rm45
 4548 46 rpp 505 515 537 547 0 432.5 \$3rd Column moving East Rm45
 4549 46 rpp 807 817 537 547 0 432.5 \$4th Column moving East Rm45
 4550 46 rpp 0 10 825 835 0 432.5 \$W Column above(4546) 3rd column above origin
 4551 46 rpp 252.5 262.5 825 835 0 432.5 \$Next(2nd) Column moving Eastward Rm45
 4552 46 rpp 505 515 825 835 0 432.5 \$3rd Column moving East Rm45
 4553 46 rpp 807 817 825 835 0 432.5 \$4th Column moving East Rm45
 4554 46 rpp 0 10 1077 1087 0 432.5 \$W Column above(4550) 3rd column above origin
 4555 46 rpp 252.5 262.5 1077 1087 0 432.5 \$Next(2nd) Column moving Eastward Rm45
 4556 46 rpp 390 400 1077 1087 0 432.5 \$3rd Column moving East Rm45
 4557 46 rpp 505 515 1077 1087 0 432.5 \$4th Column moving East Rm45
 4558 46 rpp 807 817 1077 1087 0 432.5 \$5th Column moving East Rm45
 c
 c
 c
 c Basement Room 55/55A/55B
 5501 46 rpp 144 152 153 189 0 432.5 \$W wall Rm55
 5502 46 box 144 189 0 44 44 0 5.657 -5.657 0 0 304.8 \$Slant W wall Rm55
 5503 46 rpp 188 385.5 225 233 0 432.5 \$NW wall Rm55
 5504 46 rpp 425.5 722 225 233 0 432.5 \$NE wall Rm55-Rm55B
 5505 46 rpp 595 599 161 225 0 432.5 \$E wall Rm55
 5506 46 rpp 595 599 43 125 0 432.5 \$SE wall Rm55
 5507 46 rpp 477 722 35 43 0 432.5 \$\$ wall Rm55-Rm55A
 5508 46 rpp 144 405 35 43 0 432.5 \$\$W wall Rm55
 5509 46 rpp 144 152 43 117 0 432.5 \$W all Rm55
 5510 46 rpp 714 722 43 125 0 432.5 \$E wall Rm55A-Rm55B
 5511 46 rpp 714 722 161 225 0 432.5 \$E wall Rm55B
 5512 46 rpp 645 714 115 119 0 432.5 \$NE Wall Rm55A
 5513 46 rpp 599 609 115 119 0 432.5 \$NW wall Rm55A
 5514 46 rpp 191.5 595 43 225 0 432.5 \$Roomspace 55 Partially Filled
 5515 46 rpp 599 714 43 115 0 432.5 \$Roomspace 55A
 5516 46 rpp 599 714 119 225 0 432.5 \$Roomspace 55B
 c
 c
 c
 c
 c
 c
 c Basement room 56
 5601 46 rpp 311 319 233 361 0 432.5 \$W wall Rm56
 5602 46 rpp 319 471 353 361 0 432.5 \$N wall Rm56
 5603 46 rpp 463 471 335 353 0 432.5 \$E wall Rm56
 5604 46 rpp 463 471 233 299 0 432.5 \$\$W wall Rm56
 5605 46 rpp 319 463 233 353 0 432.5 \$Roomspace 56
 c
 c
 c
 c
 c
 c
 c ///Begin North-Center Section of the Central Section of BasementI///

c *****Notes for this section of Surfaces*****
 c The origin (0,0,0) was designated as the outside south west corner of the south westernmost wall of
 c Room 91 in the exploded basement drawing H-3-305008-1.DWG.
 c
 c

c Basement1 Room 91
 9101 45 rpp 0 154.5 0 3 0 432.5 \$\$ wall Rm91
 9102 45 rpp 226.5 232 0 3 0 432.5 \$\$ small wall Rm91
 9103 45 rpp 232 246 0 227 0 432.5 \$E wall Rm91
 9104 45 rpp 95 187 329 337 0 432.5 \$N wall Rm91
 9105 45 rpp 95 103 337 339 0 432.5 \$N wall Stub Rm91
 9106 45 rpp 80.5 95 329 332 0 432.5 \$N Thin wall Rm91
 9107 45 rpp 3 8.5 329 332 0 432.5 \$NW Thin wall Rm91
 9108 45 rpp 0 3 3 332 0 432.5 \$W wall Rm91
 9109 45 rpp 3 232 3 280 0 432.5 \$Roomspace 91 Partially Filled
 c
 c

c Basement Room 93
 9301 45 rpp 246 262.5 0 15 0 432.5 \$\$W wall stub Rm93
 9302 45 rpp 244 254 -5 0 0 432.5 \$\$W wall stub Rm93

9303 45 rpp	310.5	526	0	15	0	432.5	\$\$ wall Rm93
9304 45 rpp	514	526	15	241	0	432.5	\$E wall Rm93
9305 45 rpp	524	526	241	273	0	432.5	\$E wall Rm93
9306 45 rpp	513.75	526	273	549.5	0	304.1	\$E wall Rm 93-Rm90
9307 45 rpp	355	513.75	372	384	0	304.1	\$N wall Rm93
9308 45 rpp	355	371.5	329	372	0	432.5	\$N wall Rm93
9309 45 rpp	351.5	355	329	341	0	432.5	\$N wall stub Rm93
9310 45 rpp	187	312.5	329	341	0	432.5	\$NW wall Rm93
9311 45 rpp	235	241	325	329	0	432.5	\$N Closet stub Rm93
9312 45 rpp	187	199	280	329	0	432.5	\$W Closet wall Rm93
9313 45 rpp	199	246	280	293	0	432.5	\$\$ closet Wall Rm93
9314 45 rpp	232	246	268	280	0	432.5	\$Closet wall Rm93
9315 45 rpp	246	260.5	278	295	0	432.5	\$Closet Stub Rm93
9316 45 rpp	241	246	293	295	0	432.5	\$Closet Stub Rm93
9317 45 rpp	235	241	293	297	0	432.5	\$Closet Stub Rm93
9318 45 rpp	355	373	280	296	0	432.5	\$Central Column Rm93
9319 45 rpp	246	513.75	15	278	0	432.5	\$Roomspace 93
c							
c							
c Basement1 Room 94/94A/94B							
9401 45 rpp	526	606	0	8	0	432.5	\$\$ wall Rm94
9402 45 rpp	642	662	0	8	0	432.5	\$\$ wall Rm94
9403 45 rpp	662	670	-42	133	0	432.5	\$E wall Rm94
9404 45 rpp	670	671	-5	5	0	432.5	\$\$SE Wall Stub Rm94-Rm95
9405 45 rpp	661	662	-5	0	0	432.5	\$\$SE Wall Stub Rm94-Rm95
9406 45 rpp	599.5	728.5	133	141	0	432.5	\$N wall Rm94-Rm95
9407 45 rpp	599.5	607.5	141	239	0	432.5	\$W wall
9408 45 rpp	580.75	599.5	231.5	235	0	432.5	\$\$ wall Rm94A
9409 45 rpp	526	545.75	231.5	235	0	432.5	\$\$ wall Rm94A
9410 45 rpp	526	559	275	278.5	0	432.5	\$N wall Rm94A
9411 45 rpp	592	599.5	275	278.5	0	432.5	\$N wall Rm94A
9412 45 rpp	599.5	607.5	271	369	0	432.5	\$W wall Rm94B
9413 45 rpp	526	700	369	377	0	432.5	\$N wall Rm94B
9414 45 rpp	526	662	8	133	0	432.5	\$Roomspace 94 Partially Filled
9415 45 rpp	526	599.5	278.5	369	0	432.5	\$Roomspace 94B
c							
c							
c Basement1 Room 95							
9501 45 rpp	662	670	-96	-78	0	432.5	\$\$SW wall Rm95
9502 45 rpp	670	877.5	-96	-88	0	432.5	\$\$ wall Rm95
9503 45 rpp	833.5	841.5	-88	133	0	432.5	\$E wall Rm95
9504 45 rpp	764.5	878.5	133	141	0	432.5	\$N wall Rm95
9505 45 rpp	670	833.5	-88	133	0	432.5	\$Roomspace 95
c							
c							
c Basement1 Room 96/96A							
9601 45 rpp	913.5	972	-96	-88	0	432.5	\$\$ wall Rm96
9602 45 rpp	964	972	-88	-6	0	432.5	\$E wall Rm96-Rm96a
9603 45 rpp	962	974	-6	6	0	432.5	\$Column in wall Rm96
9604 45 rpp	915.5	962	-4	4	0	432.5	\$N wall Rm96
9605 45 rpp	841.5	879.5	-4	4	0	432.5	\$N wall Rm96
9606 45 rpp	964	972	6	282	0	432.5	\$E wall Rm96-Rm96A-Rm97-Rm97A
9607 45 rpp	914.5	964	133	141	0	432.5	\$N wall Rm96A
9608 45 rpp	841.5	964	-88	-4	0	432.5	\$Roomspace 96
9609 45 rpp	841.5	964	4	133	0	432.5	\$Roomspace 96A
c							
c							
c Basement Room 97/97A							
9701 45 rpp	773	964	197.5	201.5	0	432.5	\$\$ wall Rm97A
9702 45 rpp	773	777	201.5	205.5	0	432.5	\$\$ wall stub Rm97A
9703 45 rpp	773	777	277.5	369	0	432.5	\$W wall Rm97A
9704 45 rpp	962	974	282	294	0	432.5	\$Column in E wall Rm97A
9705 45 rpp	964	972	294	377	0	432.5	\$E wall Rm97A
9706 45 rpp	771	964	369	377	0	432.5	\$N wall Rm97A
9707 45 rpp	660	672	282	294	0	432.5	\$Column Rm97
9708 45 rpp	607.5	773	141	369	0	432.5	\$Roomspace 97
9709 45 rpp	777	962	201.5	369	0	432.5	\$Roomspace 97A
c							
c							
c Basement Room 98							

9801 45 rpp 526 667.8 459 467 0 432.5 \$N wall Rm98
 9802 45 rpp 526 667.8 377 459 0 432.5 \$Roomspace 98
 c
 c
 c Basement Room 45 East Section
 4560 45 rpp 938 942 453.5 513.5 0 432.5 \$W wall Sump Rm45
 4561 45 rpp 942 998 509.5 513.5 0 432.5 \$N wall Sump Rm45
 4562 45 rpp 994 998 453.5 509.5 0 432.5 \$E wall Sump Rm45
 4563 45 rpp 942 994 453.5 457.5 0 432.5 \$\$ wall Sump Rm45
 4564 45 rpp 661 671 535 545 0 432.5 \$Column NW Rm45
 4565 45 rpp 963 973 535 545 0 432.5 \$Column NE Rm45
 4566 45 rpp 526 530.5 549.5 559.5 0 432.5 \$Stub NW Rm45
 4567 45 rpp 530.5 532 549.5 557.5 0 432.5 \$Stub NW Rm45
 4568 45 rpp 568 570 549.5 557.5 0 432.5 \$Stub N wall Rm45
 4569 45 rpp 570 1482 549.5 559.5 0 432.5 \$N wall Rm45
 c 4570 45 rpp 516 526 561.5 621.5 0 432.5 \$W wall Stairwell Rm45
 c 4571 45 rpp 526 783 611.5 621.5 0 432.5 \$N wall Stairwell Rm45
 c
 c
 c Basement Room 90/Elevator Room
 9001 45 rpp 355 367 384 446.5 0 304.1 \$W wall Rm90
 9002 45 rpp 367 513.75 384 391.5 0 304.1 \$Inside S wall Rm90
 9003 45 rpp 506.25 513.75 391.5 549.5 0 304.1 \$Inside E wall Rm90
 9004 45 rpp 372.5 506.25 542 549.5 0 304.1 \$Inside N wall Rm90
 9005 45 rpp 367 526 549.5 561.5 0 432.5 \$N outside wall Rm90
 9006 45 rpp 355 367 485.5 549.5 0 304.1 \$W wall Rm90
 9007 45 rpp 367 372.5 529 549.5 0 304.1 \$W wall Stub Rm90
 9008 45 rpp 364 367 559.5 561.5 0 432.5 \$NW wall Stub Rm90
 9009 45 rpp -879.5 367 549.5 559.5 0 432.5 \$N wall hallway Rm90-----
 9010 45 rpp 241 257 532 549.5 0 432.5 \$Stub wall Elev Rm
 9011 45 rpp 95 103 375 549.5 0 432.5 \$W wall Elevator Rm
 9012 45 rpp 145 153 379 493 0 432.5 \$W wall Elev
 9013 45 rpp 153 242 485 493 0 432.5 \$N wall Elev
 9014 45 rpp 233 242 473 485 0 432.5 \$E wall Elev
 9015 45 rpp 233 242 387 405 0 432.5 \$E wall Elev
 9016 45 rpp 153 242 379 387 0 432.5 \$\$ wall Elev
 9017 45 rpp 372.5 506.25 391.5 542 0 304.1 \$Roomspace 90 Partially Filled
 c
 c
 c
 c ///Begin Northeast Section of the Central Section of Basement1///
 c *****Notes for this section of Surfaces*****
 c The origin (0,0,0) was designated as the south west corner of the south westernmost pillar of
 c the exploded basement drawing H-3-3050010-1.DWG. This pillar is not under the yellow dashed line
 c because these pillars were included in the south east Section model.
 c
 c
 c Basement Room 45
 4575 44 rpp 0 10 0 10 0 432.5 \$\$W Column ORIGIN Designated (0,0,0) Here
 4576 44 rpp 302 312 0 10 0 432.5 \$Next(2nd) Column moving Eastward Rm45
 4577 44 rpp 603 615 -1 11 0 432.5 \$3rd Column moving East Rm45
 4578 44 rpp 856.5 865.5 249 259 0 432.5 \$Column between Rm58 and Rm54
 4579 44 rpp 856.5 865.2 537 547 0 432.5 \$Column directly N of (4504)
 4580 44 rpp 1109 1119 825 835 0 432.5 \$Column between Rm52 and Main wall
 4581 44 rpp 719 729 1077 1087 0 432.5 \$NW most Column Rm45
 4582 44 rpp 856.5 865.5 1077 1087 0 432.5 \$Next(2nd) Column moving Eastward Rm45
 4583 44 rpp 1109 1119 1077 1087 0 432.5 \$3rd Column moving East Rm45
 c
 c
 c Basement room 48
 4801 44 rpp 656.5 664.5 -202 97 0 432.5 \$W wall Rm48
 4802 44 rpp 664.5 1035 -202 -194 0 432.5 \$\$ wall Rm48
 4803 44 rpp 1071 1123.5 -202 -194 0 432.5 \$\$ wall Rm48
 4804 44 rpp 664.5 674.5 89 97 0 432.5 \$NW wall stub Rm48
 4805 44 rpp 746.5 1123.5 89 97 0 432.5 \$N wall Rm48
 4806 44 rpp 856.5 866.5 0 10 0 432.5 \$W Column Rm48
 4807 44 rpp 1109 1119 0 10 0 432.5 \$E Column Rm48
 4808 44 rpp 664.5 1123.5 -194 89 0 432.5 \$Roomspace 48 Partially Filled
 c
 c

c
c Basement Room 57/57W/57E
5701 44 rpp 1 613 66 74 0 432.5 \$\$ wall Rm57-57W-57E
5702 44 rpp 1 9 74 100 0 432.5 \$\$W wall Rm57W
5703 44 rpp 1 9 136 249 0 432.5 \$W wall Rm57W-Rm58
5704 44 rpp 9 288.9 166 170 0 432.5 \$N wall Rm57W-57
5705 44 rpp 324.9 605 166 170 0 432.5 \$N wall Rm57-57E
5706 44 rpp 453 459 114.5 166 0 432.5 \$E wall Rm57
5707 44 rpp 453 459 74 78.5 0 432.5 \$E wall Rm57
5708 44 rpp 605 613 74 100 0 432.5 \$E wall Rm57E
5709 44 rpp 141 147 74 166 0 432.5 \$E wall Rm57W
5710 44 rpp 605 613 136 199 0 432.5 \$E wall Rm57E-Rm58
5711 44 rpp 9 141 74 166 0 432.5 \$Roomspace 57W
5712 44 rpp 147 453 74 166 0 432.5 \$Roomspace 57
5713 44 rpp 459 605 74 166 0 432.5 \$Roomspace 57E
c
c
c Basement Room 58
5801 44 rpp 605 613 234.5 248 0 432.5 \$E wall Rm58
5802 44 rpp 603 615 248 260 0 432.5 \$Column in E wall Rm58
5803 44 rpp 605 613 260 362 0 432.5 \$E wall Rm58
5804 44 rpp 1 605 354 362 0 432.5 \$N wall Rm58
5805 44 rpp 1 9 320 354 0 432.5 \$W wall Rm58
5806 44 rpp 1 9 259 288 0 432.5 \$W wall Rm58
5807 44 rpp 0 10 249 259 0 432.5 \$Column in W wall Rm58
5808 44 rpp 302 312 249 259 0 432.5 \$Central Column Rm58
5809 44 rpp 10 603 170 354 0 432.5 \$Roomspace 58 Partially Filled
c
c
c Basement Room 54
5401 44 rpp 1109 1119 249 259 0 432.5 \$\$ column Rm54
5402 44 rpp 1109 1119 537 547 0 432.5 \$N column Rm54
5403 44 rpp 914 1123.5 220 228 0 432.5 \$\$ wall Rm54
5404 44 rpp 914 922 228 417 0 432.5 \$W wall Rm54
5405 44 rpp 914 922 493 634 0 432.5 \$W wall Rm54
5406 44 rpp 893.5 1123.5 634 642 0 432.5 \$N wall Rm54
5407 44 rpp 1123.5 1133.5 166.5 1101.5 0 432.5 \$Boundary wall between Northeast and East Sections
5408 44 rpp 922 1123.5 228 634 0 432.5 \$Roomspace 54
c
c
c Basement Room 52
5201 44 rpp 720 857.5 634 642 0 432.5 \$\$ wall Rm52
5202 44 rpp 720 728 642 892 0 432.5 \$W wall Rm52
5203 44 rpp 728 880 884 892 0 432.5 \$N wall Rm52
5204 44 rpp 952 1037 884 892 0 432.5 \$N wall Rm52
5205 44 rpp 1029 1037 642 884 0 432.5 \$E wall Rm52
5206 44 rpp 856.5 866.5 825 835 0 432.5 \$Column Rm52
5207 44 rpp 728 1029 642 884 0 432.5 \$Roomspace 52
c
c
c
c
c
c //Begin West Section of Surfaces for Basement1//
c *****Section NOTES*****
c SW outside corner of the southern wall of Room 23B is designated
c as (0,0,0)
c 3216 and 3217 include a doorway through the outer wall.
c
c Basement Room 23B and Room 23
2310 41 rpp 0 242 0 10 0 432.5 \$\$ wall Rm23B
2311 41 rpp 0 10 10 140.5 0 432.5 \$W wall Rm23B
2312 41 rpp 23 31 119 127 0 432.5 \$NW column Rm23B
2313 41 rpp 125.5 133.5 119 127 0 432.5 \$N(center) column Rm23B
2314 41 rpp 227.5 235.5 119 127 0 432.5 \$NE column Rm23B
2315 41 rpp -12 164.5 140.5 152.5 0 432.5 \$N Wall Rm23B
2316 41 rpp 212.5 242 140.5 152.5 0 432.5 \$NE Wall Rm23B
2317 41 rpp -12 0 152.5 415.5 0 432.5 \$W wall Rm23
2318 41 rpp 23 31 388.5 396.5 0 432.5 \$NW Column Rm23
2319 41 rpp 125.5 133.5 388.5 396.5 0 432.5 \$N(center) Column Rm23

2320 41 rpp 227.5 237.5 388.5 396.5 0 432.5 \$NE Column Rm23
 2321 41 rpp 10 242 10 140.5 0 432.5 \$Roomspace 23B
 2322 41 rpp 0 242 152.5 415.5 0 432.5 \$Roomspace 23
 c
 c
 c Basement Room 45
 4501 41 rpp -167 -159.5 427.5 435 0 432.5 \$SW Block Rm45
 4502 41 rpp -179 -167 415.5 1065.5 0 432.5 \$W wall Rm45-Rm32
 4503 41 rpp -167 -56.5 549 555 0 432.5 \$NW wall Rm45
 4504 41 rpp -62.5 -56.5 504.5 549 0 432.5 \$N wall Rm45
 4505 41 rpp -56.5 109 504.5 510.5 0 432.5 \$N wall Rm45
 4506 41 rpp -14.5 98.5 486.5 504.5 0 432.5 \$N Block Rm45
 4507 41 rpp 169 242 504.5 510.5 0 432.5 \$N wall Rm45
 4508 41 rpp -13 242 415.5 427.5 0 432.5 \$\$ Wall Rm45
 4509 41 rpp -167 -49 415.5 427.5 0 432.5 \$SW wall Rm45
 c
 c
 c Basement Room 32
 3201 41 rpp -167 -159.5 626.5 638.5 0 432.5 \$W Block Rm32
 3202 41 rpp -167 -159.5 866.5 878.5 0 432.5 \$W2 Block Rm32
 3203 41 rpp -167 -159.5 1046 1053.5 0 432.5 \$NW Block Rm32
 3204 41 rpp -167 -154 1053.5 1065.5 0 432.5 \$Frag in NW wall Rm32
 3205 41 rpp -162 -154 1065.5 1108.5 0 432.5 \$NW Indent Rm32
 3206 41 rpp -154 -116 1100.5 1108.5 0 432.5 \$NW Indent Mid Rm32
 3207 41 rpp -124 -116 1053.5 1100.5 0 432.5 \$NW Indent Rgt Rm32
 3208 41 rpp -116 242 1053.5 1065.5 0 432.5 \$N wall Rm32
 3209 41 rpp 142.5 152.5 1065.5 1151.5 0 432.5 \$NE Indent Rm32
 3210 41 rpp 152.5 190.5 1141.5 1151.5 0 432.5 \$NE Indent Rm32
 3211 41 rpp 180.5 190.5 1113.5 1141.5 0 432.5 \$NE Indent Rm32
 3212 41 rpp 190.5 242 1113.5 1123.5 0 432.5 \$NE Indent Rm32
 3213 41 rpp 225.5 237.5 734.5 746.5 0 432.5 \$E Column Rm32
 3214 41 rpp -14.5 98.5 728.5 752.5 0 432.5 \$Central "Object"Rm32
 3215 41 rpp -14.5 98.5 956.4 980.4 0 432.5 \$N Central "Object" Rm32
 3216 41 rpp 242 252 492.5 2025.5 0 432.5 \$Boundary wall for West and NorthWest sections
 3217 41 rpp 242 252 2122 2259 0 432.5 \$Boundary wall for West and NorthWest sections
 c
 c
 c
 c
 c
 c ///Begin South West Section of Surfaces for Basement1///

c *****Section NOTES*****

c This area is very open and it is difficult to distinguish which walls belong to what room
 c Origin set on the SW corner of Room 22 in the inside corner of the exterior wall

c Basemnt1 Room 22

2201 rpp 4.5 14.5 4.5 14.5 0 432.5 \$SW Column Rm22
 2202 rpp 257 267 5.5 13.5 0 432.5 \$\$ Column Rm22
 2203 rpp 509.5 519.5 4.5 14.5 0 432.5 \$\$E Column Rm22
 2204 rpp 519.5 523.5 0 279.5 0 432.5 \$E wall Rm22
 2205 rpp 509.5 519.5 269.5 277.5 0 432.5 \$E Column Rm22
 2206 rpp 257 267 269.5 277.5 0 432.5 \$N Column Rm22
 2207 rpp 0 4.5 511.5 515.5 0 432.5 \$Far NW Spur Wall betweenRm22 and Rm45
 2208 rpp 4.5 14.5 508.5 518.0 0 432.5 \$2207cont'd Rm22 and Rm45
 2209 rpp 14.5 117.5 511.5 515.5 0 432.5 \$2207cont'd Rm22 and Rm45

c
 c These surfaces will be the new Hot Cells

2230 rpp 324 402 86 188 0 156.20 \$SW Mod Cell-1 Rm22
 2231 rpp 331 409 290 392 0 156.20 \$W Mod Cell-1 Rm22A
 2232 rpp 624.5 792.5 82 178 0 156.20 \$\$ Big Cell-3 Rm30A
 2233 rpp 616.5 736.5 342.5 438.5 0 156.20 \$N Metalographycell-2 Rm31A
 2234 rpp 896.5 998.5 358.5 436.5 0 156.20 \$\$E Mod Cell-1 Rm31
 2235 rpp 943 1021 597.5 699.5 0 156.20 \$NE Mod Cell-1 Rm33

c rpp 0 432.5 \$
 c rpp 0 432.5 \$
 c rpp 0 432.5 \$
 c rpp 0 432.5 \$
 c rpp 0 432.5 \$

c

c
c Basement Room 22A
2210 rpp 155 160.5 363.5 511.5 0 432.5 \$W wall Rm22a
2211 rpp 153.5 257 511.5 515.5 0 432.5 \$N wall Rm22a
2212 rpp 257 267 509.5 517.5 0 432.5 \$Column in N wall Rm22a
2213 rpp 267 509.5 511.5 515.5 0 432.5 \$N wall Rm22a
2214 rpp 509.5 519.5 509.5 517.5 0 432.5 \$Column in N wall Rm22a
2215 rpp 519.5 811.5 511.5 515.5 0 432.5 \$N wall Rm22a-Rm31a
2216 rpp 524.5 528.5 351.5 511.5 0 432.5 \$E wall Rm22a
2217 rpp 478.25 524.5 356 359 0 432.5 \$SE wall Rm22a
c 2218 rpp 279.25 443.25 356 359 0 432.5 \$\$W Wall Rm22a
2219 rpp -10 0 0 287.5 0 432.5 \$Boundary wall between West and Southwest Sections
2220 rpp -10 0 359.5 564 0 432.5 \$Boundary wall between West and Southwest Sections
2221 rpp -10 1187.5 -10 0 0 432.5 \$Boundary wall between West and Southeast Sections
2222 rpp 160.5 524.5 359 511.5 0 432.5 \$Roomspace 22A Partially Filled
c
c
c Basement Room 23A
2301 rpp 0 161 130 135.5 0 432.5 \$\$ wall Rm23a
2302 rpp 155.5 161 135.5 284.5 0 432.5 \$E wall Rm23a
2303 rpp 61 155.5 279 284.5 0 432.5 \$NE wall Rm23a
2304 rpp 0 26 279 284.5 0 432.5 \$NW wall Rm23a
2305 rpp 5 14.5 268.5 278.5 0 432.5 \$NW Column Rm23a
2306 rpp 0 155.5 135.5 279 0 432.5 \$Roomspace 23A
c
c
c Basement Room 30A
3001 rpp 523.5 576.25 237.75 242.75 0 432.5 \$NW wall Rm30a
3002 rpp 611.25 1118.5 237.75 242.75 0 432.5 \$NE wall Rm30a
3003 rpp 1113.5 1118.5 158.5 237.75 0 432.5 \$SE wall Rm30a
3004 rpp 1113.5 1118.5 13.5 86.5 0 432.5 \$SE wall Rm30a
3005 rpp 1113.5 1123.5 5.5 13.5 0 432.5 \$SE Column Rm30a
3006 rpp 811.5 821.5 4.5 14.5 0 432.5 \$\$ Column Rm30a
3007 rpp 523.5 1113.5 0 237.75 0 432.5 \$Roomspace 30A
c
c
c Basement Room 31/31A
c 3101 rpp 528.5 818.25 358 363 0 432.5 \$\$ wall Rm31
3102 rpp 806.75 811.75 363.5 402.75 0 432.5 \$E wall Rm31
3103 rpp 806.75 811.75 438.75 508.5 0 432.5 \$E wall Rm31 major wall
3104 rpp 806.75 811.5 508.5 511.5 0 432.5 \$E wall Rm31(Small piece atop major wall)
c 3105 rpp 854.25 1041 358 363 0 432.5 \$\$ wall Rm31a
3106 rpp 1037 1041 363 509.5 0 432.5 \$E wall Rm31a
3107 rpp 821.5 1123.5 509.5 517.5 0 432.5 \$N wall Rm31a
3108 rpp 811.5 821.5 508.5 518.5 0 432.5 \$NW Column in N wall Rm31A
3109 rpp 528.5 806.75 363 511.5 0 432.5 \$Roomspace 31A
3110 rpp 811.75 1037 363 509.5 0 432.5 \$Roomspace 31 Partially Filled
c
c
c Basement Room 33
3301 rpp 812.5 820.5 518.5 748.5 0 432.5 \$W wall Rm33
3302 rpp 811.5 821.5 748.5 758.5 0 432.5 \$NW wall Rm33
3303 rpp 821.5 1140 749.5 757.5 0 432.5 \$N wall Rm33
3304 rpp 1117 1121 608 749.5 0 432.5 \$E wall Rm33
3305 rpp 1117 1121 517.5 548 0 432.5 \$SE wall Rm33
3306 rpp 820.5 1117 517.5 749.5 0 432.5 \$Roomspace 33
c
c
c Basement Room 45
4584 rpp 4.5 14.5 748.5 758.5 0 432.5 \$W Column Rm45
4585 rpp 257 267 749.5 757.5 0 432.5 \$W Central Column Rm45
4586 rpp 509.5 519.5 749.5 757.5 0 432.5 \$E Central Column Rm45
4587 rpp 4.5 14.5 988.5 998.5 0 432.5 \$NW Column Rm45 ON BORDER OF SECTION
4588 rpp 257 267 988.5 998.5 0 432.5 \$NW Column Rm45 ON BORDER OF SECTION
4589 rpp 509.5 519.5 988.5 998.5 0 432.5 \$N Column Rm45 ON BORDER OF SECTION
4590 rpp 811.5 821.5 988.5 998.5 0 432.5 \$NE Column Rm45 ON BORDER OF SECTION
4591 rpp 1113.5 1123.5 988.5 998.5 0 432.5 \$NE Column Rm45 ON BORDER OF SECTION
4592 rpp 811.5 821.5 268.5 278.5 0 432.5 \$W Central Column between Rm31 and Rm30
4593 rpp 1113.5 1123.5 269.5 277.5 0 432.5 \$E Central Column between Rm31 and Rm30
c

c
c
c
c
c ///Begin South East Section of the Central Section of Basement1//
c *****Notes for this section of Surfaces*****
c SW Column Located at the Origin (0,0,0) Rm45
c
c Basement1 Room 45
c This room contains mainly columns. The SE corner has a wall that does
c not appear in the other sections so I will include it in this section to be safe.
c Surface numbers are continued from the SW basement1 section which also contains Room 45.
4511 42 rpp 0 10 0 8 0 432.5 \$SW Column Located at the Origin (0,0,0) Rm45
4512 42 rpp 302 312 -1 9 0 432.5 \$Next(2nd) Column moving Eastward Rm45
4513 42 rpp 604 614 -1 9 0 432.5 \$3rd Column moving East Rm45
4514 42 rpp 856.5 866.5 0 8 0 432.5 \$4th Column moving East Rm45
4515 42 rpp 1109 1119 -1 9 0 432.5 \$5th Column moving East Rm45 Farthest SE Column
4516 42 rpp 0 10 264 272 0 432.5 \$West Column Above Origin(4511)
4517 42 rpp 302 312 263 273 0 432.5 \$Next(2nd) Column moving Eastward Rm45
4518 42 rpp 604 614 264 272 0 432.5 \$3rd Column moving East Rm45
4519 42 rpp 856.5 865.5 264 272 0 432.5 \$4th Column moving East Rm45
4520 42 rpp 1109 1119 263 273 0 432.5 \$5th Column moving East Rm45
4521 42 rpp 0 10 504 512 0 432.5 \$W Column above(4516) 2nd column above origin
4522 42 rpp 856.5 865.5 504 512 0 432.5 \$Technically the 4th Column moving E
4523 42 rpp 1109 1119 503 513 0 432.5 \$Tech. 5th Column moving E
4524 42 rpp 0 10 983 993 0 432.5 \$W Column above(4521) 3rd up from origin on Border of section
4525 42 rpp 302 312 983 993 0 432.5 \$Next(2nd) Column moving E
4526 42 rpp 604 614 983 993 0 432.5 \$3rd Column moving E
4527 42 rpp 856.5 866.5 983 993 0 432.5 \$4th Column moving E
4528 42 rpp 1109 1119 983 992 0 432.5 \$5th Col moving E, Omitted small piece <-----Check for accuracy after
translation
4529 42 rpp 612 886.5 -15.5 -5.5 0 432.5 \$SE Wall Rm45
4530 42 rpp 886.5 904.5 -15.5 5.5 0 432.5 \$Column at end of (4529) wall Rm45
4531 42 rpp 1024.5 1042.5 -15.5 5.5 0 432.5 \$Column at start of (4533)
4532 42 rpp 1042.5 1061 -15.5 -5.5 0 432.5 \$SE Stub wall Rm45
4533 42 rpp 1097 1123.5 -15.5 -5.5 0 432.5 \$SE wall Rm45
4534 42 rpp 1063 1123.5 58 130 0 432.5 \$Large Block SE Corner Rm45
c 4535 42 rpp 1063 1109 130 348 0 432.5 \$Second Large Block SE Corner Rm45
c
c
c Basement Room 34
3401 42 rpp -16.5 302 744 752 0 432.5 \$N wall Rm34
3402 42 rpp 302 312 743 753 0 432.5 \$Column in N wall Rm34
3403 42 rpp 312 618.5 744 752 0 432.5 \$N wall cont'd Rm34
3404 42 rpp 597.5 610.5 576.25 744 0 432.5 \$E wall Rm34
3405 42 rpp 0 597.5 592.25 596.25 0 432.5 \$S wall Rm34
3406 42 rpp 0 5 596.25 652 0 432.5 \$W wall Rm34
3407 42 rpp 0 5 724 744 0 432.5 \$W wall Rm34
3408 42 rpp 5 597.5 596.25 744 0 432.5 \$Roomspace 34
c
c
c Basement Room 35
3501 42 rpp 94.5 99.5 475 592.25 0 432.5 \$W wall Rm35
3502 42 rpp 99.5 220 475 478 0 432.5 \$\$ wall Rm35
3503 42 rpp 292 597.5 475 478 0 432.5 \$SE wall Rm35-Rm36
3504 42 rpp 304.5 309.5 478 503 0 432.5 \$E wall Rm35
3505 42 rpp 302 312 503 513 0 432.5 \$Column in E wall Rm35
3506 42 rpp 304.5 309.5 513 540.3 0 432.5 \$E wall Rm35
3507 42 rpp 304.5 309.5 576.3 592.25 0 432.5 \$E wall Rm35
3508 42 rpp 99.5 304.5 478 592.25 0 432.5 \$Roomspace 35 Partially Filled
c
c
c
c Basement Room 36
3601 42 rpp 597.5 610.5 475 540.5 0 432.5 \$SE wall Rm36
3602 42 rpp 610.5 614 504 512 0 432.5 \$Portion of column in SE wall Rm36
3603 42 rpp 309.5 597.5 478 592.25 0 432.5 \$Roomspace 36
c
c
c
c Basement Room 46
4601 42 rpp 602.5 615 303 475 0 167.6 \$W wall Rm46

4602 42 rpp 615 855.5 303 315.5 0 167.6 \$\$ wall Rm46
 4603 42 rpp 856 867.5 303 475 0 167.6 \$E wall Rm46
 4604 42 rpp 615 855.5 463 475 0 167.6 \$N wall Rm46
 4605 42 rpp 615 855.5 315.5 463 0 167.6 \$Roomspace 46 Empty
 c
 c
 c Basement Room 43 and Room44
 4301 42 rpp 956 1123.5 970 973 0 432.5 \$N wall Rm43a
 4302 42 rpp 956 959 785.25 970 0 432.5 \$W wall Rm43a
 4303 42 rpp 871.5 989 782.25 785.25 0 432.5 \$N Wall Rm43-Rm44
 4304 42 rpp 986 989 700 782.25 0 432.5 \$W wall Rm43a
 4305 42 rpp 1070 1123.5 579 582 0 432.5 \$\$ wall Rm43a
 4306 42 rpp 962 1034 579 582 0 432.5 \$\$ wall Rm43a
 4307 42 rpp 962 965 582 661.5 0 432.5 \$W bottom wall Rm43a
 4308 42 rpp 1109 1119 743 753 0 432.5 \$Column Rm43
 4309 42 rpp 871.5 962 658.5 661.5 0 432.5 \$\$ wall Rm43
 4310 42 rpp 871.5 874.5 661.5 671 0 432.5 \$\$W wall Rm43
 4311 42 rpp 871.5 874.5 707 782.25 0 432.5 \$NW wall Rm43
 4312 42 rpp 714.5 867.5 744 752 0 432.5 \$\$ wall Rm44 <---Chain link omitted
 4313 42 rpp 874.5 986 661.5 782.25 0 432.5 \$Roomspace 43
 4314 42 rpp 959 1123.5 785.25 970 0 432.5 \$Roomspace 43A
 4315 42 rpp 725.5 956 785.25 973 0 432.5 \$Roomspace 44
 c
 c

c Modular Shielded Storage Container E of Tank Vault
 4610 42 rpp 1004.5 1087.5 314 462 0 226 \$Outer Box
 4611 42 rpp 1012.5 1079.5 322 454 8 218 \$Inner void
 c

c Modular Shielded Storage Container W of Tank Vault
 4612 42 rpp 406 489 280 428 0 226 \$Outer Box
 4613 42 rpp 414 481 288 420 8 218 \$Inner void
 c

c //Begin East Section of Surfaces for Basement1//
 c *****Section NOTES*****

c The origin was located at the SW corner of Room 40 on the inside edge of the
 c inresection of the bordering walls. The origin lies underneath the yellow dashed line. If
 c using Turbo Cad, right click white space, select the arrow then click the yellow line. When the
 c yellow line highlights push delete, problem solved. Note to self or the QA, I rule.
 c

c Basement1 Room 40/40A/40C
 4001 43 rpp 0 540.5 -10 0 0 432.5 \$\$ wall Rm40C
 4002 43 rpp -10 0 -10 57.5 0 432.5 \$\$W spur wall Rm40
 4003 43 rpp 185.5 189.5 0 56 0 432.5 \$\$ spur wall Rm40C
 4004 43 rpp 322.5 356.5 0 9.5 0 432.5 \$\$ Block
 4005 43 rpp 540.5 569.5 -10 9.5 0 432.5 \$\$SE Corner Block Rm40C
 4006 43 rpp 559.5 569.5 9.5 1058.5 0 432.5 \$E wall Rm40C-Basin-40A-40B-50A
 4007 43 rpp 185.5 189.5 128 321.5 0 432.5 \$W wall Rm40C
 4008 43 rpp 189.5 200.5 183.5 197.5 0 432.5 \$Block in W wall Rm40C
 4009 43 rpp 315.5 329.5 183.5 197.5 0 432.5 \$Column Center Rm40C
 4010 43 rpp 540.5 559.5 181 195 0 432.5 \$\$SE Block E wall Rm40C
 4011 43 rpp 540.5 559.5 258 272 0 432.5 \$\$NE Block E wall Rm40C
 4012 43 rpp 185.5 356.5 321.5 369.5 0 432.5 \$N Thick wall Rm40C
 4013 43 rpp 320.5 356.5 369.5 699.5 0 432.5 \$N wall Rm40C-Basin-40A
 4014 43 rpp 356.5 559.5 380 390 0 432.5 \$N wall Rm40C
 4015 43 rpp 12.5 24.5 183.5 197.5 0 432.5 \$\$SW Column Rm40
 4016 43 rpp 12.5 24.5 340.5 352.5 0 432.5 \$\$W1 Column Rm40
 4017 43 rpp 16.5 28.5 491.5 503.5 0 432.5 \$\$W2 Column Rm40
 4018 43 rpp 0 52 507.5 517.5 0 432.5 \$W wall Rm40
 4019 43 rpp 42 52 517.5 663.5 0 432.5 \$W wall Rm40
 4020 43 rpp 0 42 609.5 617.5 0 432.5 \$W wall NStairs Rm40
 4021 43 rpp 60.5 72.5 617.5 629.5 0 432.5 \$NW Column Rm40
 4022 43 rpp 0 42 653.5 663.5 0 432.5 \$W wall above stairs2 wall Rm40
 4023 43 rpp 42 52 663.5 809.5 0 432.5 \$W wall cont Rm40
 4024 43 rpp 0 101 809.5 819.5 0 432.5 \$W wall above stairs3 Rm40

4025 43 rpp 93.5 98.5 819.5 885.5 0 432.5 \$NW wall by Ramp Rm40
 4026 43 rpp 98.5 356.5 880.5 885.5 0 432.5 \$N wall above Ramp Rm40<<<<<----Check This In Real World
 4027 43 rpp 163 356.5 819.5 826.5 0 432.5 \$N wall below Ramp Rm40<<<<<----Check This In Real World
 4028 43 rpp 163 559.5 809.5 819.5 0 432.5 \$N wall Rm40-Rm40A
 4029 43 rpp 185.5 233.5 411.5 809.5 0 432.5 \$W Thick wall Rm40
 4030 43 rpp 233.5 356.5 772 809.5 0 432.5 \$NW Thick wall in Rm40A
 4031 43 rpp 356.5 559.5 689.5 699.5 0 432.5 \$\$ wall Rm40A
 4032 43 rpp 540.5 559.5 740.5 754.5 0 432.5 \$Block in E wall Rm40A
 4033 43 rpp 465.5 559.5 610.5 620.5 0 432.5 \$N Basin Wall
 4034 43 rpp 450.5 465.5 504.5 620.5 0 432.5 \$W Basin Wall
 4035 43 rpp 465.5 475.5 514.5 610.5 0 432.5 \$W inside Basin Wall
 4036 43 rpp 465.5 559.5 504.5 514.5 0 432.5 \$\$ Basin Wall
 4037 43 rpp 540.5 559.5 500.5 504.5 0 432.5 \$\$ Basin protrusion
 4045 43 rpp 189.5 540.5 9.5 321.5 0 432.5 \$Roomspace 40C Partially Filled
 4046 43 rpp 356.5 559.5 699.5 809.5 0 432.5 \$Roomspace 40A<-----Discontinuous Surface #'s because of Room 40B

c
 c

c Basement Room 40B

4038 43 rpp 162.5 559.5 990 1000 0 432.5 \$N wall Rm40B
 4039 43 rpp 0 122.5 990 1000 0 432.5 \$NW wall Rm40B
 4040 43 rpp 540.5 559.5 980.5 990 0 432.5 \$NE Block wall Rm40B
 4041 43 rpp 322.5 356.5 980.5 990 0 432.5 \$N Block wall Rm40B
 4042 43 rpp -10 0 129.5 523.5 0 432.5 \$Boundary wall for SE and E sections
 4043 43 rpp -10 0 559.5 1401 0 432.5 \$Boundary wall for SE and E sections
 4044 43 rpp 0 559.5 885.5 990 0 432.5 \$Roomspace 40B

c
 c

c Basement Room 50/50A

5001 43 rpp 343.5 351.5 1000 1311.5 0 432.5 \$E wall Rm50
 5002 43 rpp 343.5 351.5 1347.5 1539.5 0 432.5 \$E wall Rm50
 5003 43 rpp 0 569.5 1539.5 1551.5 0 432.5 \$N wall Rm50-Rm50A
 5004 43 rpp 19 27 1045.5 1053.5 0 432.5 \$\$W Column Rm50
 5005 43 rpp 185 195.5 1044.5 1054.5 0 432.5 \$\$ Column Rm50
 5006 43 rpp 331.5 343.5 1043 1056 0 432.5 \$\$E Column Rm50
 5007 43 rpp 351.5 352.25 1043 1056 0 432.5 \$Very Small edge of column SE Rm50A
 5008 43 rpp 19 27 1283.5 1291.5 0 432.5 \$\$W Column Rm50
 5009 43 rpp 185 195 1282.5 1292.5 0 432.5 \$Center Column Rm50
 5010 43 rpp 331.5 341.5 1282.5 1292.5 0 432.5 \$E Column Rm50
 5011 43 rpp 17 25 1517.5 1525.5 0 432.5 \$NW Column Rm50
 5012 43 rpp 186 194 1517.5 1525.5 0 432.5 \$N Column Rm50
 5013 43 rpp 331.5 343.5 1521.5 1539.5 0 432.5 \$NE Column Rm50
 5014 43 rpp 533.5 559 1042.5 1058.5 0 432.5 \$\$SE Protrusion Rm50A
 5015 43 rpp 545.5 553.5 1058.5 1279.5 0 432.5 \$E wall Rm50A
 5016 43 rpp 533.5 569.5 1279.5 1295.5 0 432.5 \$E Block in wall Rm50A
 5017 43 rpp 545.5 553.5 1295.5 1528.5 0 432.5 \$NE wall Rm50A
 5018 43 rpp 533.5 569.5 1528.5 1539.5 0 432.5 \$NE Block in wall Rm50A
 5019 43 rpp 0 343.5 1055 1539.5 0 432.5 \$Roomspace 50
 5020 43 rpp 351.5 545.5 1000 1539.5 0 432.5 \$Roomspace 50A

c
 c

c Basement1 Vaults A, B, and C

c Designated as a continuation of the 5000 series

c *****This Section is INCOMPLETE*****

c 5019 rpp 569.5 623.5 747.5 1539.5 0 442 \$Pipe Trench
 c 5020 rpp 623.5 1035.5 1000 1539.5 0 442 \$Vault Room

c
 c
 c
 c
 c
 c

c //////////////Begin South Section of BasementI\\\\\\\\\\\\\\\\\\

c *****Section NOTES*****

c The Southwest inside corner of the inside wall of room 7 was designated as the
 c origin (0,0,0) This is the only section where the CAD measurements did not come
 c out to quarter centimeter increments(.25, .5, .75, .00). The CAD measurements for
 c this section instead came out to Tenths of Centimeters(.10, .20, .30, etc..). -koo koo ka chew

c
 c

c Basement1 Room 7

701 47 rpp	-4.8	0	-4	805.5	152.4	432.5	\$West wall Rm7-Rm17
702 47 rpp	0	147.5	146	152	152.4	432.5	\$N wall
703 47 rpp	141.5	147.5	152	198.25	152.4	432.5	\$N wall
704 47 rpp	147.5	203.5	192.25	198.25	152.4	432.5	\$N wall
705 47 rpp	203.5	208.5	180.5	241.75	152.4	432.5	\$NE wall Rm7-Rm9
706 47 rpp	203.5	208.5	-4	144.5	152.4	432.5	\$E wall Rm7
707 47 rpp	0	203.5	-4	0	152.4	432.5	\$S wall Rm7
708 47 rpp	-12.8	-4.8	-25.5	867.5	152.4	432.5	\$W Main Structural Wall South Section Basement1
709 47 rpp	-4.8	8.7	-17.5	-4	152.4	432.5	\$Block1 in SW corner Main wall
710 47 rpp	-4.8	220.7	-25.5	-17.5	152.4	432.5	\$SW Main Structural Wall South Section Basement1
711 47 rpp	94.7	106.7	-17.5	-4	152.4	432.5	\$Block2 in main Wall
712 47 rpp	195.7	207.7	-17.5	-4	152.4	432.5	\$Block3 in main Wall
713 47 rpp	258.7	1335.2	-25.5	-17.5	152.4	432.5	\$S Main Structural Wall South Section Basement1
714 47 rpp	292.7	307.7	-17.5	-4	152.4	432.5	\$Block4 in main Wall
715 47 rpp	396.7	408.7	-17.5	-4	152.4	432.5	\$Block5 in main Wall
716 47 rpp	496.7	508.7	-17.5	-4	152.4	432.5	\$Block6 in main Wall
717 47 rpp	597.7	609.7	-17.5	-4	152.4	432.5	\$Block7 in main Wall
718 47 rpp	712.7	719.2	-17.5	-4	152.4	432.5	\$Block8 in main Wall
719 47 rpp	813.7	825.7	-17.5	-4	152.4	432.5	\$Block9 in main Wall
720 47 rpp	913.7	925.7	-17.5	-4	152.4	432.5	\$Block10 in main Wall
721 47 rpp	1115.7	1127.7	-17.5	-4	152.4	432.5	\$Block11 in main Wall
722 47 rpp	1215.7	1227.7	-17.5	-4	152.4	432.5	\$Block12 in main Wall
723 47 rpp	1313.7	1327.2	-17.5	-4	152.4	432.5	\$Block13 in main Wall
724 47 rpp	1327.2	1335.2	-17.5	867.5	152.4	432.5	\$E Main Structural Wall South Section Basement1
725 47 rpp	0	203.5	0	146	152.4	432.5	\$Roomspace 7

c

c

c Basement1 Room 9

901 47 rpp	0	9.75	279	300	152.4	432.5	\$pillar NW corner
902 47 rpp	9.75	203.5	287	292	152.4	432.5	\$N Wall Rm13
903 47 rpp	203.5	208.5	277.75	389.75	152.4	432.5	\$E wall through Rm09
904 47 rpp	0	141.5	152	287	152.4	432.5	\$Roomspace 9 Partially Filled

c

c

c Basement1 Room 11

1101 47 rpp	203.5	208.5	425.75	447.4	152.4	432.5	\$E wall Rm9-Rm11
1102 47 rpp	0	203.5	434.5	439.5	152.4	432.5	\$N wall Rm11
1103 47 rpp	0	203.5	292	434.5	152.4	432.5	\$Roomspace 11 Partially Filled

c

c

c Basement1 Room 13

1301 47 rpp	203.5	208.5	483.4	597.4	152.4	432.5	\$E wall Rm13
1302 47 rpp	0	9.75	576.5	598	152.4	432.5	\$pillar NW corner Rm13
1303 47 rpp	9.75	203.5	584.5	589.5	152.4	432.5	\$N wall Rm13
1304 47 rpp	0	203.5	439.5	584.5	152.4	432.5	\$Roomspace 13 Partially Filled

c

c

c Basement1 Room 15

1501 47 rpp	203.8	208.5	633.4	706.4	152.4	432.5	\$E wall Rm15-Rm17
1502 47 rpp	0	203.5	692.5	697.5	152.4	432.5	\$N wall Rm15
1503 47 rpp	0	203.5	589.5	692.5	152.4	432.5	\$Roomspace 15 Partially Filled

c

c

c Basement1 Room 17

1701 47 rpp	0	208.5	800.5	805.5	152.4	432.5	\$N wall Rm17
1702 47 rpp	203.5	208.5	742.4	800.5	152.4	432.5	\$E wall Rm17
1703 47 rpp	208.5	228	767.4	772.4	152.4	432.5	\$E Stub wall Rm17
1704 47 rpp	0	203.5	697.5	800.5	152.4	432.5	\$Roomspace 17

c

c

c Basement1 Room 16

1601 47 rpp	292.7	298.7	-4	178	152.4	432.5	\$W wall Rm16
1602 47 rpp	298.7	318.7	173	178	152.4	432.5	\$N stub wall rm16
1603 47 rpp	354.7	558.7	173	178	152.4	432.5	\$N wall Rm16-Rm18
1604 47 rpp	447.2	452.2	0	173	152.4	432.5	\$E wall Rm16
1605 47 rpp	298.7	600.2	-4	0	152.4	432.5	\$South Wall Rm16-Rm18
1606 47 rpp	298.7	447.2	1	173	152.4	432.5	\$Roomspace 16

c

c

c Basement1 Room 18
1801 47 rpp 594.7 613.7 173 178 152.4 432.5 \$N Stub wall Rm18
1802 47 rpp 600.2 604.2 -4 173 152.4 432.5 \$E wall Rm18
1803 47 rpp 452.2 600.2 1 173 152.4 432.5 \$Roomspace 18
c
c
c Basement1 Room 20
2001 47 rpp 714.2 719.2 -4 173 152.4 432.5 \$E wall Rm20
2002 47 rpp 694 714.2 153.5 173 152.4 432.5 \$NE Box Rm20
2003 47 rpp 652.7 762.2 173 178 152.4 432.5 \$N wall Rm20-LRm
2010 47 rpp 604.2 714.2 -4 173 152.4 432.5 \$Roomspace 20 Partially Filled
c
c
c Basement1 Lunch Room
2004 47 rpp 762.2 873.7 173 174 152.4 432.5 \$N Thin LR wall
2005 47 rpp 909.7 916.7 173 174 152.4 432.5 \$N Thin LR wall
2006 47 rpp 916.7 929.7 173 178 152.4 432.5 \$NE Block LR
2007 47 rpp 917.2 922.2 -4 173 152.4 432.5 \$E wall LR
2008 47 rpp 749.2 917.2 -5 4.5 152.4 432.5 \$\$ wall LR
2009 47 rpp 719.2 749.2 -17.5 4.5 152.4 432.5 \$\$SW Block LR
2011 47 rpp 719.2 917.2 4.5 173 152.4 432.5 \$Roomspace Lunch Room
c
c
c Basement1 Room 26
2601 47 rpp 965.7 1058.7 173 178 152.4 432.5 \$N wall Rm26
2602 47 rpp 1047.7 1052.7 1.5 173 152.4 432.5 \$E wal Rm26
2603 47 rpp 922.2 1047.7 1.5 173 152.4 432.5 \$Roomspace 26
c
c
c Basement1 Room 28 <<<<Not Defining Southwall>>>>
2801 47 rpp 1114.7 1324 157 162 152.4 432.5 \$N wall Rm28
2802 47 rpp 1114.7 1119.7 162 239.5 152.4 432.5 \$N Stub wall Rm28
2803 47 rpp 1094.7 1114.7 173 178 152.4 432.5 \$N per. wall Rm28
2804 47 rpp 1052.7 1315.2 1.5 157 152.4 432.5 \$Roomspace 28 Partially Filled
c
c
c Basement1 Room 70
7001 47 rpp 1114.7 1119.7 275.5 296.5 152.4 432.5 \$NW wall Rm70
7002 47 rpp 1119.7 1310.4 283.7 289.7 152.4 432.5 \$N wall Rm70
7003 47 rpp 1310.4 1324 271.2 305.2 152.4 432.5 \$NE Block Rm70
7004 47 rpp 1324 1327.2 162 797.75 152.4 432.5 \$E Inside wall Rm70-72-74-76-78
7005 47 rpp 1119.7 1324 162 283.7 152.4 432.5 \$Roomspace 70 Partially Filled
c
c
c Basement1 Room 72
7201 47 rpp 1114.7 1119.7 332.5 539.5 152.4 432.5 \$W wall Rm72-Rm74
7202 47 rpp 1119.7 1324 434.5 439.5 152.4 432.5 \$N wall Rm72
7203 47 rpp 1119.7 1324 289.7 434.5 152.4 432.5 \$Roomspace 72 Partially Filled
c
c
c Basement1 Room 74
7401 47 rpp 1114.7 1119.7 575.5 597.5 152.4 432.5 \$NW Stub wall Rm74
7402 47 rpp 1119.7 1310.4 584.5 589.5 152.4 432.5 \$N wall Rm74
7403 47 rpp 1310.4 1324 572 603 152.4 432.5 \$NE Block Rm74
7404 47 rpp 1119.7 1324 439.5 584.5 152.4 432.5 \$Roomspace 74 Partially Filled
c
c
c Basement1 Room 76
7601 47 rpp 1114.7 1119.7 633.5 728 152.4 432.5 \$W wall Rm76
7602 47 rpp 1119.7 1324 714.5 719.5 152.4 432.5 \$N wall Rm76
7603 47 rpp 1119.7 1324 589.5 714.5 152.4 432.5 \$Roomspace 76 Partially Filled
c
c
c Basement1 Room 78
7801 47 rpp 1114.7 1119.7 764 805.5 152.4 432.5 \$W wall Rm78
7802 47 rpp 1119.7 1327.2 797.75 805.5 152.4 432.5 \$N wall Rm78
7803 47 rpp 1107.5 1114.7 767.5 772.5 152.4 432.5 \$W walstub Rm78ish
7804 47 rpp 1119.7 1324 719.5 797.75 152.4 432.5 \$Roomspace 78
c
c

c Basement1 Room 14										
1401 47 rpp	263.75	270.75	767.4	772.4	152.4	432.5	\$Wstub wall Rm14			
1402 47 rpp	270.75	275.75	755	805.5	152.4	432.5	\$W wall Rm14			
1403 47 rpp	275.75	757.7	800.5	805.5	152.4	432.5	\$N wall Rm14-Rm27-Rm5			
1404 47 rpp	438.5	448.2	589.5	800.5	152.4	432.5	\$E wall Rm14-Rm12			
1405 47 rpp	275.75	438.5	704	709	152.4	432.5	\$S wall Rm14			
1406 47 rpp	270.75	275.75	633.75	719	152.4	432.5	\$W wall Rm14-12			
1407 47 rpp	275.75	438.5	709	800.5	152.4	432.5	\$Roomspace 14			
c										
c										
c Basement1 Room 12										
1201 47 rpp	270.75	275.75	573.5	597.8	152.4	432.5	\$W wall Rm12-Rm10			
1202 47 rpp	275.75	293.75	584.5	589.5	152.4	432.5	\$SW wall Rm12			
1203 47 rpp	293.75	309.75	578.5	594.5	152.4	432.5	\$SW Block Rm12			
1204 47 rpp	309.75	602.7	584.5	589.5	152.4	432.5	\$S wall Rm12-Rm25			
1205 47 rpp	275.75	438.5	589.5	704	152.4	432.5	\$Roomspace 12 Partially Filled			
c										
c										
c Basement1 Room 10										
1001 47 rpp	449	457.2	482	584.5	152.4	432.5	\$E wall Rm10			
1002 47 rpp	449	456.2	457.5	482	152.4	432.5	\$E wall Rm10			
1003 47 rpp	275.75	449	457.5	462.5	152.4	432.5	\$S wall Rm10			
1004 47 rpp	270.75	275.75	454.5	537.5	152.4	432.5	\$W wall Rm10			
1005 47 rpp	275.75	449	462.5	584.5	152.4	432.5	\$Roomspace 10 Partially Filled			
c										
c										
c Basement1 Room 27										
2701 47 rpp	602.7	607.7	656	800.5	152.4	432.5	\$E wall Rm27			
2702 47 rpp	602.7	607.7	535	620	152.4	432.5	\$E wall Rm27-Rm25			
2703 47 rpp	448.2	602.7	589.5	800.5	152.4	432.5	\$Roomspace 27			
c										
c										
c Basement1 Room 25										
2501 47 rpp	457.2	540.7	482	487.5	152.4	432.5	\$S wall Rm25			
2502 47 rpp	535.7	540.7	457.5	482	152.4	432.5	\$S wall Rm25			
2503 47 rpp	540.7	602.7	457.5	462.5	152.4	432.5	\$S wall Rm25			
2504 47 rpp	602.7	607.7	323	487.5	152.4	432.5	\$E wall Rm25-Rm8			
2505 47 rpp	457.2	602.7	487.5	584.5	152.4	432.5	\$Roomspace 25 Partially Filled			
c										
c										
c Basement1 Room 8										
801 47 rpp	564.5	607.7	250.5	323	152.4	432.5	\$SE Block Rm8			
802 47 rpp	270.75	275.75	291	418.5	152.4	432.5	\$W wall Rm8			
803 47 rpp	315.7	564.5	294	299	152.4	432.5	\$S wall Rm8			
804 47 rpp	292.75	315.7	250.5	299	152.4	432.5	\$SW Block Rm8			
805 47 rpp	275.75	292.75	291	299	152.4	432.5	\$SW wall Rm8			
806 47 rpp	315.7	564.5	274.5	279.5	152.4	432.5	\$S wall Rm8			
807 47 rpp	275.75	602.7	323	457.5	152.4	432.5	\$Roomspace 8 Partially Filled			
c										
c										
c Basement1 Room 5										
501 47 rpp	793.5	1024	800.5	805.5	152.4	432.5	\$N wall Rm5			
502 47 rpp	1019	1024	595	800.5	152.4	432.5	\$E wall Rm5			
503 47 rpp	1024	1071.7	767.5	772.5	152.4	432.5	\$E wall Rm5hall			
504 47 rpp	1012.7	1028.7	579	595	152.4	432.5	\$Column in East wall Rm5			
505 47 rpp	1019	1024	295	579	152.4	432.5	\$E wall Rm5			
506 47 rpp	1012.7	1028.7	279	295	152.4	432.5	\$S Column in East wall Rm5			
507 47 rpp	1019	1024	250.5	279	152.4	432.5	\$SE wall Rm5			
508 47 rpp	1024	1055	250.5	258	152.4	432.5	\$SE wallRm5hall			
509 47 rpp	1010.5	1019	250.5	255.5	152.4	432.5	\$SE stub wall Rm5			
510 47 rpp	819	974.7	250.5	255.5	152.4	432.5	\$S wall Rm5			
511 47 rpp	819	824	255.5	283	152.4	432.5	\$S spur wallRm5			
512 47 rpp	806.7	819	278	283	152.4	432.5	\$S spur wallRm5			
513 47 rpp	717	734.7	278	283	152.4	432.5	\$S spur wallRm5			
514 47 rpp	717	722	250.5	278	152.4	432.5	\$S spur wallRm5			
515 47 rpp	607.7	717	250.5	255.5	152.4	432.5	\$S wall Rm5			
516 47 rpp	653.2	669.2	579	595	152.4	432.5	\$NW Column Rm5			
517 47 rpp	653.2	669.2	279	295	152.4	432.5	\$SW Column Rm5			
518 47 rpp	607.7	1019	283	800.5	152.4	432.5	\$Roomspace 5			
c										

125 15 rpp 214.5 580.5 1503 1552 442 883.9 \$NE Cell box
c
c
c Begin Southernmost Section of Floor1
126 16 rpp 0 64.75 0 1012 442 883.9 \$W Section Cell box
127 16 rpp 64.75 517 0 1083.75 442 883.9 \$E Section Cell box
128 16 rpp 106 517 1083.75 1145 442 883.9 \$E Section Cell box
c
c
c Begin Southernmost East Section of Floor1
129 17 rpp 0 670 -232 640 442 883.9 \$SW Cell box
130 17 rpp 0 670 640 1137.5 442 883.9 \$NW Cell box
131 17 rpp 670 1343 -232 294 442 883.9 \$SE Cell box
132 17 rpp 670 1343 294 640 442 883.9 \$E Cell box
133 17 rpp 670 1827.5 640 1137.5 442 883.9 \$NE Cell box
c
c
c
c
c
c
c
c Start of Wing Surfaces =====
c
c The exterior wall height is set at 404'-6" at which point the material changes from
c concrete to the "Exterior Wall" material. See the explanation in the assumptions for
c exterior walls for a more thorough explanation of why.
c
c
c
c //Begin Northwest Section of the central Section of Floor1//
c *****Notes for this section of Surfaces*****
c The origin was set as the SW corner of the inside wall of Room 700.
c
c
c
c Floor1 Room 700
70001 18 rpp -3 0 0 243.5 442 883.9 \$W wall Rm700
70002 18 rpp 0 14.25 240.5 243.5 442 883.9 \$NW wall Rm700
70003 18 rpp 51 153 240.5 243.5 442 883.9 \$N wall Rm700-Rm701
70004 18 rpp 120 123 0 240.5 442 883.9 \$E wall Rm700
70005 18 rpp -3 33 -3 0 442 883.9 \$SE wall Rm700
70006 18 rpp 72 170.5 -3 0 442 883.9 \$Box Rm700
70007 18 rpp 30 33 -21 -3 442 883.9 \$Box Rm700
70008 18 rpp -1.25 34.5 -24 -21 442 883.9 \$Box Rm700
70009 18 rpp -1.25 1.75 -45.5 -24 442 883.9 \$Box Rm700
70010 18 rpp -10.75 -1.25 -45.5 -42.5 442 883.9 \$Box Rm700
70012 18 rpp -14 -10.75 -45.5 281.5 442 883.9 \$W 2nd wl
70013 18 rpp -18 -14 -45.5 281.5 442 518.2 \$W 3rd wl Exterior
70014 18 rpp 72 75 -21 -3 442 883.9 \$Box Rm700-701
70015 18 rpp 70.5 172 -24 -21 442 883.9 \$Box Rm700-701
70016 18 rpp 167.5 170.5 -21 -3 442 883.9 \$Box Rm700-701
70017 18 rpp 0 120 0 240.5 442 883.9 \$Roomspace 700
70018 18 rpp -18 -14 -45.5 281.5 518.2 883.9 \$W 3rd wl Exterior
c
c
c Floor1 Room 701
70101 18 rpp 189 280.2 240.5 243.5 442 883.9 \$N wl Rm701-702
70102 18 rpp 258 261 0 240.5 442 883.9 \$E wl Rm701
70103 18 rpp 209.5 309 -3 0 442 883.9 \$Box Rm701-702
70104 18 rpp 209.5 212.5 -21 -3 442 883.9 \$Box Rm701-702
70105 18 rpp 208 310.5 -24 -21 442 883.9 \$Box Rm701-702
70106 18 rpp 306 309 -21 -3 442 883.9 \$Box Rm701-702
70107 18 rpp 123 258 0 240.5 442 883.9 \$Roomspace 701
c
c
c Floor1 Room 702
70201 18 rpp 316.2 390 240.5 243.5 442 883.9 \$N wl Rm702
70202 18 rpp 387 390 0 240.5 442 883.9 \$E i wall Rm702
70203 18 rpp 348 390 -3 0 442 883.9 \$Box Rm702

70204 18 rpp 396.75 399.75 -24 386.75 442 883.9 \$Eo wl Rm702
70205 18 rpp 348 351 -21 -3 442 883.9 \$Box Rm702
70206 18 rpp 346.5 396.75 -24 -21 442 883.9 \$Box Rm702
70207 18 rpp 261 387 0 240.5 442 883.9 \$Roomspace 702
c
c
c Floor1 Room 703/Mens Bathroom/Unlabeled Room Next to it
70301 18 rpp 486.75 504.75 -20.5 -5.5 442 883.9 \$Box i air Rm703
70302 18 rpp 483.75 507.75 -23.5 -2.5 442 883.9 \$Box o wl Rm703
70303 18 rpp 483.75 486.75 -2.5 150.75 442 883.9 \$W wl Rm703
70304 18 rpp 486.75 981.75 112 115 442 883.9 \$N wl
70305 18 rpp 507.75 569.75 -23.5 -20.5 442 883.9 \$SE wl
70306 18 rpp 604.75 821.75 -23.5 -20.5 442 883.9 \$S wl
70307 18 rpp 856.75 995.75 -23.5 -20.5 442 883.9 \$S wl Mens Rm
70308 18 rpp 1030.25 1118.75 -23.5 -20.5 442 883.9 \$SE wl Mens Rm
70309 18 rpp 861.75 864.75 -20.5 112 442 883.9 \$W wl Mens Rm
70310 18 rpp 981.75 989.75 -20.5 27 442 883.9 \$Divider wl Mens Rm
70311 18 rpp 981.75 989.75 63 103 442 883.9 \$Divider wl Mens Rm
70312 18 rpp 981.75 1094.75 103 115 442 883.9 \$N Block Mens Rm
70313 18 rpp 1034.25 1094.75 -20.5 -15.5 442 883.9 \$S Block Mens Rm
70314 18 rpp 1094.75 1097.75 -20.5 174.25 442 883.9 \$E wl Mens Rm
70315 18 rpp 1115.75 1118.75 -20.5 133.75 442 883.9 \$E o wl Mens Rm
70316 18 rpp 486.75 861.75 -20.5 112 442 883.9 \$Roomspace 703
c
c
c Floor1 Room 320/421
32001 18 rpp 504.75 507.75 115 211 442 883.9 \$W box Rm320
32002 18 rpp 486.75 504.75 208 211 442 883.9 \$W box Rm320
32003 18 rpp 483.75 486.75 178 212.5 442 883.9 \$W box Rm320
32004 18 rpp 483.75 486.75 248.5 445 442 883.9 \$NW box Rm320-324
32005 18 rpp 486.75 507.75 250 253 442 883.9 \$NW box Rm320
32006 18 rpp 504.75 507.75 253 511 442 883.9 \$NW box Rm320
32007 18 rpp 486.75 504.75 508 511 442 883.9 \$NW box Rm320
32008 18 rpp 483.75 486.75 481 512.5 442 883.9 \$NW box Rm320
32009 18 rpp 507.75 1094.75 350.5 353.5 442 883.9 \$NW wl Rm320
32010 18 rpp 1094.75 1097.75 250.25 510.25 442 883.9 \$E box Rm320
32011 18 rpp 1097.75 1118.75 507.25 510.25 442 883.9 \$E box Rm320
32012 18 rpp 1115.75 1118.75 369.25 507.25 442 883.9 \$E box Rm320
32013 18 rpp 1097.75 1115.75 250.25 253.25 442 883.9 \$E box Rm320
32014 18 rpp 1115.75 1118.75 248.25 339.25 442 883.9 \$E box Rm320
32015 18 rpp 1097.75 1115.75 171.25 174.25 442 883.9 \$E box Rm320
32016 18 rpp 1115.75 1118.75 160.75 176.25 442 883.9 \$E box Rm320
32017 18 rpp 507.75 1094.75 115 350.5 442 883.9 \$Roomspace 320/421
c
c
c Floor1 Room 324/425
32401 18 rpp 486.75 504.75 553 627.5 442 883.9 \$W i box air filled
32402 18 rpp 483.75 507.75 550 630.5 442 883.9 \$W o box Conc filled
32403 18 rpp 486.75 504.75 672.5 742.5 442 883.9 \$NW i box air filled
32404 18 rpp 483.75 507.75 669.5 745.5 442 883.9 \$NW o box Conc filled
32405 18 rpp 507.75 749.75 701.5 704.5 442 883.9 \$N wl Rm324
32406 18 rpp 749.75 752.75 569 742.5 442 883.9 \$NE wl
32407 18 rpp 752.75 806 542.5 566 442 883.9 \$NE i box air filled
32408 18 rpp 749.75 809 539.5 569 442 883.9 \$NE o box Conc filled
32409 18 rpp 847.25 949.25 566 569 442 883.9 \$NE wl
32410 18 rpp 946.25 949.25 569 606 442 883.9 \$NE wl
32411 18 rpp 949.25 1027.25 603 606 442 883.9 \$NE wl
32412 18 rpp 1024.25 1027.25 561.75 603 442 883.9 \$NE wl
32413 18 rpp 1027.25 1093.75 561.75 564.75 442 883.9 \$NE wl
32414 18 rpp 1096.75 1116.75 553.75 571.75 442 883.9 \$NE i box air filled
32415 18 rpp 1093.75 1119.75 550.75 574.75 442 883.9 \$NE o box Conc filled
32416 18 rpp 1115.75 1118.75 546.25 550.75 442 883.9 \$E Stub wl
32417 18 rpp 1119.75 1142.75 550.75 553.75 442 883.9 \$E stub wl
32418 18 rpp 507.75 749.75 353.5 701.5 442 883.9 \$Roomspace 324
32419 18 rpp 749.75 1094.75 353.5 539.5 442 883.9 \$Roomspace 425 Partially Filled
c
c
c Floor1 Room 330/Room 427/Elevator
c *****Small protrusions ignored in west and east hallways*****
c I also omitted the strange caps on the E edge of the elevator because I was unable to

c to verify they existed.

33001	18	rpp	504.75	507.75	784.5	821.5	442 883.9	\$NW Block
33002	18	rpp	486.75	504.75	784.5	787.5	442 883.9	\$
33003	18	rpp	483.75	486.75	783	813.5	442 883.9	\$
33004	18	rpp	461.25	483.75	810.5	813.5	442 883.9	\$
33005	18	rpp	461.25	464.25	813.5	824.75	442 883.9	\$
33006	18	rpp	507.75	947	818	821.5	442 883.9	\$N i wl
33007	18	rpp	464.25	947	821.5	824.75	442 883.9	\$N wl 2nd wl moving north
33008	18	rpp	473.25	947	824.75	836	442 518.2	\$N Exterior wl
33009	18	rpp	749.75	752.75	779.5	818	442 883.9	\$E wl Rm330
33010	18	rpp	752.75	848.75	808.5	811.5	442 883.9	\$Extension wl into Rm427
33011	18	rpp	845.75	848.75	811.5	818	442 883.9	\$Extension wl into Rm427
33012	18	rpp	946.25	947	606	818	442 883.9	\$Very thin E wl Rm427
33013	18	rpp	947	955	606	829	442 883.9	\$W wl Elevator
33014	18	rpp	955	1141.25	821	829	442 518.2	\$N o Elev wl
33015	18	rpp	955	1093.75	606	614	442 883.9	\$Elev wl
33016	18	rpp	997	1005	655.5	770.25	442 883.9	\$W Elev shaft
33017	18	rpp	1005	1094	762.25	770.25	442 883.9	\$N Elev shaft
33018	18	rpp	1005	1094	655.5	663.5	442 883.9	\$Elev shaft
33019	18	rpp	1086.25	1094	663.5	682.25	442 883.9	\$E Elev shaft stub wl
33020	18	rpp	1086.25	1094	750.25	762.25	442 883.9	\$E Elev shaft stub wl
33021	18	rpp	1044.75	1050.75	564.75	606	442 883.9	\$SE compartment wl
33022	18	rpp	1050.75	1093.75	564.75	570.75	442 883.9	\$S compartment wl
33023	18	rpp	1085.75	1093.75	570.75	576.75	442 883.9	\$E compartment stub wl
33024	18	rpp	1085.75	1093.75	602	606	442 883.9	\$E compartment stub wl
33025	18	rpp	1093.75	1098.75	574.75	616.75	442 883.9	\$E compartment capping wl
33026	18	rpp	1093.75	1141.25	815.75	821	442 883.9	\$Doodad in E hallway on N wl
33027	18	rpp	1093.75	1111	809.75	815.75	442 883.9	\$Doodad in E hallway on N wl
33028	18	rpp	1093.75	1098.75	806	809.75	442 883.9	\$Doodad in E hallway on N wl
33029	18	rpp	507.75	749.75	704.5	818	442 883.9	\$Roomspace 330
33030	18	rpp	752.75	946.25	569	808.5	442 883.9	\$Roomspace 427 Partially Filled
33031	18	rpp	955	1141.25	821	829	518.2 883.9	\$N o Elev wl
33032	18	rpp	473.25	947	824.75	836	518.2 883.9	\$N Exterior wl

c

c Floor1 Room 325/Filter Building

c *****Ignored small blocks on ramp*****

32501	18	rpp	7	10	243.5	284.5	442 883.9	\$SW Block Rm325
32502	18	rpp	-14	7	281.5	284.5	442 883.9	\$
32503	18	rpp	-3	0	359.5	546.5	442 883.9	\$W wl
32504	18	rpp	0	23	543.5	546.5	442 883.9	\$NW Block
32505	18	rpp	20	23	546.5	577.5	442 883.9	\$
32506	18	rpp	-3	20	574.5	577.5	442 883.9	\$
32507	18	rpp	-3	0	577.5	810	442 883.9	\$W wl Rm325-Rm327
32508	18	rpp	0	62.25	598	601	442 883.9	\$N wl Rm235
32509	18	rpp	98.25	375.75	598	601	442 883.9	\$N wl Rm235
32510	18	rpp	375.75	378.75	556.5	641	442 883.9	\$NE BlockRm235
32511	18	rpp	378.75	396.75	638	641	442 883.9	\$NE BlockRm235
32512	18	rpp	396.75	399.75	613.75	642.5	442 883.9	\$NE BlockRm235
32513	18	rpp	396.75	399.75	555	577.5	442 883.9	\$NE BlockRm235
32514	18	rpp	378.75	396.75	556.5	559.5	442 883.9	\$NE BlockRm235
32515	18	rpp	375.75	378.75	243.5	481.5	442 883.9	\$E wl Rm235
32516	18	rpp	378.75	396.75	478.5	481.5	442 883.9	\$E Block
32517	18	rpp	396.75	399.75	459	483	442 883.9	\$
32518	18	rpp	-6	-3	362.5	811.5	442 883.9	\$W 2nd wl moving outward
32519	18	rpp	-10.75	-6	362.5	811.5	442 883.9	\$W 3rd wl moving outward
32520	18	rpp	-14	-10.75	362.5	824.75	442 883.9	\$W 4th wl moving outward
32521	18	rpp	-18.25	-14	362.5	829	442 518.2	\$W 5th wl moving outward
32522	18	rpp	-147.25	-32.25	585	693	442 883.9	\$Cover of Filter
32523	18	rpp	10	375.75	243.5	460	442 883.9	\$Roomspace 325 Partially Filled <-----Fix This-----
32524	18	rpp	-18.25	-14	362.5	829	518.2 883.9	\$W 5th wl moving outward

c

c

c Floor1 Room 327/327A

32701	18	rpp	237.75	240.75	601	638	442 883.9	\$Dividing wl Rm327/327A
32702	18	rpp	237.75	240.75	674	818	442 883.9	\$Dividing wl Rm327/327A
32703	18	rpp	375.75	378.75	680	818	442 883.9	\$E wl Rm327
32704	18	rpp	378.75	396.75	680	683	442 883.9	\$E Block wl
32705	18	rpp	396.75	399.75	678.5	813.5	442 883.9	\$E Block wl
32706	18	rpp	399.75	422.25	810.5	813.5	442 883.9	\$E Block wl

32707 18 rpp 419.25 422.25 813.5 824.75 442 883.9 \$E Block wl
32708 18 rpp -10.75 419.25 821.5 824.75 442 883.9 \$N 2nd wl Rm327
32709 18 rpp 7.5 379.25 818 821.5 442 883.9 \$N 1st wl Rm327
32710 18 rpp 379.25 389.25 811.5 821.5 442 883.9 \$NE Block Rm327
32711 18 rpp 7.5 10.5 807 818 442 883.9 \$NW Dogleg in wl
32712 18 rpp 0 7.5 807 810 442 883.9 \$NW Dogleg in wl
32713 18 rpp -10.75 -0.75 811.5 821.5 442 883.9 \$NW Block
32714 18 rpp -14 422.25 824.75 829 442 883.9 \$N 3rd wl
32715 18 rpp -18.25 409.25 829 836 442 518.2 \$N 4th e wl
32716 18 rpp 0 237.75 601 818 442 883.9 \$Roomspace 327
32717 18 rpp 240.75 375.75 601 818 442 883.9 \$Roomspace 327A
32718 18 rpp -18.25 409.25 829 836 518.2 883.9 \$N 4th e wl
c
c
c
c ///Begin Northeast Section of the Central Section of Floor1///
c *****Notes for this section of Surfaces*****
c The origin was set as the SW corner of the outside wall of the blue print of the womens rest room.
c This room is directly west of Room 711.
c c
c
c
c
c Floor1 Room 711/Womens Rm
c *****Wall on W of womens rm ignored
71101 11 rpp 0 93 0 3 442 883.9 \$\$E Wl
71102 11 rpp 0 3 3 242.25 442 883.9 \$W o wl
71103 11 rpp 22.5 87.5 3 8 442 883.9 \$\$W Womens block
71104 11 rpp 22.5 25.5 8 183 442 883.9 \$W womens wl
71105 11 rpp 25.5 130.5 137.5 147 442 883.9 \$NW womens wl
71106 11 rpp 130.5 138.5 91.5 147 442 883.9 \$Central womens wl
71107 11 rpp 130.5 138.5 3 55.5 442 883.9 \$Central womens wl
71108 11 rpp 126 269.5 0 3 442 883.9 \$\$S womens wl
71109 11 rpp 252.5 255.5 3 144 442 883.9 \$E womens wl
71110 11 rpp 138.5 269.5 144 147 442 883.9 \$N womens wl
71111 11 rpp 305.5 638 0 3 442 883.9 \$\$S wl Rm711
71112 11 rpp 310.5 322.5 6.75 19.75 442 883.9 \$Column Rm711
71113 11 rpp 439.25 444.25 3 145 442 883.9 \$E wl Rm711
71114 11 rpp 304.5 439.25 142 145 442 883.9 \$N wl Rm711
71115 11 rpp 322.5 439.25 3 142 442 883.9 \$Roomspace 327
c
c
c Floor1 Room 420
42001 11 rpp 3 22.5 180 183 442 883.9 \$\$SW Block wl Rm420
42002 11 rpp 3 22.5 222 225 442 883.9 \$Central block wl Rm420
42003 11 rpp 22.5 25 222 308.75 442 883.9 \$Central block wl Rm420
42004 11 rpp 3 22.5 305.75 308.75 442 883.9 \$Central block wl Rm420
42005 11 rpp 0 3 278.75 308.75 442 883.9 \$Central block wl Rm420
42006 11 rpp 25 255.5 264 267 442 883.9 \$Central wl Rm420
42007 11 rpp 350 355 191.5 394.5 442 883.9 \$E wl Rm420
42008 11 rpp 188.5 390 394.5 399.5 442 883.9 \$N wl Rm420
42009 11 rpp 0 188.5 394.5 397.5 442 883.9 \$N wl Rm420
42010 11 rpp 0 3 347.75 394.5 442 883.9 \$NW Block Rm420
42011 11 rpp 3 22.5 347.75 350.75 442 883.9 \$NW Block Rm420
42012 11 rpp 22.5 25 347.75 394.5 442 883.9 \$NW Block Rm420
42013 11 rpp 25.5 255.5 147 264 442 883.9 \$Roomspace 420
42014 11 rpp 25.5 255.5 267 394.5 442 883.9 \$Roomspace 420
c
c
c Floor1 Room 525/Freezer
52501 11 rpp 491.5 594.75 66.25 71.25 442 883.9 \$\$E wl Rm525
52502 11 rpp 589.5 594.75 71.25 109 442 883.9 \$\$E wl Rm525
52503 11 rpp 594.75 635 104 109 442 883.9 \$\$E wl Rm525
52504 11 rpp 635 638 3 168.25 442 883.9 \$\$E wl Rm525
52505 11 rpp 621 635 144 147 442 883.9 \$E block wl Rm525
52506 11 rpp 621 624 147 386.25 442 883.9 \$E block wl Rm525
52507 11 rpp 624 635 383.25 386.25 442 883.9 \$E block wl Rm525
52508 11 rpp 635 638 377.5 386.25 442 883.9 \$E block wl Rm525
52509 11 rpp 635 638 240.25 339.75 442 883.9 \$E block wl Rm525
52510 11 rpp 621 624 422.25 621 442 883.9 \$NE block wl Rm525

52511	11	rpp	624	638	460	463	442 883.9	\$NE block wl Rm525
52512	11	rpp	635	638	463	621	442 883.9	\$NE block wl Rm525
52513	11	rpp	624	635	618	621	442 883.9	\$NE block wl Rm525
52514	11	rpp	191.5	621	525	528	442 883.9	\$N wl Rm525
52515	11	rpp	478.5	483.5	174.5	525	442 883.9	\$Central wl Rm525
52516	11	rpp	483.5	514.5	174.5	179.5	442 883.9	\$Central wl Rm525
52517	11	rpp	441.75	478.5	199	204	442 883.9	\$Central wl Rm525
52518	11	rpp	329	334	485	525	442 883.9	\$E Freezer wl
52519	11	rpp	188.5	191.5	399.5	843	442 883.9	\$W Freezer wl
52520	11	rpp	355	478.5	204	394.5	442 883.9	\$Roomspace 525
52521	11	rpp	334	478.5	399.5	525	442 883.9	\$Roomspace 525
52522	11	rpp	483.5	621	179.5	525	442 883.9	\$Roomspace 525
c								
c								
c Floor1 Room 426/426A								
42601	11	rpp	3	83	493.5	498.5	442 883.9	\$S wl Rm426
42602	11	rpp	125	188.5	493.5	498.5	442 883.9	\$S wl Rm426
42603	11	rpp	156.75	188.5	700.5	703.5	442 883.9	\$N wl Rm426
42604	11	rpp	79.5	107.75	700.5	703.5	442 883.9	\$N wl Rm426
42605	11	rpp	69.5	79.5	636.25	703.5	442 883.9	\$E Closet wl Rm426
42606	11	rpp	76.5	79.5	578.25	636.25	442 883.9	\$E Closet wl Rm426
42607	11	rpp	69	76.5	578.25	581.25	442 883.9	\$SE Closet wl Rm426
42608	11	rpp	4	33	578.25	581.25	442 883.9	\$SW Closet wl Rm426
42609	11	rpp	4	25	581.25	591.75	442 883.9	\$SW Closet Block wl Rm426
42610	11	rpp	4	29	591.75	596.75	442 883.9	\$SW Closet Block wl Rm426
42611	11	rpp	0	3	548.75	578.25	442 883.9	\$SW Closet wl Rm426
42612	11	rpp	-24	-1	572.75	575.75	442 883.9	\$SW Closet wl Rm426
42613	11	rpp	-1	0	575.75	578.25	442 883.9	\$Very Small Wall Remainder SW wl Rm426
42614	11	rpp	-1	4	578.25	645.5	442 883.9	\$W Closet wl Rm426
42615	11	rpp	4	30	639.25	645.5	442 883.9	\$NW Closet wl Rm426
42616	11	rpp	25	30	645.5	697.25	442 883.9	\$NW Closet wl Rm426
42617	11	rpp	25	69.5	697.25	703.5	442 883.9	\$N Closet wl Rm426
42618	11	rpp	-1	25	692.75	703.5	442 883.9	\$N Closet wl Rm426
42619	11	rpp	0	3	397.5	513.75	442 883.9	\$W wl Rm426A
42620	11	rpp	3	188.5	397.5	493.5	442 883.9	\$Roomspace 426A
42621	11	rpp	79.5	188.5	498.5	700.5	442 883.9	\$Roomspace 426
c								
c								
c Floor1 Room 430/Receiving Room								
43001	11	rpp	-1	2	703.5	737.75	442 883.9	\$W wl Rm430
43002	11	rpp	-1	2	809.75	843	442 883.9	\$W wl Rm430
43003	11	rpp	2	22.5	827.75	840	442 883.9	\$NW block Rm430
43004	11	rpp	2	76.5	840	843	442 883.9	\$N wl Rm430
43005	11	rpp	-23.5	76.5	843	851	442 518.2	\$N o wl Rm430
43006	11	rpp	-23.5	-1	837.75	843	442 883.9	\$NE wl Rm430
43007	11	rpp	177.5	208.5	843	851	442 883.9	\$N Cap wl Rm430
43008	11	rpp	-9	37	928	930	442 883.9	\$NW Receiving Room
43009	11	rpp	-9	-7	930	1005.25	442 883.9	\$NW Receiving Room
43010	11	rpp	-7	157.4	1003.25	1005.25	442 883.9	\$NW Receiving Room
43011	11	rpp	155.4	157.4	928	1003.25	442 883.9	\$NW Receiving Room
43012	11	rpp	111	155.4	928	930	442 883.9	\$NW Receiving Room
43013	11	rpp	177.5	188.5	840	843	442 883.9	\$NE wl Rm430
43014	11	rpp	2	188.5	703.5	840	442 883.9	\$Roomspace 430
43015	11	rpp	-23.5	76.5	843	851	518.2 883.9	\$N o wl Rm430
c								
c								
c Floor1 Room 527/527A								
52701	11	rpp	199.5	621	536	539	442 883.9	\$S wl Rm527A
52702	11	rpp	489	621	616.75	619.75	442 883.9	\$N wl Rm527A
52703	11	rpp	402	453	616.75	619.75	442 883.9	\$NW wl Rm527A
52704	11	rpp	399	402	539	619.75	442 883.9	\$W wl Rm527A
52705	11	rpp	322.5	325.5	539	619.75	442 883.9	\$SW wl in SW Room of Rm527
52706	11	rpp	309.5	322.5	579.75	582.75	442 883.9	\$Box in SW wl Rm527
52707	11	rpp	309.5	312.5	582.75	595.75	442 883.9	\$Box in SW wl Rm527
52708	11	rpp	312.5	322.5	592.75	595.75	442 883.9	\$Box in SW wl Rm527
52709	11	rpp	294.5	322.5	616.75	619.75	442 883.9	\$N wl in SW Room of Rm527
52710	11	rpp	202.5	237	616.75	619.75	442 883.9	\$N wl in SW Room of Rm527
52711	11	rpp	199.5	202.5	539	843	442 883.9	\$W wl Rm527
52712	11	rpp	202.5	208.5	840	843	442 883.9	\$NW small wl Rm527
52713	11	rpp	304.5	663	843	851	442 518.2	\$N o Major wl Rm527

52714	11	rpp	304.5	310.5	840	843	442 883.9	\$N i minor wl Rm527
52715	11	rpp	307.5	310.5	830	840	442 883.9	\$N i minor wl Rm527
52716	11	rpp	310.5	328.5	830	833	442 883.9	\$N i minor wl Rm527
52717	11	rpp	325.5	328.5	833	840	442 883.9	\$N i minor wl Rm527
52718	11	rpp	325.5	372.5	840	843	442 883.9	\$N i minor wl Rm527
52719	11	rpp	369.5	372.5	810.5	840	442 883.9	\$N i minor wl Rm527
52720	11	rpp	372.5	383.5	813.5	816.5	442 883.9	\$N i minor wl Rm527
52721	11	rpp	380.5	383.5	816.5	843	442 883.9	\$N i minor wl Rm527/Rm529
52722	11	rpp	369.5	372.5	696	743.5	442 883.9	\$NE wl Rm527
52723	11	rpp	372.5	635	696	699	442 883.9	\$NE wl Rm527
52724	11	rpp	202.5	369.5	619.75	830	442 883.9	\$Roomspace 527
52725	11	rpp	402	621	539	616.75	442 883.9	\$Roomspace 527A
52726	11	rpp	304.5	663	843	851	518.2 883.9	\$N o Major wl Rm527

c
c

c Floor1 Room 529

52901	11	rpp	372.5	383.5	737.5	740.5	442 883.9	\$W wl Rm529
52902	11	rpp	380.5	383.5	707	737.5	442 883.9	\$W wl Rm529
52903	11	rpp	383.5	621	707	710	442 883.9	\$S wl Rm529
52904	11	rpp	621	624	699	756	442 883.9	\$SE wl Rm529
52905	11	rpp	624	635	753	756	442 883.9	\$SE wl Rm529
52906	11	rpp	635	638	694.5	757.5	442 883.9	\$SE wl Rm529
52907	11	rpp	635	638	793.5	843	442 883.9	\$E wl Rm529
52908	11	rpp	638	663	840	843	442 883.9	\$NE wl Rm529
52909	11	rpp	621	635	795	798	442 883.9	\$NE wl Rm529
52910	11	rpp	621	624	798	834	442 883.9	\$NE wl Rm529
52911	11	rpp	613	621	831	834	442 883.9	\$NE wl Rm529
52912	11	rpp	613	616	834	843	442 883.9	\$NE wl Rm529
52913	11	rpp	383.5	613	840	843	442 883.9	\$N wl Rm529
52914	11	rpp	341.5	530	851	858	442 883.9	\$S Stairwell wl Rm529
52915	11	rpp	341.5	630	913	917.5	442 883.9	\$N stairwell wl Rm529
52916	11	rpp	383.5	621	710	840	442 883.9	\$Roomspace 529

c
c

c Floor1 Room 520

52001	11	rpp	719	1052	-6	-3	442 883.9	\$SW
52002	11	rpp	1088	1116.5	-6	-3	442 883.9	\$SE
52003	11	rpp	719	722	-3	110	442 883.9	\$SW Box
52004	11	rpp	722	745	105.5	108.5	442 883.9	\$SW Box
52005	11	rpp	742	745	-3	105.5	442 883.9	\$SW Box
52006	11	rpp	719	722	182	264	442 883.9	\$NW Box
52007	11	rpp	719	722	294	328	442 883.9	\$NW Box
52008	11	rpp	722	745	323.5	326.5	442 883.9	\$NW Box
52009	11	rpp	742	745	183.5	323.5	442 883.9	\$NW Box
52010	11	rpp	722	742	183.5	186.5	442 883.9	\$NW Box
52011	11	rpp	745	1034.5	285	288	442 883.9	\$N
52012	11	rpp	1070.5	1116.5	285	288	442 883.9	\$N
52013	11	rpp	981.5	984.5	288	538.5	442 883.9	\$W wl small rm 520-Rm524
52014	11	rpp	984.5	1119.5	394.25	397.25	442 883.9	\$N wl small rm520
52015	11	rpp	1116.5	1119.5	285	394.25	442 883.9	\$E wl small rm520
52016	11	rpp	745	1116.5	-3	285	442 883.9	\$Roomspace 520
52017	11	rpp	984.5	1116.5	288	394.25	442 883.9	\$Roomspace 520N

c
c

c Floor1 Room 524

52401	11	rpp	719	722	397.5	632	442 883.9	\$NW block rm524
52402	11	rpp	722	745	399	402	442 883.9	\$NW block rm524
52403	11	rpp	742	745	402	630.5	442 883.9	\$NW block rm524
52404	11	rpp	722	742	627.5	630.5	442 883.9	\$NW block rm524
52405	11	rpp	745	984.5	585	588	442 883.9	\$N wl rm524
52406	11	rpp	981.5	984.5	574.5	585	442 883.9	\$E wl rm524
52407	11	rpp	984.5	1005.5	497.25	500.25	442 883.9	\$E box wl rm524
52408	11	rpp	1002.5	1005.5	453.25	497.25	442 883.9	\$E box wl rm524
52409	11	rpp	984.5	1002.5	453.25	456.25	442 883.9	\$E box wl rm524
52410	11	rpp	745	981.5	288	585	442 883.9	\$Roomspace 524

c
c

c Floor1 Room 528

52801	11	rpp	719	722	704	771.5	442 883.9	\$NE box Rm528
52802	11	rpp	722	745	705.5	708.5	442 883.9	\$NE box Rm528

52803 11 rpp 742 745 708.5 733 442 883.9 \$NE box Rm528
52804 11 rpp 722 737 767 770 442 883.9 \$NE box Rm528-Rm530
52805 11 rpp 734 737 741 767 442 883.9 \$NE box Rm528-Rm530
52806 11 rpp 745 897.5 730 733 442 883.9 \$NW wl Rm528
52807 11 rpp 897.5 900.5 730 840 442 883.9 \$NW wl Rm528
52808 11 rpp 800.75 1119.75 840 843 442 883.9 \$N i wl Rm528-Rm530
52809 11 rpp 1119.75 1129 -21.5 843 442 883.9 \$W wl Rm528
52810 11 rpp 800.75 1137 843 851 442 518.2 \$N o wl Rm528-Rm530
52811 11 rpp 897.5 1119.5 588 840 442 883.9 \$Roomspace 528 Partially Filled
52812 11 rpp 800.75 1137 843 851 518.2 883.9 \$N o wl Rm528-Rm530

c

c

c Floor1 Room 530/North Cylinder Dock

53001 11 rpp 737 886.5 741 744 442 883.9 \$\$ wl Rm530
53002 11 rpp 883.5 886.5 744 840 442 883.9 \$E wl Rm530
53003 11 rpp 699 764.5 840 843 442 883.9 \$NW wl Rm530
53004 11 rpp 719 722 806.5 840 442 883.9 \$NW block wl Rm530
53005 11 rpp 722 734 808 811 442 883.9 \$NW block wl Rm530
53006 11 rpp 734 737 808 834 442 883.9 \$NW block wl Rm530
53007 11 rpp 737 745 831 834 442 883.9 \$NW block wl Rm530
53008 11 rpp 742 745 834 840 442 883.9 \$NW block wl Rm530
53009 11 rpp 711 719 851 941 442 883.9 \$Cylinder Dock wl
53010 11 rpp 815 823 851 941 442 883.9 \$Cylinder Dock wl
53011 11 rpp 948 956 851 941 442 883.9 \$Cylinder Dock wl
53012 11 rpp 1062 1070 851 941 442 883.9 \$Cylinder Dock wl
53013 11 rpp 1137 1162 777.5 781.5 442 883.9 \$Cylinder Dock small wl
53014 11 rpp 1137 1162 813 817 442 883.9 \$Cylinder Dock small wl
53015 11 rpp 1129 1137 851 941 442 883.9 \$Cylinder Dock wl
53016 11 rpp 699 764.5 843 851 442 518.2 \$Cylinder Dock exterior wl
53017 11 rpp 737 883.5 744 840 442 883.9 \$Roomspace 530
53018 11 rpp 699 764.5 843 851 518.2 883.9 \$Cylinder Dock exterior wl

c

c

c //Begin West Section of Floor1//

c *****Notes for this section of Surfaces*****

c The origin was set as the SW corner of the inside wall of Room 209. For conservancy the hot cells in SAL were modled as a solid RPP of metal.

c

c

c

c Floor1 Room 200

20001 12 rpp -174 -161.25 485.5 487.5 442 883.9 \$\$W thin wl Rm200
20002 12 rpp -89 -82 485.5 487.5 442 883.9 \$\$W thin wl Rm200
20003 12 rpp -85.5 -83.5 410.5 485.5 442 883.9 \$\$W thin wl Rm200
20004 12 rpp -87 -82 406.5 410.5 442 883.9 \$\$W thin wl Rm200
20005 12 rpp -87 -82 402.5 406.5 442 883.9 \$\$W thin wl Rm200
20006 12 rpp -46 -13 485.5 487.5 442 883.9 \$\$W thin wl Rm200
20007 12 rpp 89 91 410.5 422 442 883.9 \$\$ divider thin wl Rm200
20008 12 rpp 89 91 458 485.5 442 883.9 \$\$ divider thin wl Rm200
20009 12 rpp -13 -11 955.4 990.25 442 883.9 \$NW thin wl Rm200
20010 12 rpp -13 -11 1038 1044.5 442 883.9 \$NW thin wl Rm200
20011 12 rpp -45.25 28 406.5 410.5 442 883.9 \$\$ i wl Rm200
20012 12 rpp -45.25 28 402.5 406.5 442 883.9 \$\$ o wl Rm200
20013 12 rpp 66 250.25 406.5 410.5 442 883.9 \$\$ i wl Rm200-Rm201
20014 12 rpp 66 246 402.5 406.5 442 883.9 \$\$ o wl Rm200-Rm201

c

c

c Floor1 Room 201

c *****This room contains the actual SAL hot cells*****

c Neglected thin wall strip in NE border region There are two types of concrete in SAL-

c Heavy Aggregate and Sump concrete. Currently only std concrete is being used for both.

c The roof and floor

20101 12 rpp 250.25 266.25 457.5 481 442 883.9 \$E Block Rm201
20102 12 rpp 266.25 345 464.25 469.25 442 883.9 \$E wl Rm201
20103 12 rpp 250.25 266.25 613 630 442 883.9 \$E Column Rm201
20104 12 rpp 253.5 263.5 854.5 864.5 442 883.9 \$NE column Rm201
20105 12 rpp 263.5 307.5 857 862 442 883.9 \$NE wall off of column Rm201
20106 12 rpp 265 266.5 862 1037 442 883.9 \$NE wl Rm201
20107 12 rpp 263.5 266.5 1037 1335.5 442 883.9 \$NE wl Rm201
20108 12 rpp 253.5 263.5 1037 1335.5 442 518.2 \$NE wl Rm201

20109 12 rpp 250.25 253.5 1037 1335.5 442 883.9 \$NE wl Rm201
 20110 12 rpp 246 250.25 1052.5 1335.5 442 883.9 \$NE wl Rm201
 20111 12 rpp 239 246 1052.5 1323 442 883.9 \$NE wl Rm201
 20112 12 rpp 186 250 1048.5 1052.5 442 883.9 \$N o wl Rm201
 20113 12 rpp 186 250 1044.5 1048.5 442 883.9 \$N i wl Rm201
 20114 12 rpp -13 13 485.5 955.4 442 883.9 \$W wl SAL Cell-Heavey Agg. Conc
 20115 12 rpp 13 80 485.5 511.5 442 883.9 \$\$ wl SAL Cell -Heavey Agg. Conc
 20116 12 rpp 80 91 485.5 955.4 442 883.9 \$E SAL wl Cell -Metal Walls and Windows, Windows ignored
 20117 12 rpp 13 80 943.4 955.4 442 883.9 \$E SAL wl Cell -Metal Walls
 20118 12 rpp 253.5 263.5 1037 1335.5 518.2 883.9 \$NE wl Rm201<-----

Check the comps of this very cluttered wall----

c
c

c Floor1 Room 202/203

20201 12 rpp -418 -159.25 406.5 410.5 442 883.9 \$\$ i wl Rm202
 20202 12 rpp -422 -159.25 402.5 406.5 442 883.9 \$\$ o wl Rm202
 20203 12 rpp -422 -418 406.5 1052.5 442 883.9 \$W o wl Rm202-Rm203
 20204 12 rpp -418 -414 410.5 1048.5 442 883.9 \$W i wl Rm202-Rm203
 20205 12 rpp -418 -397 1048.5 1052.5 442 883.9 \$NW o wl Rm203
 20206 12 rpp -414 -397 1044.5 1048.5 442 883.9 \$NW i wl Rm203
 20207 12 rpp -414 -178 692 696 442 883.9 \$N wl Rm202
 20208 12 rpp -182 -178 598.5 692 442 883.9 \$E i wl Rm202
 20209 12 rpp -178 -174 598.5 702 442 883.9 \$E o wl Rm202
 20210 12 rpp -182 -178 410.5 526.5 442 883.9 \$\$E i wl Rm202
 20211 12 rpp -178 -174 410.5 526.5 442 883.9 \$\$E o wl Rm202
 20212 12 rpp -252 -248 696 702 442 883.9 \$Stub Doorway wl Rm203
 20213 12 rpp -252 -248 738 747 442 883.9 \$Stub Doorway wl Rm203
 20214 12 rpp -248 -178 743 747 442 883.9 \$Doorway wl Rm203
 20215 12 rpp -182 -178 696 702 442 883.9 \$Doorway wl Rm203
 20216 12 rpp -182 -178 738 743 442 883.9 \$Doorway wl Rm203
 20217 12 rpp -178 -174 738 1044.5 442 883.9 \$E o wl Rm203
 20218 12 rpp -182 -178 747 1044.5 442 883.9 \$E i wl Rm203
 20219 12 rpp -361 151 1044.5 1048.5 442 883.9 \$N i wl Rm203
 20220 12 rpp -361 151 1048.5 1052.5 442 883.9 \$N o wl Rm203
 20221 12 rpp -414 -182 410.5 692 442 883.9 \$Roomspace 202
 20222 12 rpp -414 -182 747 1044.5 442 883.9 \$Roomspace 203

c
c

c Floor1 Room 209

c ****Neglected some layers on interior walls*****

20901 12 rpp 0 134 -15 0 442 883.9 \$\$ wl Rm209
 20902 12 rpp 134 206 -9 0 442 883.9 \$\$ wl thin Rm209
 20903 12 rpp 206 246 -15 0 442 883.9 \$\$SE wl Rm209
 20904 12 rpp 239 246 0 46.25 442 883.9 \$\$E wl Rm209
 20905 12 rpp 239 246 85.25 377.5 442 883.9 \$E wl Rm209
 20906 12 rpp 66 246 377.5 402.5 442 883.9 \$NE wl Rm209
 20907 12 rpp 0 28 377.5 402.5 442 883.9 \$NW wl Rm209
 20908 12 rpp -6 0 -15 402.5 442 883.9 \$W wl Rm209
 20909 12 rpp 224.5 232.5 106 114 442 883.9 \$\$SW column Rm209
 20910 12 rpp 246 250.25 -25.5 46.25 442 883.9 \$\$E wl Rm209
 20911 12 rpp 250.25 253.5 -25.5 46.25 442 883.9 \$\$E wl Rm209
 20912 12 rpp 253.5 256.5 -25.5 46.25 442 883.9 \$\$E wl Rm209
 20913 12 rpp 256.5 263.5 20.5 46.25 442 518.2 \$\$E Block Rm209
 20914 12 rpp 263.5 266.5 20.5 46.25 442 883.9 \$\$E o wl Rm209
 20915 12 rpp 246 250.25 85.25 377.5 442 883.9 \$E wl Rm209
 20916 12 rpp 250.25 253.5 85.25 421.5 442 883.9 \$E wl Rm209
 20917 12 rpp 253.5 263.5 85.25 421.5 442 518.2 \$E wl Rm209
 20918 12 rpp 263.5 266.5 85.25 421.5 442 883.9 \$E wl Rm209
 20919 12 rpp 0 239 0 377.5 442 883.9 \$Roomspace 209
 20920 12 rpp 303.75 369 107.5 112.5 442 883.9 \$Hallway wl stub Rm209
 20921 12 rpp 253.5 263.5 85.25 421.5 518.2 883.9 \$E wl Rm209
 20922 12 rpp 256.5 263.5 20.5 46.25 518.2 883.9 \$\$E Block Rm209

c
c
c

c //Begin SouthWest Section of Floor1//

c *****Notes for this section of Surfaces*****

c The origin was set as the SOUTH EAST CORNER of the inside wall of Room 301. The origin
 c was placed here for simplicities sake. I am the walrus

c



c
c Floor1 Room 301
30101 13 rpp -237 3 -3.5 0 442 883.9 \$\$ wl Rm301
30102 13 rpp 0 3 0 42 442 883.9 \$\$SE block wl Rm301
30103 13 rpp 3 21 39 42 442 883.9 \$\$SE block wl Rm301
30104 13 rpp 21 24 0 43.75 442 883.9 \$\$SE block wl Rm301
30105 13 rpp 3 24 -3 0 442 883.9 \$\$SE block wl Rm301
30106 13 rpp 0 3 81.5 156.75 442 883.9 \$\$NE block wl Rm301
30107 13 rpp 3 21 153.75 156.75 442 883.9 \$\$NE block wl Rm301
30108 13 rpp 21 24 79.75 157.25 442 883.9 \$\$NE block wl Rm301
30109 13 rpp 3 21 81.5 84.5 442 883.9 \$\$NE block wl Rm301
30110 13 rpp -266 0 112 120 442 883.9 \$\$N wl Rm301
30111 13 rpp -266 -237 -3.5 1 442 883.9 \$\$SW wl Rm301
30112 13 rpp -271 -266 -3.5 356 442 883.9 \$\$W wl Rm301-Rm305
30113 13 rpp -266 0 0 112 442 883.9 \$\$Roomspace 301
c
c
c Floor1 Room 303
30301 13 rpp -266 0 120 127.5 442 883.9 \$\$ i wl Rm303
30302 13 rpp 0 3 195.75 283 442 883.9 \$\$NE block wl Rm303
30303 13 rpp 3 21 280 283 442 883.9 \$\$NE block wl Rm303
30304 13 rpp 21 24 255.25 284.25 442 883.9 \$\$NE block wl Rm303
30305 13 rpp 21 24 195.25 224.75 442 883.9 \$\$NE block wl Rm303
30306 13 rpp 3 21 195.75 198.75 442 883.9 \$\$NE block wl Rm303
30307 13 rpp -266 0 229.5 237 442 883.9 \$\$N i wl Rm303
30308 13 rpp -266 0 237 240 442 883.9 \$\$N o wl Rm303
30309 13 rpp -266 0 127.5 229.5 442 883.9 \$\$Roomspace 303
c
c
c Floor1 Room 305
30501 13 rpp -249.5 0 240 247.5 442 883.9 \$\$ wl Rm305
30502 13 rpp 0 3 322 396.5 442 883.9 \$\$E block wl Rm305
30503 13 rpp 3 21 393.5 396.5 442 883.9 \$\$E block wl Rm305
30504 13 rpp 21 24 320.75 398 442 883.9 \$\$E block wl Rm305
30505 13 rpp 3 21 325 328 442 883.9 \$\$E block wl Rm305
30506 13 rpp 0 3 435.5 522.25 442 883.9 \$\$NE block wl Rm305
30507 13 rpp 3 21 519.25 522.25 442 883.9 \$\$NE block wl Rm305
30508 13 rpp 21 24 434.25 522.75 442 883.9 \$\$NE block wl Rm305
30509 13 rpp 3 21 435.5 438.5 442 883.9 \$\$NE block wl Rm305
30510 13 rpp -292 0 469.5 477 442 883.9 \$\$N wl Rm305
30511 13 rpp -292 0 477 480 442 883.9 \$\$N wl Rm305
30512 13 rpp -266 0 247.5 469.5 442 883.9 \$\$Roomspace 305 Partially Filled
c
c
c Floor1 Room 309
30901 13 rpp -292 0 480 487.5 442 883.9 \$\$ wl Rm309
30902 13 rpp 0 3 561.25 636.25 442 883.9 \$\$E block wl Rm309
30903 13 rpp 3 21 633.25 636.25 442 883.9 \$\$E block wl Rm309
30904 13 rpp 21 24 561.75 636.75 442 883.9 \$\$E block wl Rm309
30905 13 rpp 3 21 561.25 564.25 442 883.9 \$\$E block wl Rm309
30906 13 rpp -292 0 709.5 717 442 883.9 \$\$N wl Rm309
30907 13 rpp -292 0 717 720 442 883.9 \$\$N wl Rm309
30908 13 rpp -292 -271 351 356 442 883.9 \$\$W dogleg in wl Rm305
30909 13 rpp 0 3 675.25 762.25 442 883.9 \$\$NE block wl Rm309
30910 13 rpp 3 21 759.25 762.25 442 883.9 \$\$NE block wl Rm309
30911 13 rpp 21 24 674.75 762.75 442 883.9 \$\$NE block wl Rm309
30912 13 rpp 3 21 675.25 678.25 442 883.9 \$\$NE block wl Rm309
30913 13 rpp -292 0 487.5 709.5 442 883.9 \$\$Roomspace 309
c
c
c Floor1 Room 313
31301 13 rpp -292 0 949.5 957 442 883.9 \$\$N wl Rm313
31302 13 rpp -292 0 957 960 442 883.9 \$\$N wl Rm313
31303 13 rpp -292 0 720 727.5 442 883.9 \$\$ wl Rm313
31304 13 rpp 0 3 801.25 876 442 883.9 \$\$E block wl Rm313
31305 13 rpp 3 21 873 876 442 883.9 \$\$E block wl Rm313
31306 13 rpp 21 24 800.75 876.75 442 883.9 \$\$E block wl Rm313
31307 13 rpp 3 21 801.25 804.25 442 883.9 \$\$E block wl Rm313
31308 13 rpp 0 3 915 996.75 442 883.9 \$\$NE block wl Rm313
31309 13 rpp 3 21 993.75 996.75 442 883.9 \$\$NE block wl Rm313

31310	13	rpp	21	24	972.75	996.75	442	883.9	\$NE block wl Rm313
31311	13	rpp	21	24	914.25	942.75	442	883.9	\$NE block wl Rm313
31312	13	rpp	3	21	915	918	442	883.9	\$NE block wl Rm313
31313	13	rpp	-292	0	727.5	949.5	442	883.9	\$Roomspace 313
c									
c									
c Floor1 Room 317									
31701	13	rpp	-292	0	960	967.5	442	883.9	\$S wl Rm317
31702	13	rpp	-292	0	1069.5	1077	442	883.9	\$N wl Rm317
31703	13	rpp	-292	0	1077	1080	442	883.9	\$N wl Rm317
31704	13	rpp	-292	0	967.5	1069.5	442	883.9	\$Roomspace 317
c									
c									
c Floor1 Room 319/319A									
31901	13	rpp	-292	24	1197.25	1200.25	442	883.9	\$N wl Rm319
31902	13	rpp	-148.25	-145.25	1080	1197.25	442	883.9	\$Dividing wl Rm319
31903	13	rpp	-295	-292	1191	1197.25	442	883.9	\$W wl Rm319
31904	13	rpp	-295	-292	351	1155	442	883.9	\$W wl Rm309-319
31905	13	rpp	0	3	1036	1116.5	442	883.9	\$SE block wl Rm319
31906	13	rpp	3	21	1113.5	1116.5	442	883.9	\$SE block wl Rm319
31907	13	rpp	21	24	1036	1118.5	442	883.9	\$SE block wl Rm319
31908	13	rpp	3	21	1036	1039	442	883.9	\$SE block wl Rm319
31909	13	rpp	0	3	1155.5	1197.25	442	883.9	\$NE block wl Rm319
31910	13	rpp	3	21	1155.5	1158.5	442	883.9	\$NE block wl Rm319
31911	13	rpp	21	24	1153.5	1197.25	442	883.9	\$NE block wl Rm319
31912	13	rpp	-292	-148.25	1080	1197.25	442	883.9	\$Roomspace 319A
31913	13	rpp	-145.25	0	1080	1197.25	442	883.9	\$Roomspace 319
c									
c									
c Floor1 Room 300									
30001	13	rpp	108	743	-3.5	-.5	442	883.9	\$S wl Rm300
30002	13	rpp	121.25	417	-.5	8	442	883.9	\$S wl Rm300
30003	13	rpp	417	434	-.5	36.5	442	883.9	\$SE Block in wl Rm300
30004	13	rpp	420.5	427	36.5	357.25	442	883.9	\$E wl Rm300
30005	13	rpp	417	420.5	258.5	278.5	442	883.9	\$Block in E wl Rm300
30006	13	rpp	427	433.5	260.5	276.5	442	883.9	\$Block in E wl Rm300
30007	13	rpp	129.75	427	357.25	360.25	442	883.9	\$N wl Rm300
30008	13	rpp	108	111	0	43	442	883.9	\$SE block wl Rm300
30009	13	rpp	111	118.25	38.5	41.5	442	883.9	\$SE block wl Rm300
30010	13	rpp	118.25	121.25	0	41.25	442	883.9	\$SE block wl Rm300
30011	13	rpp	108	111	79	283	442	883.9	\$W block wl Rm300
30012	13	rpp	111	120.5	157.75	160.75	442	883.9	\$W block wl Rm300
30013	13	rpp	120.5	123.5	80.5	160.75	442	883.9	\$W block wl Rm300
30014	13	rpp	111	120.5	80.5	83.5	442	883.9	\$W block wl Rm300
30015	13	rpp	111	120.5	278.5	281.5	442	883.9	\$W block wl Rm300
30016	13	rpp	120.5	123.5	192.5	281.5	442	883.9	\$W block wl Rm300
30017	13	rpp	111	120.5	192.5	195.5	442	883.9	\$W block wl Rm300
30018	13	rpp	108	111	319	342.75	442	883.9	\$NW block wl Rm300
30019	13	rpp	111	136	320.5	323.5	442	883.9	\$NW block wl Rm300
30020	13	rpp	136	139	320.5	357.25	442	883.9	\$NW block wl Rm300
30021	13	rpp	108	111	373.25	397.75	442	883.9	\$NW block wl Rm300
30022	13	rpp	111	129.75	393.25	396.25	442	883.9	\$NW block wl Rm300
30023	13	rpp	129.75	132.75	360.25	396.25	442	883.9	\$NW block wl Rm300
30024	13	rpp	123.5	420.5	8	320.5	442	883.9	\$Roomspace 300
30025	13	rpp	139	420.5	320.5	357.25	442	883.9	\$Roomspace 300
c									
c									
c Flo1or1 Room 306									
30601	13	rpp	424	427	360.25	598	442	883.9	\$E wl Rm306
30602	13	rpp	416.5	424	498.5	518.5	442	883.9	\$Block in E wl Rm306
30603	13	rpp	427	434.5	498.5	517.5	442	883.9	\$Block in E wl Rm306
30604	13	rpp	108	111	433.75	523.5	442	883.9	\$W block wl Rm306
30605	13	rpp	111	129.75	519	523.5	442	883.9	\$W block wl Rm306
30606	13	rpp	129.75	132.75	435.25	523.5	442	883.9	\$W block wl Rm306
30607	13	rpp	111	129.75	435.25	438.25	442	883.9	\$W block wl Rm306
30608	13	rpp	108	111	559.5	638	442	883.9	\$NW block wl Rm306
30609	13	rpp	111	129.75	633	636	442	883.9	\$NW block wl Rm306
30610	13	rpp	129.75	132.75	561	636	442	883.9	\$NW block wl Rm306
30611	13	rpp	111	129.75	561	564	442	883.9	\$NW block wl Rm306
30612	13	rpp	132.75	424	360.25	595.75	442	883.9	\$Roomspace 306 Partially Filled

c
c
c Floor1 Room 310
31001 13 rpp 424 432 598 960 442 883.9 \$E wl Rm310
31002 13 rpp 132.75 340.75 595.75 600.75 442 883.9 \$\$ wl Rm310
31003 13 rpp 275.75 280.75 600.75 636 442 883.9 \$Center wl Rm310
31004 13 rpp 275.75 280.75 673.25 716.5 442 883.9 \$Center wl Rm310
31005 13 rpp 132.75 424 716.5 719.5 442 883.9 \$N wl Rm310
31006 13 rpp 132.75 275.75 600.75 716.5 442 883.9 \$Roomspace 310
31007 13 rpp 280.75 424 600.75 716.5 442 883.9 \$Roomspace 310 East
c
c
c Floor1 Room 312
31201 13 rpp 416.5 424 739.5 757.5 442 883.9 \$Block in E wl Rm312
31202 13 rpp 432 468.5 908 956 442 883.9 \$NE Block Rm312
31203 13 rpp 132.75 424 957 960 442 883.9 \$N wl Rm312
31204 13 rpp 108 111 672.75 763.75 442 883.9 \$\$W block wl Rm312
31205 13 rpp 111 129.75 759.25 762.25 442 883.9 \$\$W block wl Rm312
31206 13 rpp 129.75 132.75 674.75 762.25 442 883.9 \$\$W block wl Rm312
31207 13 rpp 111 129.75 674.75 677.75 442 883.9 \$\$W block wl Rm312
31208 13 rpp 108 111 799.5 823.5 442 883.9 \$W block wl Rm312
31209 13 rpp 108 111 853.5 877.5 442 883.9 \$W block wl Rm312
31210 13 rpp 111 129.75 873 876 442 883.9 \$W block wl Rm312
31211 13 rpp 129.75 132.75 801.25 876 442 883.9 \$W block wl Rm312
31212 13 rpp 111 129.75 801.25 804.25 442 883.9 \$W block wl Rm312
31213 13 rpp 108 111 913.5 997.5 442 883.9 \$NW block wl Rm312
31214 13 rpp 111 129.75 993 996 442 883.9 \$NW block wl Rm312
31215 13 rpp 129.75 132.75 915 996 442 883.9 \$NW block wl Rm312
31216 13 rpp 111 129.75 918 921 442 883.9 \$NW block wl Rm312
31217 13 rpp 132.75 424 719.5 957 442 883.9 \$Roomspace 312 Partially Filled
c
c
c Floor1 Room 316
31601 13 rpp 424 427 960 1039.5 442 883.9 \$\$E wl Rm316
31602 13 rpp 416.5 434.5 1039.5 1057.5 442 883.9 \$Block in E wl Rm316
31603 13 rpp 424 427 1057.5 1197.25 442 883.9 \$E wl Rm316
31604 13 rpp 108 743 1197.25 1200.25 442 883.9 \$N wl Rm316
31605 13 rpp 108 111 1033.5 1117.25 442 883.9 \$W block wl Rm316
31606 13 rpp 111 129.75 1112.75 1115.75 442 883.9 \$W block wl Rm316
31607 13 rpp 129.75 132.75 1035 1115.75 442 883.9 \$W block wl Rm316
31608 13 rpp 111 129.75 1035 1038 442 883.9 \$W block wl Rm316
31609 13 rpp 108 111 1153.25 1197.25 442 883.9 \$NW block wl Rm316
31610 13 rpp 129.75 132.75 1154.75 1197.25 442 883.9 \$NW block wl Rm316
31611 13 rpp 111 129.75 1154.75 1157.75 442 883.9 \$NW block wl Rm316
31612 13 rpp 132.75 424 960 1197.25 442 883.9 \$Roomspace 316 Partially Filled
c
c
c Floor1 Room 401/403
40101 13 rpp 572 681.5 80.5 83.5 442 883.9 \$\$ wl Rm403
40102 13 rpp 572 575. 83.5 236.5 442 883.9 \$N wl Rm401
40103 13 rpp 427 430.25 236.5 239.5 442 883.9 \$NW stub wl Rm401
40104 13 rpp 462.25 719 236.5 239.5 442 883.9 \$N wl Rm401-Rm403
40105 13 rpp 719 722 -.5 41.5 442 883.9 \$\$E block wl Rm401
40106 13 rpp 722 740 38.5 41.5 442 883.9 \$\$E block wl Rm401
40107 13 rpp 740 743 -.5 43 442 883.9 \$\$E block wl Rm401
40108 13 rpp 719 722 83.5 155.5 442 883.9 \$E block wl Rm403
40109 13 rpp 722 740 152.5 155.5 442 883.9 \$E block wl Rm403
40110 13 rpp 740 743 79 157 442 883.9 \$E block wl Rm403
40111 13 rpp 717.5 740 80.5 83.5 442 883.9 \$E block wl Rm403
40112 13 rpp 719 722 194.5 281.5 442 883.9 \$NE block wl Rm403
40113 13 rpp 722 740 278.5 281.5 442 883.9 \$NE block wl Rm403
40114 13 rpp 740 743 193 283 442 883.9 \$NE block wl Rm403
40115 13 rpp 722 740 194.5 197.5 442 883.9 \$NE block wl Rm403
40116 13 rpp 427 572 -.5 236.5 442 883.9 \$Roomspace 401
40117 13 rpp 575 719 83.5 236.5 442 883.9 \$Roomspace 403
c
c
c Floor1 Room 405
40501 13 rpp 476.75 576.25 239.5 247 442 883.9 \$\$ thick wl Rm405
40502 13 rpp 434.5 546 498.5 501.5 442 883.9 \$NW wl Rm405

40503 13 rpp 543 546 478 498.5 442 883.9 \$NW wl Rm405
40504 13 rpp 546 719 478 481 442 883.9 \$N wl Rm405
40505 13 rpp 719 722 320.5 394 442 883.9 \$E block wl Rm405
40506 13 rpp 722 740 391 394 442 883.9 \$E block wl Rm405
40507 13 rpp 740 743 376 397 442 883.9 \$E block wl Rm405
40508 13 rpp 722 740 320.5 323.5 442 883.9 \$E block wl Rm405
40509 13 rpp 740 743 319 343 442 883.9 \$E block wl Rm405
40510 13 rpp 719 722 436 522 442 883.9 \$NE block wl Rm405
40511 13 rpp 722 740 519 522 442 883.9 \$NE block wl Rm405
40512 13 rpp 740 743 433 523.5 442 883.9 \$NE block wl Rm405
40513 13 rpp 722 740 433 436 442 883.9 \$NE block wl Rm405
40514 13 rpp 427 719 239.5 478 442 883.9 \$Roomspace 405 Partially Filled

c
c

c Floor1 Room 409

40901 13 rpp 432 724 598 602 442 883.9 \$N wl Rm409
40902 13 rpp 427 719 501.5 598 442 883.9 \$Roomspace 409 Partially Filled

c
c

c Floor1 Room 411

41101 13 rpp 432 724 956 960 442 883.9 \$N wl Rm411
41102 13 rpp 719 722 561 598 442 883.9 \$\$E block wl Rm411
41103 13 rpp 721 724 602 634.5 442 883.9 \$\$E block wl Rm411
41104 13 rpp 724 740 631.5 634.5 442 883.9 \$\$E block wl Rm411
41105 13 rpp 739 743 634.5 636 442 883.9 \$\$E block wl Rm411
41106 13 rpp 740 743 559.5 634.5 442 883.9 \$\$E block wl Rm411
41107 13 rpp 722 740 561 564 442 883.9 \$\$E block wl Rm411
41108 13 rpp 721 724 673.5 873.5 442 883.9 \$E block wl Rm411
41109 13 rpp 724 740 870.5 873.5 442 883.9 \$E block wl Rm411
41110 13 rpp 740 743 856 873.5 442 883.9 \$E block wl Rm411
41111 13 rpp 740 743 672 820 442 883.9 \$E block wl Rm411
41112 13 rpp 724 740 673.5 676.5 442 883.9 \$E block wl Rm411
41113 13 rpp 739 740 672 673.5 442 883.9 \$E block wl Rm411
41114 13 rpp 721 724 931.5 956 442 883.9 \$NE block wl Rm411
41115 13 rpp 719 722 960 996 442 883.9 \$NE block wl Rm411
41116 13 rpp 722 740 993 996 442 883.9 \$NE block wl Rm411
41117 13 rpp 740 743 931.5 997.5 442 883.9 \$NE block wl Rm411
41118 13 rpp 724 740 931.5 934.5 442 883.9 \$NE block wl Rm411
41119 13 rpp 432 721 602 956 442 883.9 \$Roomspace 411 Partially Filled

c
c

c Floor1 Room 419

41901 13 rpp 719 722 1035 1116.25 442 883.9 \$E block wl Rm419
41902 13 rpp 722 740 1113.25 1116.25 442 883.9 \$E block wl Rm419
41903 13 rpp 740 743 1033.5 1117.75 442 883.9 \$E block wl Rm419
41904 13 rpp 722 740 1035 1038 442 883.9 \$E block wl Rm419
41905 13 rpp 719 722 1155.25 1197.25 442 883.9 \$NE block wl Rm419
41906 13 rpp 722 740 1155.25 1158.25 442 883.9 \$NE block wl Rm419
41907 13 rpp 740 743 1153.75 1197.25 442 883.9 \$NE block wl Rm419
41908 13 rpp 427 719 960 1197.25 442 883.9 \$Roomspace 419

c
c

c ///Begin SouthEast Section of Floor1///

c *****Notes for this section of Surfaces*****

c The origin was set as the SW outside corner of the Southwesternmost wall of Room 400

c
c

c Floor1 Room 400

40001 14 rpp 0 635 0 3 442 883.9 \$\$ wl Rm400-Rm501
40002 14 rpp 309.5 325.5 3 39.5 442 883.9 \$\$E Block in wl Rm400
40003 14 rpp 316 319 39.5 240 442 883.9 \$E wl Rm400
40004 14 rpp 24 611 240 243 442 883.9 \$N wl Rm400-Rm501
40005 14 rpp 0 3 196.5 286.5 442 883.9 \$W wl Rm400
40006 14 rpp 0 3 82.5 160.5 442 883.9 \$W wl Rm400
40007 14 rpp 0 3 3 46.5 442 883.9 \$W wl Rm400
40008 14 rpp 3 21 42 45 442 883.9 \$\$W block wl Rm400
40009 14 rpp 21 24 3 45 442 883.9 \$\$W block wl Rm400
40010 14 rpp 3 21 84 87 442 883.9 \$W block wl Rm400
40011 14 rpp 21 24 84 159 442 883.9 \$W block wl Rm400
40012 14 rpp 3 21 156 159 442 883.9 \$W block wl Rm400

40013	14	rpp	3	21	198	201	442	883.9	\$NW block wl Rm400
40014	14	rpp	21	24	198	285	442	883.9	\$NW block wl Rm400
40015	14	rpp	3	21	282	285	442	883.9	\$NW block wl Rm400
40016	14	rpp	24	309.5	3	240	442	883.9	\$Roomspace 400 Partially Filled
c									
c									
c Floor1 Room 501									
50101	14	rpp	632	635	196.5	286.5	442	883.9	\$E wl Rm501
50102	14	rpp	632	635	82.5	160.5	442	883.9	\$E wl Rm501
50103	14	rpp	632	635	3	46.5	442	883.9	\$E wl Rm501
50104	14	rpp	614	632	42	45	442	883.9	\$SE block wl Rm501
50105	14	rpp	611	614	3	45	442	883.9	\$SE block wl Rm501
50106	14	rpp	614	632	84	87	442	883.9	\$E block wl Rm501
50107	14	rpp	611	614	84	159	442	883.9	\$E block wl Rm501
50108	14	rpp	614	632	156	159	442	883.9	\$E block wl Rm501
50109	14	rpp	614	632	198	201	442	883.9	\$NE block wl Rm501
50110	14	rpp	611	614	198	285	442	883.9	\$NE block wl Rm501
50111	14	rpp	614	632	282	285	442	883.9	\$NE block wl Rm501
50112	14	rpp	325.5	611	3	240	442	883.9	\$Roomspace 501 Partially Filled
c									
c									
c Floor1 Room 500									
50001	14	rpp	719	1038	0	3	442	883.9	\$S wl Rm500
50002	14	rpp	1035	1038	3	46.5	442	883.9	\$SE wl Rm500
50003	14	rpp	1035	1038	82.5	160.5	442	883.9	\$E wl Rm500
50004	14	rpp	1035	1038	196.5	286.5	442	883.9	\$E wl Rm500-Rm504A
50005	14	rpp	743	1035	240	243	442	883.9	\$N wl Rm500
50006	14	rpp	719	722	196.5	286.5	442	883.9	\$W wl Rm500
50007	14	rpp	719	722	82.5	160.5	442	883.9	\$W wl Rm500
50008	14	rpp	719	722	3	46.5	442	883.9	\$W wl Rm500
50009	14	rpp	722	740	39	42	442	883.9	\$SW block wl Rm500
50010	14	rpp	740	743	3	42	442	883.9	\$SW block wl Rm500
50011	14	rpp	722	740	84	87	442	883.9	\$W block wl Rm500
50012	14	rpp	740	743	84	159	442	883.9	\$W block wl Rm500
50013	14	rpp	722	740	156	159	442	883.9	\$W block wl Rm500
50014	14	rpp	722	740	198	201	442	883.9	\$NW block wl Rm500
50015	14	rpp	740	743	198	285	442	883.9	\$NW block wl Rm500
50016	14	rpp	722	740	282	285	442	883.9	\$NW block wl Rm500
50017	14	rpp	743	1035	3	240	442	883.9	\$Roomspace 500
c									
c									
c Floor1 Room 404									
40401	14	rpp	168.5	171.5	243	363	442	883.9	\$E wl Rm404
40402	14	rpp	24	168.5	360	363	442	883.9	\$N wl Rm404
40403	14	rpp	0	3	377.5	400.5	442	883.9	\$W wl Rm404
40404	14	rpp	0	3	322.5	347	442	883.9	\$W wl Rm404
40405	14	rpp	24	168.5	243	360	442	883.9	\$Roomspace 404
c									
c									
c Floor1 Room 505									
50501	14	rpp	309.5	325.5	263.5	279.5	442	883.9	\$W column in wl Rm505
50502	14	rpp	316	319	279.5	503.5	442	883.9	\$W wl Rm505-Rm507
50503	14	rpp	319	611	360	363	442	883.9	\$N wl Rm505
50504	14	rpp	632	635	377.5	400.5	442	883.9	\$E wl Rm505
50505	14	rpp	632	635	322.5	347	442	883.9	\$E wl Rm505
50506	14	rpp	316	319	243	263.5	442	883.9	\$SE wl Rm505
50507	14	rpp	325.5	611	243	360	442	883.9	\$Roomspace 505 Partially Filled
c									
c									
c Floor1 Room 504/504A									
50401	14	rpp	719	722	322.5	347	442	883.9	\$W wl Rm504
50402	14	rpp	719	722	377.5	400.5	442	883.9	\$W wl Rm504
50403	14	rpp	743	1035	360	363	442	883.9	\$N wl Rm504
50404	14	rpp	888	891	243	360	442	883.9	\$Central wl Rm504-Rm504A
50405	14	rpp	1035	1038	322.5	526.5	442	883.9	\$E wl Rm504A
50406	14	rpp	743	888	244	360	442	883.9	\$Roomspace 504
50407	14	rpp	891	1035	244	360	442	883.9	\$Roomspace 504
c									
c									
c Floor1 Room 406									

40601	14	rpp	309.5	325.5	503.5	519.5	442	883.9	\$E block in wl Rm406
40602	14	rpp	316	319	519.5	600	442	883.9	\$E wl Rm406
40603	14	rpp	24	611	600	603	442	883.9	\$N wl Rm406-Rm507
40604	14	rpp	0	3	562.5	640.5	442	883.9	\$W wl Rm406
40605	14	rpp	0	3	436.5	526.5	442	883.9	\$W wl Rm406
40606	14	rpp	3	21	324	327	442	883.9	\$SW block wl Rm406
40607	14	rpp	21	24	324	399	442	883.9	\$SW block wl Rm406
40608	14	rpp	3	21	396	399	442	883.9	\$SW block wl Rm406
40609	14	rpp	21	24	438	525	442	883.9	\$W block wl Rm406
40610	14	rpp	3	21	438	441	442	883.9	\$W block wl Rm406
40611	14	rpp	3	21	522	525	442	883.9	\$W block wl Rm406
40612	14	rpp	3	21	564	567	442	883.9	\$NW block wl Rm406
40613	14	rpp	21	24	564	639	442	883.9	\$NW block wl Rm406
40614	14	rpp	3	21	636	639	442	883.9	\$NW block wl Rm406
40615	14	rpp	24	309.5	363	600	442	883.9	\$Roomspace 406 Partially Filled

c

c

c Floor1 Room 507

50701	14	rpp	632	635	562.5	640.5	442	883.9	\$E wl Rm507
50702	14	rpp	632	635	436.5	526.5	442	883.9	\$E wl Rm507
50703	14	rpp	614	632	324	327	442	883.9	\$SE block wl Rm507
50704	14	rpp	611	614	324	399	442	883.9	\$SE block wl Rm507
50705	14	rpp	614	632	396	399	442	883.9	\$SE block wl Rm507
50706	14	rpp	614	632	438	441	442	883.9	\$E block wl Rm507
50707	14	rpp	611	614	438	525	442	883.9	\$E block wl Rm507
50708	14	rpp	614	632	522	525	442	883.9	\$E block wl Rm507
50709	14	rpp	614	632	564	567	442	883.9	\$NE block wl Rm507
50710	14	rpp	611	614	564	639	442	883.9	\$NE block wl Rm507
50711	14	rpp	614	632	636	639	442	883.9	\$NE block wl Rm507
50712	14	rpp	325.5	611	363	600	442	883.9	\$Roomspace 507 Partially Filled

c

c

c Floor1 Room 506

50601	14	rpp	719	722	562.5	640.5	442	883.9	\$W wl Rm506
50602	14	rpp	719	722	436.5	526.5	442	883.9	\$W wl Rm506
50603	14	rpp	743	1035	600	603	442	883.9	\$N wl Rm506
50604	14	rpp	1035	1038	562.5	640.5	442	883.9	\$E wl Rm506
50605	14	rpp	722	740	325	328	442	883.9	\$SW block wl Rm506
50606	14	rpp	740	743	325	399	442	883.9	\$SW block wl Rm506
50607	14	rpp	722	740	396	399	442	883.9	\$SW block wl Rm506
50608	14	rpp	722	740	438	441	442	883.9	\$W block wl Rm506
50609	14	rpp	740	743	438	525	442	883.9	\$W block wl Rm506
50610	14	rpp	722	740	522	525	442	883.9	\$W block wl Rm506
50611	14	rpp	722	740	564	567	442	883.9	\$NW block wl Rm506
50612	14	rpp	740	743	564	639	442	883.9	\$NW block wl Rm506
50613	14	rpp	722	740	636	639	442	883.9	\$NW block wl Rm506
50614	14	rpp	743	1035	363	600	442	883.9	\$Roomspace 506

c

c

c Floor1 Room 410

41001	14	rpp	0	3	676.5	766.5	442	883.9	\$W wl Rm410
41002	14	rpp	0	3	802.5	826.5	442	883.9	\$W wl Rm410
41003	14	rpp	0	3	855.25	880.5	442	883.9	\$W wl Rm410
41004	14	rpp	24	611	840	843	442	883.9	\$N wl Rm410
41005	14	rpp	316	319	759.5	840	442	883.9	\$E wl Rm410
41006	14	rpp	309.5	325.5	743.5	759.5	442	883.9	\$E Column in wl Rm410
41007	14	rpp	316	319	603	743.5	442	883.9	\$SE wl Rm410
41008	14	rpp	3	21	678	681	442	883.9	\$W block wl Rm410
41009	14	rpp	21	24	678	765	442	883.9	\$W block wl Rm410
41010	14	rpp	3	21	762	765	442	883.9	\$W block wl Rm410
41011	14	rpp	3	21	804	807	442	883.9	\$NW block wl Rm410
41012	14	rpp	21	24	804	879	442	883.9	\$NW block wl Rm410
41013	14	rpp	3	21	876	879	442	883.9	\$NW block wl Rm410
41014	14	rpp	24	309.5	603	840	442	883.9	\$Roomspace 410 Partially Filled

c

c

c Floor1 Room 511

51101	14	rpp	632	635	676.5	766.5	442	883.9	\$E wl Rm511
51102	14	rpp	632	635	802.5	826.5	442	883.9	\$E wl Rm511
51103	14	rpp	632	635	855.25	880.5	442	883.9	\$E wl Rm511

51104	14 rpp	614	632	678	681	442 883.9	\$E block wl Rm511
51105	14 rpp	611	614	678	765	442 883.9	\$E block wl Rm511
51106	14 rpp	614	632	762	765	442 883.9	\$E block wl Rm511
51107	14 rpp	614	632	804	807	442 883.9	\$NE block wl Rm511
51108	14 rpp	611	614	804	879	442 883.9	\$NE block wl Rm511
51109	14 rpp	614	632	876	879	442 883.9	\$NE block wl Rm511
51110	14 rpp	325.5	611	603	840	442 883.9	\$Roomspace 511 Partially Filled
c							
c							
c Floor1 Room 510							
51001	14 rpp	719	722	676.5	766.5	442 883.9	\$W wl Rm510
51002	14 rpp	743	1035	840	843	442 883.9	\$N wl Rm510
51003	14 rpp	1035	1038	676.5	1000	442 883.9	\$E wl Rm510
51004	14 rpp	722	740	678	681	442 883.9	\$W block wl Rm510
51005	14 rpp	740	743	678	765	442 883.9	\$W block wl Rm510
51006	14 rpp	722	740	762	765	442 883.9	\$W block wl Rm510
51007	14 rpp	722	740	804	807	442 883.9	\$NW block wl Rm510
51008	14 rpp	740	743	804	879	442 883.9	\$NW block wl Rm510
51009	14 rpp	722	740	876	879	442 883.9	\$NW block wl Rm510
51010	14 rpp	743	1035	603	840	442 883.9	\$Roomspace 510
c							
c							
c Floor1 Room 514							
51401	14 rpp	719	722	802.5	880.5	442 883.9	\$W wl Rm514
51402	14 rpp	743	1035	960	963	442 883.9	\$N wl Rm514
51403	14 rpp	719	722	916.5	1000	442 883.9	\$W wl Rm514
51404	14 rpp	743	1035	843	960	442 883.9	\$Roomspace 514
c							
c							
c Floor1 Room 515							
51501	14 rpp	632	635	916.5	1000	442 883.9	\$E wl Rm515
51502	14 rpp	319	611	843	960	442 883.9	\$Roomspace 515
c							
c							
c Floor1 Room 414							
41401	14 rpp	316	319	843	960	442 883.9	\$E wl Rm414
41402	14 rpp	24	611	960	963	442 883.9	\$N wl Rm414
41403	14 rpp	0	3	916.5	1000	442 883.9	\$W wl Rm414
41404	14 rpp	24	316	843	960	442 883.9	\$Roomspace 414
c							
c							
c Floor1 Room 416							
41601	14 rpp	0	3	1037	1120	442 883.9	\$W wl Rm416
41602	14 rpp	0	3	1156.5	1203	442 883.9	\$W wl Rm416
41603	14 rpp	3	635	1200	1203	442 883.9	\$N wl Rm416-Rm517
41604	14 rpp	316	319	963	1043.5	442 883.9	\$E wl Rm416
41605	14 rpp	309.5	325.5	1043.5	1059.5	442 883.9	\$E block Rm416
41606	14 rpp	316	319	1059.5	1200	442 883.9	\$E wl Rm416
41607	14 rpp	3	21	918	921	442 883.9	\$SW block wl Rm416
41608	14 rpp	21	24	918	999	442 883.9	\$SW block wl Rm416
41609	14 rpp	3	21	996	999	442 883.9	\$SW block wl Rm416
41610	14 rpp	3	21	1038	1041	442 883.9	\$W block wl Rm416
41611	14 rpp	21	24	1038	1118	442 883.9	\$W block wl Rm416
41612	14 rpp	3	21	1115	1118	442 883.9	\$W block wl Rm416
41613	14 rpp	3	21	1158	1161	442 883.9	\$NW block wl Rm416
41614	14 rpp	21	24	1158	1200	442 883.9	\$NW block wl Rm416
41615	14 rpp	24	309.5	963	1200	442 883.9	\$Roomspace 416 Partially Filled
c							
c							
c Floor1 Room 517							
51701	14 rpp	632	635	1156.5	1200	442 883.9	\$E wl Rm517
51702	14 rpp	632	635	1037	1119.75	442 883.9	\$E wl Rm517
51703	14 rpp	614	632	918	921	442 883.9	\$SE block wl Rm517
51704	14 rpp	611	614	918	999	442 883.9	\$SE block wl Rm517
51705	14 rpp	614	632	996	999	442 883.9	\$SE block wl Rm517
51706	14 rpp	614	632	1038	1041	442 883.9	\$E block wl Rm517
51707	14 rpp	611	614	1038	1118	442 883.9	\$E block wl Rm517
51708	14 rpp	614	632	1115	1118	442 883.9	\$E block wl Rm517
51709	14 rpp	614	632	1158	1161	442 883.9	\$NE block wl Rm517
51710	14 rpp	611	614	1158	1200	442 883.9	\$NE block wl Rm517

51711 14 rpp 325.5 611 963 1200 442 883.9 \$Roomspace 517 Partially Filled

c

c

c Floor1 Room 516

51601 14 rpp 719 722 1156.5 1200 442 883.9 \$W wl Rm516

51602 14 rpp 719 722 1037 1119.75 442 883.9 \$W wl Rm516

51603 14 rpp 719 1038 1200 1203 442 883.9 \$N wl Rm516

51604 14 rpp 1035 1038 1156.5 1200 442 883.9 \$E wl Rm516

51605 14 rpp 1035 1038 1037 1119.75 442 883.9 \$E wl Rm516

51606 14 rpp 722 740 918 921 442 883.9 \$\$W block wl Rm516

51607 14 rpp 740 743 918 999 442 883.9 \$\$W block wl Rm516

51608 14 rpp 722 740 996 999 442 883.9 \$\$W block wl Rm516

51609 14 rpp 722 740 1038 1041 442 883.9 \$W block wl Rm516

51610 14 rpp 740 743 1038 1118 442 883.9 \$W block wl Rm516

51611 14 rpp 722 740 1115 1118 442 883.9 \$W block wl Rm516

51612 14 rpp 722 740 1158 1161 442 883.9 \$NW block wl Rm516

51613 14 rpp 740 743 1158 1200 442 883.9 \$NW block wl Rm516

51614 14 rpp 743 1035 963 1200 442 883.9 \$Roomspace 516

c

c

c //Begin East Section of Floor1//

c *****Notes for this section of Surfaces*****

c The origin was set as the inside corner of the Southwesternmost wall of the east Section.

c There is no specific number for this area but the origin is directly west of Room 600.

c

c

c Floor1 Room 600

60001 15 rpp -16.5 -13.5 0 178.5 442 883.9 \$W most wall, lies on boundary line

60002 15 rpp -13.5 -4 0 178.5 442 883.9 \$W wl Rm600

60003 15 rpp -4 0 0 178.5 442 883.9 \$W wl Rm600

60004 15 rpp -16.5 -13.5 214.5 1464.5 442 883.9 \$W most wl Rm600-601

60005 15 rpp -13.5 -4 214.5 1461.5 442 883.9 \$W wl Rm600-601

60006 15 rpp -4 4 214.5 994.5 442 883.9 \$W wl Rm600-601

60007 15 rpp -16.5 580.5 -7.5 -4 442 518.2 \$\$ wl Rm600 Exterior wl

60008 15 rpp -16.5 577 -4 0 442 883.9 \$\$ wl Rm600

60009 15 rpp 74 79 0 115 442 883.9 \$W i wl Rm600

60010 15 rpp 74 79 153 162.5 442 883.9 \$NW wl stub Rm600

60011 15 rpp 79 205 157.5 162.5 442 883.9 \$N wl Rm600

60012 15 rpp 196 201 0 157.5 442 883.9 \$E wl Rm600

60013 15 rpp 79 196 0 3.5 442 883.9 \$\$ wl Rm600

60014 15 rpp 96.5 100.5 162.5 187 442 883.9 \$N wl extension Rm600

60015 15 rpp 4 100.5 224 228 442 883.9 \$NW wl Rm600

60016 15 rpp 79 196 3.5 157.5 442 883.9 \$Roomspace 600

60017 15 rpp -16.5 580.5 -7.5 -4 518.2 883.9 \$\$ wl Rm600 Exterior wl

c

c

c Floor1 Room 602/605/606

c These rooms were all combined because it is difficult to distinguish between them.

c

60201 15 rpp 205 209 48.25 52.25 442 883.9 \$\$W Column Rm602

60202 15 rpp 241 245 48.25 52.25 442 883.9 \$\$W 2nd column Rm602

60203 15 rpp 284 287 48.25 204.25 442 883.9 \$W wl Womens Rm/605

60204 15 rpp 287 291.5 48.25 53.25 442 883.9 \$\$W 3rd Column Rm602

60205 15 rpp 321.5 413.5 48.25 53.25 442 883.9 \$\$ wl Rm605 <-----columns within wall were omitted

60206 15 rpp 325 330 53.25 64.75 442 883.9 \$\$W wl Rm605

60207 15 rpp 287 330 97.75 102.75 442 883.9 \$\$W wl Rm605

60208 15 rpp 325 330 94.75 97.75 442 883.9 \$\$W small wl Rm605

60209 15 rpp 400.75 405.75 46.75 48.25 442 883.9 \$\$E wall protrusion Rm605

60210 15 rpp 400.75 405.75 53.25 166.25 442 883.9 \$E wl Rm605

60211 15 rpp 405.75 440.75 157.25 162.25 442 883.9 \$E wl Rm605

60212 15 rpp 474.75 486.75 157.25 162.25 442 883.9 \$E wl Rm605

60213 15 rpp 481.75 486.75 162.25 199.25 442 883.9 \$E wl Rm605

60214 15 rpp 478.5 486.75 204.25 212 442 883.9 \$NE wl Rm605

60215 15 rpp 449.75 486.75 199.25 204.25 442 883.9 \$NE wl Rm605

60216 15 rpp 287 405.75 199.25 204.25 442 883.9 \$N wl Rm605

60217 15 rpp 400.75 405.75 196.25 199.25 442 883.9 \$N wl stub Rm605

60218 15 rpp 287 358 195.25 199.25 442 883.9 \$NW wl fat part Rm605

60219 15 rpp 335 338 204.25 214 442 883.9 \$Protrusion from N wl in Rm605 into Rm601

60220 15 rpp 486.75 560 164 169 442 883.9 \$\$ wl Rm606

60221 15 rpp 560 573 14 252 442 883.9 \$E wl Rm606-Rm202

60222 15 rpp 478.5 560 247 252 442 883.9 \$NE wl Rm606
60223 15 rpp 478.5 483.5 242 247 442 883.9 \$NE wl protrusion Rm606
60224 15 rpp 366 573 0 14 442 883.9 \$\$ wl Rm602
60225 15 rpp 400.75 405.75 14 16.75 442 883.9 \$\$ wl protrusion Rm602
60226 15 rpp 512.75 529 14 17.75 442 883.9 \$\$SE wl protrusion Rm602
60227 15 rpp 573 577 0 288 442 883.9 \$E i wl Rm602<-----Some anomolies here-----
60228 15 rpp 577 580.5 -4 259.5 442 518.2 \$E o wl Rm602
60231 15 rpp 487 560 169 247 442 883.9 \$Roomspace 606
60232 15 rpp 577 580.5 -4 259.5 518.2 883.9 \$E o wl Rm602

c
c

c Floor1 Room 610 Truck Lock

c *****Note: a .5cm thick material that borders the dock was neglected*****

61001 15 rpp 580.5 1078.5 257 259.5 442 883.9 \$\$ exterior wl Rm610
61002 15 rpp 577 1076 259.5 264.5 442 883.9 \$\$ interior wl Rm610
61003 15 rpp 577 580.5 264.5 288 442 883.9 \$\$W wl Rm610
61004 15 rpp 581.5 589.5 266 274 442 883.9 \$\$W column Rm610
61005 15 rpp 821.5 829.5 266 274 442 883.9 \$\$ column Rm610
61006 15 rpp 1061.5 1069.5 266 274 442 883.9 \$\$SE column Rm610
61007 15 rpp 573 577 324 342 442 883.9 \$\$W wl stub Rm610
61008 15 rpp 577 580.5 324 342 442 883.9 \$\$W wl stub Rm610
61009 15 rpp 573 577 462 506.5 442 883.9 \$\$NW wl Rm610
61010 15 rpp 577 580.5 462 509 442 883.9 \$\$NW wl Rm610
61011 15 rpp 558.5 576.5 506.5 513.5 442 883.9 \$\$NW Block <-----What is this?
61012 15 rpp 580.5 819.5 508 509 442 883.9 \$\$N wl Rm610
61013 15 rpp 577 819.5 509 511 442 883.9 \$\$N wl Rm610
61014 15 rpp 577 819.5 511 512 442 883.9 \$\$N wl Rm610
61015 15 rpp 819.5 831.5 505 515 442 883.9 \$\$N column in wl Rm610
61016 15 rpp 831.5 1060.5 508 509 442 883.9 \$\$N wl Rm610
61017 15 rpp 831.5 1060.5 509 511 442 883.9 \$\$N wl Rm610
61018 15 rpp 831.5 1060.5 511 512 442 883.9 \$\$N wl Rm610
61019 15 rpp 1060.5 1070.5 506 514 442 883.9 \$\$NW column in wl Rm610
61020 15 rpp 1071 1076 486 527 442 883.9 \$\$NW perependicular dividing wl Rm610
61021 15 rpp 1076 1078.5 486 527 442 883.9 \$\$NW perependicular dividing wl Rm610
61022 15 rpp 1078.5 1310.5 506 514 442 883.9 \$\$N wl Rm610-1
61023 15 rpp 1311 1316 486 514 442 883.9 \$\$NE i wl Rm610-1
61024 15 rpp 1316 1318.5 486 514 442 883.9 \$\$NE o wl Rm610-1
61025 15 rpp 1311 1316 264.5 342 442 883.9 \$\$NE i wl Rm610-1
61026 15 rpp 1316 1318.5 259.5 342 442 883.9 \$\$NE o wl Rm610-1
61027 15 rpp 1282.5 1316 259.5 264.5 442 883.9 \$\$SE i wl Rm610-1
61028 15 rpp 1282.5 1318.5 257 259.5 442 883.9 \$\$SE o wl Rm610-1
61029 15 rpp 1078.5 1246.5 259.5 264.5 442 883.9 \$\$SW i wl Rm610-1
61030 15 rpp 1078.5 1246.5 257 259.5 442 883.9 \$\$SW o wl Rm610-1
61031 15 rpp 1079.5 1087.5 266 274 442 883.9 \$\$SW column Rm610-1
61032 15 rpp 1301.5 1309.5 266 274 442 883.9 \$\$SE column Rm610-1
61033 15 rpp 1079.5 1087.5 496 504 442 883.9 \$\$NW column Rm610-1
61034 15 rpp 1301.5 1309.5 496 504 442 883.9 \$\$NE column Rm610-1
61035 15 rpp 1071 1076 264.5 288 442 883.9 \$\$dividing i wl Rm610-Rm610-1
61036 15 rpp 1076 1078.5 259.5 288 442 883.9 \$\$dividing o wl Rm610-Rm610-1
61037 15 rpp 1071 1076 324 342 442 883.9 \$\$dividing i wl Rm610-Rm610-1
61038 15 rpp 1076 1078.5 324 342 442 883.9 \$\$dividing o wl Rm610-Rm610-1

c
c

c Floor1 Room 603

c *****Neglected block in SE corner, above room 606*****

60301 15 rpp 577 1076 742.5 747.5 442 883.9 \$\$N i wl Rm610
60302 15 rpp 577 1078.5 747.5 750 442 883.9 \$\$N o wl Rm610
60303 15 rpp 581.5 589.5 733 741 442 883.9 \$\$N column Rm610
60304 15 rpp 821.5 829.5 733 741 442 883.9 \$\$N 2nd column Rm610
60305 15 rpp 941.5 949.5 733 741 442 883.9 \$\$N 3rd column Rm610
60306 15 rpp 1061.5 1069.5 733 741 442 883.9 \$\$N 4th column Rm610
60307 15 rpp 1071 1076 562 742.5 442 883.9 \$\$E i wl Rm610
60308 15 rpp 1076 1078.5 562 747.5 442 883.9 \$\$E o wl Rm610
60309 15 rpp 941.5 949.5 579.75 587.75 442 883.9 \$\$SE column Rm610
60310 15 rpp 1061.5 1069.5 579.75 587.75 442 883.9 \$\$SE 2n column
60311 15 rpp 573 577 753.5 1548.5 442 883.9 \$\$E i wl Rm603
60312 15 rpp 577 580.5 750 1552 442 518.2 \$\$E o wl Rm603
60313 15 rpp 558.5 576.5 746.5 753.5 442 883.9 \$\$E Block in wl Rm603
60314 15 rpp 554 572 986 994 442 883.9 \$\$E Block next one N of 60313
60315 15 rpp 551 572 1048.5 1057.5 442 883.9 \$\$E Block next one N of 60314

60316	15	rpp	551	572	1285.5	1294.5	442	883.9	\$E Block next one N of 60315
60317	15	rpp	551	572	1534.5	1543.5	442	883.9	\$E Block next one N of 60316
60318	15	rpp	63.5	573	1544.5	1548.5	442	883.9	\$N i wl Rm603
60319	15	rpp	63.5	577	1548.58	1552	442	883.9	\$N o wl Rm603
60320	15	rpp	340.5	361.5	1534.5	1543.5	442	883.9	\$N Block Rm603
60321	15	rpp	340.5	361.5	1285.5	1294.5	442	883.9	\$Central N block S of 60320 Rm603
60322	15	rpp	360	361.5	1294.5	1339	442	883.9	\$Central wl Rm603
60323	15	rpp	360	361.5	1277.5	1285.5	442	883.9	\$Central wl Rm603
60324	15	rpp	360	361.5	1057.5	1217.5	442	883.9	\$Central wl Rm603
60325	15	rpp	360	361.5	995	1048.5	442	883.9	\$Central wl Rm603
60326	15	rpp	357.5	365.5	985	994.5	442	883.9	\$Central Block in central wl Rm603
60327	15	rpp	321	326	886	994.5	442	883.9	\$W wl Rm603
60328	15	rpp	232.5	321	886	891	442	883.9	\$W wl Rm603
60329	15	rpp	232.5	237.5	822	850	442	883.9	\$W wl Rm603
60330	15	rpp	335	338	288	324	442	883.9	\$SW wl Rm603
60331	15	rpp	199.5	367.5	324	822	442	883.9	\$Blank Concrete Box
60336	15	rpp	577	580.5	750	1552	518.2	883.9	\$E o wl Rm603
c									
c									
c Floor1 Room 601									
60101	15	rpp	28.5	38.5	266	274	442	883.9	\$SW column Rm601
60102	15	rpp	28.5	38.5	506	514	442	883.9	\$W column Rm601
60103	15	rpp	28.5	38.5	746	754	442	883.9	\$NW column Rm601
60104	15	rpp	-4	18	994.5	999.5	442	883.9	\$NE wl Rm601
60105	15	rpp	54	360	994.5	999.5	442	883.9	\$N wl Rm601
c									
c									
c Floor1 Room 604									
60401	15	rpp	-4	4	999.5	1466	442	883.9	\$W wl Rm604
60403	15	rpp	-4	4	1504	1552	442	883.9	\$W i wl Rm604
60404	15	rpp	4	27.5	1548.5	1552	442	883.9	\$NW o wl Rm604
60405	15	rpp	4	27.5	1544.5	1548.5	442	883.9	\$NW i wl Rm604
60406	15	rpp	71.5	74.5	1442	1544.5	442	883.9	\$NW Rm in Rm604
60407	15	rpp	4	33	1442	1445	442	883.9	\$NW Rm in Rm604
60408	15	rpp	209.5	214.5	1099.5	1544.5	442	883.9	\$E wl Rm604
60409	15	rpp	194.5	204.5	1534	1544.5	442	883.9	\$NE column Rm604
60410	15	rpp	194.5	204.5	1285	1295	442	883.9	\$E column Rm604
60411	15	rpp	194.5	204.5	1048	1058	442	883.9	\$SE column Rm604
60412	15	rpp	209.5	214.5	1053.5	1063.5	442	883.9	\$SE wl Rm604
60413	15	rpp	209.5	310.5	1048.5	1053.5	442	883.9	\$SE wl Rm604
60414	15	rpp	305.5	311	1032.5	1048.5	442	883.9	\$SE wl Rm604
60415	15	rpp	311	345.5	1032.5	1037.5	442	883.9	\$SE wl Rm604
60416	15	rpp	340.5	361.5	1048.5	1057.5	442	883.9	\$SE Block in wl next to ladder Rm604
c									
c									
c									
c									
c //Begin Southernmost Section of Floor1//									
c *****Notes for this section of Surfaces*****									
c The origin was set as the outside corner of the Southwesternmost wall of the south west section									
c This is the Southwesternmost point of the entire section as well as that for Room 206									
c									
c									
c Floor1 Room 206									
20601	16	rpp	0	7	0	363.5	442	518.2	\$W o wl Rm206 l
20602	16	rpp	7	11.25	0	363.5	442	883.9	\$W i wl Rm206
20603	16	rpp	11.25	14.5	0	363.5	442	883.9	\$W i wl Rm206
20604	16	rpp	0	7	435.5	976	442	518.2	\$W o wl Rm206 l
20605	16	rpp	7	11.25	435.5	976	442	883.9	\$W i wl Rm206
20606	16	rpp	11.25	14.5	435.5	976	442	883.9	\$W i wl Rm206
20607	16	rpp	14.5	32	900	905	442	883.9	\$N hallway wl
20608	16	rpp	74	102	900	905	442	883.9	\$N hallway wl
20609	16	rpp	102	107	772	905	442	883.9	\$E hallway wl
20610	16	rpp	102	107	615.25	702.5	442	883.9	\$E hallway wl
20611	16	rpp	98.5	404.5	610.25	615.25	442	883.9	\$N wl Rm206
20612	16	rpp	404.5	414.5	608.5	616.5	442	883.9	\$Column in N wl
20613	16	rpp	414.5	517	610.25	615.25	442	883.9	\$N wl Rm206
20614	16	rpp	512	517	7.5	610.25	442	883.9	\$E wl Rm206
20615	16	rpp	14.5	517	2.75	7.5	442	883.9	\$S i wl Rm206
20616	16	rpp	14.5	517	0	2.75	442	518.2	\$S o wl Rm206 l

20617 16 rpp 14.5 24.5 8.5 16.5 442 883.9 \$\$W column
 20618 16 rpp 405.5 413.5 7.5 17.5 442 883.9 \$\$E column
 20619 16 rpp 14.5 24.5 308.5 316.5 442 883.9 \$\$W column
 20620 16 rpp 404.5 414.5 308.5 316.5 442 883.9 \$\$E column
 20621 16 rpp 15.5 23.5 607.5 617.5 442 883.9 \$\$NW column
 20622 16 rpp 0 7 0 363.5 518.2 883.9 \$\$W o wl Rm206 u
 20623 16 rpp 0 7 435.5 976 518.2 883.9 \$\$W o wl Rm206 u
 20624 16 rpp 14.5 517 0 2.75 518.2 883.9 \$\$S o wl Rm206 u
 c
 c
 c Floor1 Room 204/205
 20401 16 rpp 107 182.5 775.25 780.25 442 883.9 \$\$ wl Rm204
 20402 16 rpp 221.75 226.75 775.25 900 442 883.9 \$\$E wl Rm204
 20403 16 rpp 107 512 900 905 442 883.9 \$\$N wl Rm204-Rm205
 20404 16 rpp 512 517 615.25 905 442 883.9 \$\$E wl Rm205
 20405 16 rpp 107 221.75 780.25 900 442 883.9 \$\$Roomspace 204
 20406 16 rpp 107 512 616.5 775.25 442 883.9 \$\$Roomspace 205 Partially Filled
 20407 16 rpp 226.75 512 775.25 900 442 883.9 \$\$Roomspace 205
 c
 c
 c Floor1 Room 101/102/102A
 10101 16 rpp 97.5 100.5 912.5 1061 442 883.9 \$\$W wl Rm101
 10102 16 rpp 100.5 356 1058 1061 442 883.9 \$\$N wl Rm101-102
 10103 16 rpp 271 274 1049 1058 442 883.9 \$\$Divider wl Rm101-102
 10104 16 rpp 271 274 912.5 1013 442 883.9 \$\$Divider wl Rm101-102
 10105 16 rpp 391 532 1058 1061 442 883.9 \$\$N wl Rm102-102A
 10106 16 rpp 397 400 1004.5 1058 442 883.9 \$\$Divider wl Rm102-102A
 10107 16 rpp 397 400 912.5 956.5 442 883.9 \$\$Divider wl Rm102-102A
 10108 16 rpp 400 417.5 917.5 920.5 442 883.9 \$\$SW wl block Rm102A
 10109 16 rpp 414.5 417.5 912.5 917.5 442 883.9 \$\$SW wl block Rm102A
 10110 16 rpp 414.5 516.5 907.5 912.5 442 883.9 \$\$S wl Rm102A
 10111 16 rpp 97.5 400 907.5 912.5 442 883.9 \$\$S wl Rm101-102
 10112 16 rpp 74 97.5 905 918 442 883.9 \$\$SE block Hallway
 10113 16 rpp 17.5 32 905 923 442 883.9 \$\$SW block hallway, added slight extra corner
 10114 16 rpp 14.5 17.5 905 976 442 883.9 \$\$W hallway wl
 10115 16 rpp 100.5 271 912.5 1058 442 883.9 \$\$Roomspace 101
 10116 16 rpp 274 397 912.5 1058 442 883.9 \$\$Roomspace 102
 10117 16 rpp 400 523 912.5 1058 442 883.9 \$\$Roomspace 102A Partially Filled
 c
 c
 c //Begin Southernmost East Section of Floor1//
 c *****Notes for this section of Surfaces*****
 c The origin was placed directly on the border of this section and the section to the west -right on
 c the center of the yellow line. Vertically it is hard to describe so bear with me. The origin is on
 c the northern edge of the second wall N of the southernmost West to East running wall of this section.
 c To clarify, hopefully, the origin is at the center of where the boundary wall intersects with the west
 c to east running wall. The southern half of this section has several rooms labeled with words rather
 c than numbers. I.E. Lunch Room, Men Change Room, etc.. Because they used words instead of numbers in
 c the CAD blueprints the majority of the SW corner of this MCNP5 input deck will be designated with the
 c room ID of 109. Concordingly the SE corner of this section will be designated with the room ID of 110.
 c
 c
 c Floor1 Room 109
 10901 17 rpp 0 2.5 0 900 442 883.9 \$\$W o wl LR
 10902 17 rpp 2.5 5.5 0 879.5 442 883.9 \$\$W i wl LR
 10903 17 rpp 5.5 619.5 297 300 442 883.9 \$\$N wl LR
 10904 17 rpp 554 558.5 284 297 442 883.9 \$\$E wl LR
 10905 17 rpp 554 558.5 3 212 442 883.9 \$\$E wl LR
 10906 17 rpp 495 500 63 211.5 442 883.9 \$\$E wl LR
 10907 17 rpp 535.5 635.5 0 3 442 518.2 \$\$SE wl LR
 10908 17 rpp 5.5 499.5 0 3 442 883.9 \$\$SW wl LR
 10909 17 rpp 0 499.5 -4.75 0 442 883.9 \$\$S o wl LR
 10910 17 rpp 0 499.5 -7.5 -4.75 442 883.9 \$\$S o wl LR
 10911 17 rpp 5.5 14.5 3 13 442 883.9 \$\$SW column LR
 10912 17 rpp 313.5 330 3 13 442 883.9 \$\$S column LR
 c First half of the Mens Change Room Below here - MCR
 10913 17 rpp 5.5 15.5 300 313 442 883.9 \$\$SW column MCR
 10914 17 rpp 301.5 317.5 300 314.5 442 883.9 \$\$S column MCR
 10915 17 rpp 600.5 619.5 300 313 442 883.9 \$\$SE column MCR
 10916 17 rpp 202.5 205.5 300 524 442 883.9 \$\$Central dividing wl MCR

10917 17 rpp 202.5 205.5 560 606.5 442 883.9 \$Central dividing wl MCR
 10918 17 rpp 205.5 302 603.5 606.5 442 883.9 \$N wl MCR
 10919 17 rpp 302 318 597 613 442 883.9 \$N column in wl MCR
 10920 17 rpp 318 562 603.5 606.5 442 883.9 \$N wl MCR-Rm109
 10921 17 rpp 466.5 469.5 360.5 603.5 442 883.9 \$E wl MCR
 10922 17 rpp 469.5 616.5 360.5 363.5 442 883.9 \$E wl MCR
 c Room 109/109A Below here
 10923 17 rpp 616.5 619.5 354 594 442 883.9 \$E wl Rm109-109A
 10924 17 rpp 469.5 509.5 498.5 501.5 442 883.9 \$\$ wl Rm109
 10925 17 rpp 545.5 616.5 498.5 501.5 442 883.9 \$\$ wl Rm109
 c Main lobby area - MLA
 10926 17 rpp 603.5 616.5 3 13 442 883.9 \$\$ column MLA
 10927 17 rpp 703.5 731.5 0 4.5 442 518.2 \$\$E wl MLA
 10928 17 rpp 722.5 731.5 4.5 13 442 883.9 \$\$E block in wl MLA
 c Second half of Mens Change Room - MCR/Showers - SH/Pipe Chase - PC/Mens Bathroom - MB
 10929 17 rpp 5.5 15.5 597 613 442 883.9 \$W block in wl MCR
 10930 17 rpp 5.5 295.5 871.5 874.5 442 883.9 \$N wl MCR-PC-SH
 10931 17 rpp 5.5 304.5 876.5 879.5 442 883.9 \$N wl MCR-PC-SH
 10932 17 rpp 111.5 114.5 762.5 871.5 442 883.9 \$E wl MCR
 10933 17 rpp 117.5 120.5 762.5 871.5 442 883.9 \$E wl MCR
 10934 17 rpp 111.5 158.5 759.5 762.5 442 883.9 \$NE wl MCR- Hallway
 10935 17 rpp 120.5 158.5 762.5 764.5 442 883.9 \$\$W i wl SH
 10936 17 rpp 120.5 122.5 764.5 871.5 442 883.9 \$W i wl SH
 10937 17 rpp 122.5 292.5 869.5 871.5 442 883.9 \$N i wl SH
 10938 17 rpp 290.5 292.5 678.5 869.5 442 883.9 \$E i wl SH
 10939 17 rpp 204 290.5 678.5 680.5 442 883.9 \$\$ i wl SH
 10940 17 rpp 204 206 680.5 718.5 442 883.9 \$\$W i wl SH
 10941 17 rpp 201 204 675.5 718.5 442 883.9 \$\$W o wl SH
 10942 17 rpp 204 366 675.5 678.5 442 883.9 \$\$ o wl SH-PC-MB
 10943 17 rpp 292.5 295.5 678.5 871.5 442 883.9 \$W wl PC
 10944 17 rpp 316 319 678.5 908 442 883.9 \$E wl PC
 10945 17 rpp 320.5 360.5 678.5 680 442 883.9 \$\$W i wl MB
 10946 17 rpp 319 320.5 678.5 905 442 883.9 \$W i wl MB
 10947 17 rpp 320.5 467.5 903.5 905 442 883.9 \$N i wl MB
 10948 17 rpp 466 467.5 729.5 903.5 442 883.9 \$E i wl MB
 10949 17 rpp 407.5 466 729.5 731 442 883.9 \$\$E wl MB
 10950 17 rpp 407.5 409 678.5 729.5 442 883.9 \$\$E wl MB
 10951 17 rpp 402 414 675.5 678.5 442 883.9 \$\$ o wl MB
 10952 17 rpp 409 412 678.5 729.5 442 883.9 \$\$E o wl MB
 10953 17 rpp 412 467.5 726.5 729.5 442 883.9 \$\$E o wl MB
 10954 17 rpp 467.5 470.5 678.5 908 442 883.9 \$E o wl MB
 10955 17 rpp 319 467.5 905 908 442 883.9 \$N o wl MB
 10956 17 rpp 444 624 675.5 678.5 442 883.9 \$\$ wl MB-Rm108
 10957 17 rpp 463 466 660.5 675.5 442 883.9 \$\$ hallway wl MB
 c
 c Hallway above Room 109 and below Room 108
 c Very small wall fragments were ignored on the block defined in this section
 10958 17 rpp 463 466 606.5 624.5 442 883.9 \$W Hallway wl
 10959 17 rpp 540 543 606.5 623 442 883.9 \$E hallway wl
 10960 17 rpp 602.5 648 594 606.5 442 883.9 \$Block in hallway above E wl of Rm109
 10961 17 rpp 603.5 627 606.5 613 442 883.9 \$Block in hallway above E wl of Rm109
 10962 17 rpp 469.5 616.5 363.5 498.5 442 883.9 \$Roomspace 109A
 10963 17 rpp 469.5 616.5 501.5 603.5 442 883.9 \$Roomspace 109 Partially Filled
 c 10964 17 rpp 442 883.9 \$Roomspace
 c 10965 17 rpp 442 883.9 \$Roomspace
 10966 17 rpp 535.5 635.5 0 3 518.2 883.9 \$\$E wl LR u
 10967 17 rpp 703.5 731.5 0 4.5 518.2 883.9 \$\$E wl MLA
 c
 c
 c Floor1 Room 110/ Men B Room Women B Room/ Conf Room Women change room/ copy room
 c Mens Room - MR/Pipe Chase -PC/Womens Room - WR
 c small piece of wall omitted in the south west corner of the Mens room
 11001 17 rpp 726.5 734.5 13 120.5 442 883.9 \$W wl MR
 11002 17 rpp 734.5 741.5 117.5 120.5 442 883.9 \$NW wl MR
 11003 17 rpp 777.5 930.5 117.5 120.5 442 883.9 \$N wl MR-WR
 11004 17 rpp 785.5 844 112.5 117.5 442 883.9 \$N wl MR
 11005 17 rpp 841 844 3.5 112.5 442 883.9 \$E wl MR
 11006 17 rpp 731.5 1024 0 3.5 442 518.2 \$\$ wl MR-PC-WR
 11007 17 rpp 864.5 868 3.5 112.5 442 883.9 \$W wl WR
 11008 17 rpp 864.5 923.5 112.5 117.5 442 883.9 \$NW wl WR

11009 17 rpp 974.5 982.5 3.5 120.5 442 883.9 \$E wl WR
 11010 17 rpp 966.5 974.5 117.5 120.5 442 883.9 \$NE stub wl WR
 11011 17 rpp 979.5 982.5 120.5 138 442 883.9 \$NE stub wl WR
 c Room 110/Conf Room - CR starts below here
 11012 17 rpp 726.5 729.5 189.5 294 442 883.9 \$W wl Rm110
 11013 17 rpp 718.5 795 294 304 442 883.9 \$N wl Rm110
 11014 17 rpp 718.5 786 304 313 442 883.9 \$N wl Rm110
 11015 17 rpp 729.5 809.5 189.5 192.5 442 883.9 \$\$SW wl Rm110
 11016 17 rpp 845.5 979.5 189.5 192.5 442 883.9 \$\$SE wl Rm110
 11017 17 rpp 979.5 982.5 174 294 442 883.9 \$E wl Rm110
 11018 17 rpp 831.5 1335.5 294 297 442 883.9 \$N wl Rm110-CR
 11019 17 rpp 831.5 834 297 301 442 883.9 \$N wl stub Rm110
 11020 17 rpp 831.5 1023.5 301 304 442 883.9 \$N wl Rm110 or S wl Rm 110c
 11021 17 rpp 1020.5 1024 3.5 10 442 883.9 \$\$ wl box CR
 11022 17 rpp 1020.5 1036.5 10 13.5 442 883.9 \$\$ wl box CR
 11023 17 rpp 1033 1036.5 3.5 10 442 883.9 \$\$ wl box CR
 11024 17 rpp 1033 1325.5 0 3.5 442 883.9 \$\$ wl CR
 11025 17 rpp 1322 1325.5 3.5 10 442 883.9 \$\$Ewl Cr
 11026 17 rpp 1322 1332 10 13.5 442 883.9 \$\$E wl CR
 11027 17 rpp 1332 1335.5 10 294 442 883.9 \$E wl CR
 c Room 110A - A/Room110C - C/Room 110B - B/Copy Room - copy/
 11028 17 rpp 727 731 313 392 442 883.9 \$W wl A
 11029 17 rpp 727 731 428 434 442 883.9 \$NW wl stub A
 11030 17 rpp 727 1020.5 434 438 442 883.9 \$N wl A-C
 11031 17 rpp 856.5 860.5 346 434 442 883.9 \$Dividing wl A-C
 11032 17 rpp 856.5 860.5 304 310 442 883.9 \$ " wl A-c stub
 11033 17 rpp 1020.5 1023.5 304 338 442 883.9 \$\$E wl C
 11034 17 rpp 1025.5 1028.5 312 338 442 883.9 \$\$E wl C
 11035 17 rpp 1028.5 1038.5 312 315 442 883.9 \$\$E wl C
 11036 17 rpp 1035.5 1038.5 302 312 442 883.9 \$\$E wl C
 11037 17 rpp 1038.5 1325 302 305 442 883.9 \$\$ wl C - WCR
 11038 17 rpp 1060 1063 305 385 442 883.9 \$E closet wl C
 11039 17 rpp 1028.5 1060 382 385 442 883.9 \$N closet wl C
 11040 17 rpp 1025.5 1028.5 368 548 442 883.9 \$E wl C-B
 11041 17 rpp 1020.5 1023.5 368 554 442 883.9 \$E wl C-B
 11042 17 rpp 898.5 1020.5 542 545 442 883.9 \$N wl B
 11043 17 rpp 851.25 862.5 542 545 442 883.9 \$NW wl stub B
 11044 17 rpp 851.25 855.25 438 542 442 883.9 \$W wl copy
 11045 17 rpp 759 762 438 546 442 883.9 \$W wl copy
 c Women change room below here - WCR
 11046 17 rpp 1322 1325 305 312 442 883.9 \$\$E corner wl WCR
 11047 17 rpp 1322 1335.5 312 315 442 883.9 \$\$E corner wl WCR
 11048 17 rpp 1332 1335.5 315 600 442 883.9 \$E wl WCR
 11049 17 rpp 1158.5 1332 561.5 564.5 442 883.9 \$N wl WCR
 11050 17 rpp 1080.5 1083.5 521.5 606.5 442 883.9 \$W wl WCR
 c Wall above copy room and 110B but below Room 111 and the North Eastern Womens restroom below here
 11051 17 rpp 1036.5 1080.5 603.5 606.5 442 883.9 \$E section hallway wl
 11052 17 rpp 1020.5 1036.5 597 613 442 883.9 \$Block in hallway wl
 11053 17 rpp 1020.5 1023.5 590 597 442 883.9 \$Stub out of block in hallway wl
 11054 17 rpp 734.5 1020.5 603.5 606.5 442 883.9 \$central section of hallway wl
 11055 17 rpp 711 734.5 594 613 442 883.9 \$Block on western edge hallway wl
 11056 17 rpp 690 711 594 606.5 442 883.9 \$Block on western edge hallway wl
 11057 17 rpp 711 714 613 623 442 883.9 \$Block stub hallway wl
 c Womens lounge - WL
 11058 17 rpp 1175.5 1178.5 564.5 568.5 442 883.9 \$\$Sw wl stub WL
 11059 17 rpp 1175.5 1178.5 603.5 712 442 883.9 \$W wl WL
 11060 17 rpp 1178.5 1332 709 712 442 883.9 \$N wl WL
 11061 17 rpp 1330.5 1332 613.5 709 442 883.9 \$E i wl WL
 11062 17 rpp 1332 1335.5 610 898 442 883.9 \$E o wl WL
 11063 17 rpp 1322 1332 610 613.5 442 883.9 \$E box in wl WL
 11064 17 rpp 1320.5 1330.5 613.5 615 442 883.9 \$E box in wl WL
 11065 17 rpp 1322 1325.5 595 610 442 883.9 \$E box in wl WL
 11066 17 rpp 1320.5 1322 593.5 613.5 442 883.9 \$E box in wl WL
 11067 17 rpp 1325.5 1332 595 600 442 883.9 \$E box in wl WL
 11068 17 rpp 1322 1332 593.5 595 442 883.9 \$E box in wl WL
 11069 17 rpp 1330.5 1332 564.5 593.5 442 883.9 \$\$E wl WL
 11070 17 rpp 729.5 979.5 192.5 294 442 883.9 \$Roomspace 110
 11071 17 rpp 731.25 856.5 313 434 442 883.9 \$Roomspace 110A Partially Filled
 11072 17 rpp 860.5 1020.5 304 434 442 883.9 \$Roomspace 110C
 11073 17 rpp 764.25 851.25 438 542 442 883.9 \$Roomspace Copy Room

11074	17	rpp	855.25	1020.5	438	542	442	883.9	\$Roomspace	110B
11075	17	rpp	731.5	1024	0	3.5	518.2	883.9	\$S wl MR-PC-WR u	
11076	17	rpp	725.5	1335.5	-3.25	0	442	883.9	\$S wl MR-PC-WR	
11077	17	rpp	778	1338.75	-7.5	-3.25	442	518.2	\$S o wl MR-PC-WR 1	
11078	17	rpp	778	1338.75	-7.5	-3.25	518.2	883.9	\$S o wl MR-PC-WR 1	
c										
c Floor1 Room 111/Room 111A/NW Women Rest Room - NWW/Women change and shower room - WSR										
11101	17	rpp	711	714	659	702.25	442	883.9	\$SW o wl Rm111	
11102	17	rpp	714	871	675.5	678.5	442	883.9	\$S wl Rm111	
11103	17	rpp	795	798	659	675.5	442	883.9	\$S hallway wl Rm111	
11104	17	rpp	795	798	606.5	623	442	883.9	\$S hallway wl Rm111	
11105	17	rpp	720	723	678.5	750.75	442	883.9	\$W wl Rm111	
11106	17	rpp	714	720	747.75	750.75	442	883.9	\$W wl Rm111	
11107	17	rpp	711	714	744.75	750.75	442	883.9	\$W wl Rm111	
11108	17	rpp	711	714	782.75	855.75	442	883.9	\$W wl Rm111a	
11109	17	rpp	714	723	782.25	786.5	442	883.9	\$S wl Rm111a	
11110	17	rpp	723	840	783.5	786.5	442	883.9	\$S wl Rm111a	
11111	17	rpp	840	843	764.5	910	442	883.9	\$E wl Rm111a	
11112	17	rpp	843	855	764.5	767.5	442	883.9	\$SE wl Rm111a	
11113	17	rpp	855	858	678.5	908	442	883.9	\$E wl Rm111	
11114	17	rpp	711	714	890.75	897	442	883.9	\$W wl stub Rm111a	
11115	17	rpp	711	734.5	897	914.5	442	883.9	\$NW block Rm111a	
11116	17	rpp	734.5	835	910	914.5	442	883.9	\$N wl Rm111a	
11117	17	rpp	835	1335.5	910	913	442	883.9	\$N wl Rm111a-S wl of Rm112A-Rm115	
11118	17	rpp	907	924	675.5	678.5	442	883.9	\$S stub wl NWW	
11119	17	rpp	920	923	678.5	714.5	442	883.9	\$SE wl NWW	
11120	17	rpp	923	992	711.5	714.5	442	883.9	\$SE wl NWW	
11121	17	rpp	992	995	678.5	905	442	883.9	\$E wl NWW	
11122	17	rpp	960	1008	675.5	678.5	442	883.9	\$S wl NWW	
11123	17	rpp	1005	1008	678.5	898	442	883.9	\$W wl WSR	
11124	17	rpp	1008	1037	895	898	442	883.9	\$NW wl WSR	
11125	17	rpp	1034	1037	898	905	442	883.9	\$NW wl WSR	
11126	17	rpp	858	1323.5	905	908	442	883.9	\$N wl NWW-WSR	
11127	17	rpp	1323.5	1325.5	898	908	442	883.9	\$NE wl WSR	
11128	17	rpp	1323.5	1332	895	898	442	883.9	\$NE wl WSR	
11129	17	rpp	1335.5	1338.75	-3.25	900.45	442	883.9	\$E i wl Exterior to the whole section	
11130	17	rpp	1338.75	1343	-7.51	897.25	442	518.2	\$E o wl Exterior to the whole section	
11131	17	rpp	723	840	678.5	783.5	442	883.9	\$Roomspace 111 Partially Filled	
11132	17	rpp	714	840	786.5	910	442	883.9	\$Roomspace 111A Partially Filled	
11133	17	rpp	1338.75	1343	-7.51	897.25	518.2	883.9	\$E o wl Exterior to the whole section	
c										
c Floor1 Room 107/108										
10701	17	rpp	540	543	659	675.5	442	883.9	\$S hallway wall Rm 108	
10702	17	rpp	624	627	674	759	442	883.9	\$E wl Rm108	
10703	17	rpp	624	627	794	806.5	442	883.9	\$NE wl Rm108	
10704	17	rpp	483	624	799	802	442	883.9	\$N wl Rm108	
10705	17	rpp	480	483	678.5	1050.5	442	883.9	\$W wl Rm108-Rm107-Rm106	
10706	17	rpp	624	627	842	933.5	442	883.9	\$E wl Rm107	
10707	17	rpp	483	624	924.5	927.5	442	883.9	\$N wl Rm107	
10708	17	rpp	483	624	678.5	799	442	883.9	\$Roomspace 108	
10709	17	rpp	483	624	802	924.5	442	883.9	\$Roomspace 107	
c										
c Floor1 Room 103/104/104A/105/106										
10301	17	rpp	12.5	15.5	879.5	913	442	883.9	\$SW box wl Rm103	
10302	17	rpp	6	9	913	1050.5	442	883.9	\$W wl Rm103	
10303	17	rpp	50	148.5	1050.5	1053.5	442	883.9	\$N wl Rm103	
10304	17	rpp	140	143	879.5	1050.5	442	883.9	\$E wl Rm103	
10305	17	rpp	309	439	1050.5	1053.5	442	883.9	\$N wl Rm104	
10306	17	rpp	183	274.5	1050.5	1053.5	442	883.9	\$N wl Rm104	
10307	17	rpp	261	264	879.5	1050.5	442	883.9	\$W wl Rm104A	
10308	17	rpp	304.5	480	910	913	442	883.9	\$S wl Rm104A-Rm105	
10309	17	rpp	354	357	913	1050.5	442	883.9	\$E wl Rm104A	
10310	17	rpp	301.5	304.5	879.5	913	442	883.9	\$SE wl Rm104A	
10311	17	rpp	475	627	1050.5	1053.5	442	883.9	\$N wl Rm106	
10312	17	rpp	624	627	968	1050.5	442	883.9	\$E wl Rm106	
10313	17	rpp	15.5	140	879.5	1050.5	442	883.9	\$Roomspace 103	
10314	17	rpp	143	261	879.5	1050.5	442	883.9	\$Roomspace 104	

c Void box surrounding Second Floor
992 rpp -1000 4000 -3000 4000 883.9 1498.6 \$Void
c
c
c NW Section of Floor2
203 24 rpp -7.25 260 -5 190 883.9 1468.1 \$Cell box SW corner
204 24 rpp -7.25 180 190 960 883.9 1468.1 \$Cell box W
205 24 rpp 180 515 270 1020 883.9 1468.1 \$Cell box NW corner
201 24 rpp -10.25 1519 -85.5 1100 883.9 1468.1 \$NW Section Box
206 24 rpp 180 515 190 270 883.9 1468.1 \$Cell box S1
207 24 rpp 515 840 -85.5 600 883.9 1468.1 \$Cell box S2
208 24 rpp 515 959.5 600 1079.75 883.9 1468.1 \$Cell box N
209 24 rpp 840 1160 -85.5 600 883.9 1468.1 \$Cell box SE
210 24 rpp 1160 1519 -85.5 600 883.9 1468.1 \$Cell box SE2
211 24 rpp 959.5 1519 600 1079.75 883.9 1468.1 \$Cell box NE
c
c
c NE Section of Floor2
212 21 rpp 0 820.25 0 1168.25 883.9 1468.1 \$Cell box NE Section
c
c
c S Section of Floor2
213 22 rpp -3 2343.5 -15 210.25 883.9 1468.1 \$Cell box S Section
c
c
c E Section of Floor2
214 23 rpp -7 574 -4 1548.5 883.9 1071.9 \$Cell box W Section
215 23 rpp 574 1080 255 750 883.9 1071.9 \$Cell box E Section
218 23 rpp -7 590.5 -4 1548.5 1071.9 1257.3 \$Cell box 3rd Floor W Section
c
c
c
c
c ///Begin Northwest Section of the Central Section of Floor2////////////////////////////////////
c *****Notes for this section of Surfaces*****
c The origin was set as the SW corner of the inside wall of Room 910
c
c Floor2 Room 910/911/hallway above these rooms
91002 24 rpp -7.25 0 0 168 883.9 1468.1 \$W wl Rm910
91003 24 rpp -7.25 241 -5 0 883.9 1468.1 \$\$ wl Rm910
91004 24 rpp 0 81.5 149 154 883.9 1468.1 \$N wl Rm910
91005 24 rpp 117.5 133 149 154 883.9 1468.1 \$NE wl Rm910
91006 24 rpp 122.75 127.75 0 149 883.9 1468.1 \$E wl Rm910
91007 24 rpp 169 241 149 154 883.9 1468.1 \$N wl
91008 24 rpp 211 216 154 163 883.9 1468.1 \$\$Spur wl hallway
91009 24 rpp 211 216 237 243.5 883.9 1468.1 \$N Spur wl hallway
91010 24 rpp 211 410 243.5 248.5 883.9 1468.1 \$N boundary wl in hallway
91011 24 rpp -7.25 0 204 218 883.9 1468.1 \$NW block in hallway
91012 24 rpp -10.25 -7.25 204 1082.75 883.9 1468.1 \$W wl hallway-Rm912-914-916-Mech
91013 24 rpp 0 122.75 0 149 883.9 1468.1 \$Roomspace 910
91014 24 rpp 127.75 241 0 149 883.9 1468.1 \$Roomspace 911
c
c
c Floor2 Room 912/914/916
91201 24 rpp -7.25 151 218 223 883.9 1468.1 \$\$ wl Rm912
91202 24 rpp 146 151 223 302 883.9 1468.1 \$E wl Rm912
91203 24 rpp 146 151 338 354 883.9 1468.1 \$NE wl Rm912
91204 24 rpp -7.25 146 344 349 883.9 1468.1 \$N wl Rm912
91205 24 rpp 146 151 390 541 883.9 1468.1 \$E wl Rm 914
91206 24 rpp -7.25 146 469 474 883.9 1468.1 \$N wl Rm 914
91207 24 rpp 146 151 613 916 883.9 1468.1 \$E wl Rm916-Mech
91208 24 rpp -7.25 146 822 827 883.9 1468.1 \$N wl Rm916
91209 24 rpp -7.25 146 223 344 883.9 1468.1 \$Roomspace 912
91210 24 rpp -7.25 146 349 469 883.9 1468.1 \$Roomspace 914
91211 24 rpp -7.25 146 474 822 883.9 1468.1 \$Roomspace 916
c
c
c Floor2 Room 913/915/928/929
91301 24 rpp 211 216 299.5 539.5 883.9 1468.1 \$W wl Rm913-915
91302 24 rpp 216 221.5 299.5 304.5 883.9 1468.1 \$\$SW stub wl Rm913

91303 24 rpp	257.5	476	299.5	304.5	883.9	1468.1	\$S wl Rm913 928
91304 24 rpp	216	329	393.5	398.5	883.9	1468.1	\$N wl Rm913
91305 24 rpp	329	334	304.5	534.5	883.9	1468.1	\$E wl Rm913-915
91306 24 rpp	291	296	358.5	393.5	883.9	1468.1	\$NE compartment Rm913
91307 24 rpp	296	329	358.5	363.5	883.9	1468.1	\$NE compartment Rm913
91308 24 rpp	216	274	534.5	539.5	883.9	1468.1	\$NW wl Rm915
91309 24 rpp	310	476	534.5	539.5	883.9	1468.1	\$NE wl Rm915-Rm929
91310 24 rpp	391	405	539.5	542.5	883.9	1468.1	\$Block in N wl Rm929
91311 24 rpp	334	471	417	422	883.9	1468.1	\$N wl Rm928
91312 24 rpp	471	476	304.5	346	883.9	1468.1	\$SE wl Rm928
91313 24 rpp	471	476	382	493.5	883.9	1468.1	\$NE wl Rm928
91314 24 rpp	471	476	529.5	534.5	883.9	1468.1	\$NE wl Rm929
91315 24 rpp	216	291	304.5	393.5	883.9	1468.1	\$Roomspace 913
91316 24 rpp	216	329	398.5	534.5	883.9	1468.1	\$Roomspace 915
91317 24 rpp	334	471	304.5	417	883.9	1468.1	\$Roomspace 928
91318 24 rpp	334	471	422	534.5	883.9	1468.1	\$Roomspace 929

c

c

c Floor2 Room 918/919/917/921/905/923/mech room

91801 24 rpp	211	216	613.5	697.5	883.9	1468.1	\$W wl Rm918
91802 24 rpp	211	216	733.5	749	883.9	1468.1	\$W wl Rm918
91803 24 rpp	211	216	785	871.5	883.9	1468.1	\$W wl Rm917
91804 24 rpp	211	216	907.5	993	883.9	1468.1	\$W wl Rm905
91805 24 rpp	151	168.5	911	916	883.9	1468.1	\$NW hallway wl
91806 24 rpp	204.5	211	911	916	883.9	1468.1	\$NW hallway wl
91807 24 rpp	500	505	613.5	698	883.9	1468.1	\$E wl Rm919
91808 24 rpp	500	505	734	749	883.9	1468.1	\$E wl Rm 919
91809 24 rpp	500	505	785	874	883.9	1468.1	\$E wl Rm 921
91810 24 rpp	500	505	910	993	883.9	1468.1	\$E wl Rm 923
91811 24 rpp	216	500	739	744	883.9	1468.1	\$N wl Rm919
91812 24 rpp	216	500	864	869	883.9	1468.1	\$N wl Rm921
91813 24 rpp	216	500	988	993	883.9	1468.1	\$N wl Rm923
91814 24 rpp	355.5	360.5	618.5	739	883.9	1468.1	\$E wl Rm918
91815 24 rpp	355.5	360.5	744	864	883.9	1468.1	\$E wl Rm917
91816 24 rpp	355.5	360.5	869	988	883.9	1468.1	\$E wl Rm905
91817 24 rpp	381	395	817.75	827.25	883.9	1468.1	\$Block Rm921
91818 24 rpp	216	500	613.5	618.5	883.9	1468.1	\$S wl Rm918
91819 24 rpp	-7.25	552	1079.75	1082.75	883.9	1468.1	\$N wl mech rm
91820 24 rpp	549	552	1072.75	1079.75	883.9	1468.1	\$N wl mech rm
91821 24 rpp	216	355.5	618.5	739	883.9	1468.1	\$Roomspace 918
91822 24 rpp	216	355.5	744	864	883.9	1468.1	\$Roomspace 917
91823 24 rpp	216	355.5	869	988	883.9	1468.1	\$Roomspace 905
91824 24 rpp	360.5	500	618.5	739	883.9	1468.1	\$Roomspace 919
91825 24 rpp	360.5	500	744	864	883.9	1468.1	\$Roomspace 921
91826 24 rpp	360.5	500	869	988	883.9	1468.1	\$Roomspace 923

c

c

c Floor2 Room 927(Conference Room)/933/935/926/937/925/939 section contains some hallway remnants

92701 24 rpp	469	474	-10.5	248.5	883.9	1468.1	\$W wl Rm927
92702 24 rpp	474	481	243.5	248.5	883.9	1468.1	\$NW wl stub Rm927
92703 24 rpp	474	808	-10.5	-5.5	883.9	1468.1	\$S wl Rm927
92704 24 rpp	666	671	-5.5	534.5	883.9	1468.1	\$E wl Rm927
92705 24 rpp	517	666	243.5	248.5	883.9	1468.1	\$NE wl Rm927
92706 24 rpp	796.75	808	-5.5	7	883.9	1468.1	\$\$E block Rm933
92707 24 rpp	808	813	-85.5	82.5	883.9	1468.1	\$\$E wl Rm933
92708 24 rpp	808	813	118.5	134.5	883.9	1468.1	\$NE wl Rm933
92709 24 rpp	671	808	124	129	883.9	1468.1	\$N wl Rm933
92710 24 rpp	808	813	170.5	346.5	883.9	1468.1	\$E wl Rm935
92711 24 rpp	795	808	235.25	256	883.9	1468.1	\$NE block Rm935
92712 24 rpp	671	808	256	261	883.9	1468.1	\$N wl Rm935
92713 24 rpp	808	813	382.5	479.5	883.9	1468.1	\$NE wl Rm937
92714 24 rpp	671	808	388	393	883.9	1468.1	\$N wl Rm937
92715 24 rpp	524	529	381	492	883.9	1468.1	\$W wl Rm926
92716 24 rpp	529	666	389	394	883.9	1468.1	\$N wl Rm926
92717 24 rpp	524	529	528	539.5	883.9	1468.1	\$W wl Rm925
92718 24 rpp	529	718	534.5	539.5	883.9	1468.1	\$N wl Rm925
92719 24 rpp	704.5	709.5	520.5	534.5	883.9	1468.1	\$NE wl jog Rm939
92720 24 rpp	709.5	813	520.5	525.5	883.9	1468.1	\$NE wl jog Rm939
92721 24 rpp	808	813	515.5	520.5	883.9	1468.1	\$NE wl jog Rm939
92722 24 rpp	794.5	813	525.5	539.5	883.9	1468.1	\$NE wl jog Rm939

92723	24	rpp	792.5	794.5	534.5	539.5	883.9	1468.1	\$NE wl jog Rm939
92724	24	rpp	405	410	202.5	243.5	883.9	1468.1	\$Hallway wl W of Rm927
92725	24	rpp	410	428	202.5	207.5	883.9	1468.1	\$Hallway wl W of Rm927
92726	24	rpp	464	469	202.5	207.5	883.9	1468.1	\$Hallway wl W of Rm927
92727	24	rpp	381	395	248.5	251.5	883.9	1468.1	\$Hallway wl W of Rm927
92728	24	rpp	474	666	-5.5	243.5	883.9	1468.1	\$Roomspace 927
92729	24	rpp	529	666	248.5	389	883.9	1468.1	\$Roomspace 926
92730	24	rpp	529	666	394	534.5	883.9	1468.1	\$Roomspace 925
92731	24	rpp	671	808	-5.5	124	883.9	1468.1	\$Roomspace 933 Room Partial Fill
92732	24	rpp	671	808	129	256	883.9	1468.1	\$Roomspace 935 Room Partial Fill
92733	24	rpp	671	808	261	388	883.9	1468.1	\$Roomspace 937
92734	24	rpp	671	808	393	520.5	883.9	1468.1	\$Roomspace 939 Room Partial Fill
c									
c									
c Floor2 Room 920/927/924/968/965/967/964									
92001	24	rpp	552.5	557.5	613.5	698	883.9	1468.1	\$W wl Rm920
92002	24	rpp	552.5	557.5	734	749	883.9	1468.1	\$W wl Rm920
92003	24	rpp	552.5	557.5	785	874	883.9	1468.1	\$W wl Rm927
92004	24	rpp	552.5	557.5	910	988	883.9	1468.1	\$W wl Rm924
92005	24	rpp	557.5	706	613.5	618.5	883.9	1468.1	\$S wl Rm920
92006	24	rpp	695.5	700.5	618.5	863	883.9	1468.1	\$E wl Rm920
92007	24	rpp	557.5	695.5	739	744	883.9	1468.1	\$N wl Rm920
92008	24	rpp	557.5	706	863	868	883.9	1468.1	\$N wl Rm927
92009	24	rpp	650	655	868	1079.75	883.9	1468.1	\$E wl Rm924
92010	24	rpp	546.75	650	988	993	883.9	1468.1	\$N wl Rm924
92011	24	rpp	742	912	613.5	618.5	883.9	1468.1	\$S wl Rm965
92012	24	rpp	907	912	618.5	697	883.9	1468.1	\$E wl Rm965
92013	24	rpp	813	907	738.5	743.5	883.9	1468.1	\$N wl Rm965
92014	24	rpp	907	912	733	749	883.9	1468.1	\$NE wl Rm965
92015	24	rpp	907	912	785	865	883.9	1468.1	\$E wl Rm967
92016	24	rpp	813	914	865	870	883.9	1468.1	\$N wl Rm967
92017	24	rpp	700.5	808	791	796	883.9	1468.1	\$N wl Rm968
92018	24	rpp	748	753	796	863	883.9	1468.1	\$Rm N of Rm968
92019	24	rpp	742	765	863	868	883.9	1468.1	\$S wl Rm964
92020	24	rpp	760	765	868	907	883.9	1468.1	\$S wl Rm964
92021	24	rpp	765	808	902	907	883.9	1468.1	\$S wl Rm964
92022	24	rpp	655	954.5	1050	1055	883.9	1468.1	\$N wl Rm964
92023	24	rpp	646	1676	1079.75	1082.75	883.9	1468.1	\$N o wl Rm964-Edge of section
92024	24	rpp	954.5	959.5	870	1079.75	883.9	1468.1	\$E wl Rm964
92025	24	rpp	646	649	1072.75	1079.75	883.9	1468.1	\$NE o wl fragment Rm964
92026	24	rpp	808	813	618.5	907	883.9	1468.1	\$E wl Rm968
92027	24	rpp	557.5	695.5	618.5	739	883.9	1468.1	\$Roomspace 920
92028	24	rpp	557.5	695.5	744	863	883.9	1468.1	\$Roomspace 927
92029	24	rpp	557.5	650	868	988	883.9	1468.1	\$Roomspace 924
92030	24	rpp	700.5	808	618.5	791	883.9	1468.1	\$Roomspace 968
92031	24	rpp	813	907	618.5	738.5	883.9	1468.1	\$Roomspace 965
92032	24	rpp	813	907	743.5	865	883.9	1468.1	\$Roomspace 967
92033	24	rpp	655	954.5	907	1050	883.9	1468.1	\$Roomspace 964-Conf. Room Partial Fill
c									
c									
c Floor2 Room 930/932/934/936/938/941/943/945/947/949									
93001	24	rpp	813	819	-85.5	-80.5	883.9	1468.1	\$SW hallway wl stub W of Rm930
93002	24	rpp	854.5	1145.5	-85.5	-80.5	883.9	1468.1	\$S wl Rm930
93003	24	rpp	861	866	-80.5	-5.5	883.9	1468.1	\$W wl Rm930
93004	24	rpp	861	866	30.5	119.5	883.9	1468.1	\$W wl Rm930
93005	24	rpp	861	866	155.5	171.5	883.9	1468.1	\$W wl Rm932
93006	24	rpp	861	866	207.5	368.5	883.9	1468.1	\$W wl Rm934
93007	24	rpp	861	866	404.5	420.5	883.9	1468.1	\$W wl Rm936
93008	24	rpp	861	866	456.5	539.5	883.9	1468.1	\$W wl Rm938
93009	24	rpp	866	1116.5	37.75	42.75	883.9	1468.1	\$N wl Rm930-941
93010	24	rpp	866	1116.5	161	166	883.9	1468.1	\$N wl Rm932-943
93011	24	rpp	866	1116.5	285.5	290.5	883.9	1468.1	\$N wl Rm934-945
93012	24	rpp	866	1116.5	410	415	883.9	1468.1	\$N wl Rm936-947
93013	24	rpp	866	1116.5	534.5	539.5	883.9	1468.1	\$N wl Rm938-949
93014	24	rpp	988.75	993.75	-80.5	37.75	883.9	1468.1	\$E wl Rm930
93015	24	rpp	988.75	993.75	42.75	161	883.9	1468.1	\$E wl Rm932
93016	24	rpp	988.75	993.75	166	285.5	883.9	1468.1	\$E wl Rm934
93017	24	rpp	988.75	993.75	290.5	410	883.9	1468.1	\$E wl Rm936
93018	24	rpp	988.75	993.75	415	534.5	883.9	1468.1	\$E wl Rm938
93019	24	rpp	1116.5	1121.5	-80.5	-49.5	883.9	1468.1	\$E wl Rm941

93020	24	rpp	1116.5	1121.5	-13.5	119.5	883.9	1468.1	\$E	wl	Rm941-943
93021	24	rpp	1116.5	1121.5	155.5	171.5	883.9	1468.1	\$E	wl	Rm943
93022	24	rpp	1116.5	1121.5	207.5	368.5	883.9	1468.1	\$E	wl	Rm945
93023	24	rpp	1116.5	1121.5	404.5	420.5	883.9	1468.1	\$E	wl	Rm947
93024	24	rpp	1116.5	1121.5	456.5	539.5	883.9	1468.1	\$E	wl	Rm949
93025	24	rpp	1099.5	1116.5	-9.25	37.75	883.9	1468.1	\$NE	block	Rm949
93026	24	rpp	1099.5	1116.5	239.5	285.5	883.9	1468.1	\$NE	block	Rm945
93027	24	rpp	1097.5	1116.5	521.5	534.5	883.9	1468.1	\$NE	block	Rm941
93028	24	rpp	866	988.75	-80.5	37.75	883.9	1468.1	\$	Roomspace	930
93029	24	rpp	866	988.75	42.75	161	883.9	1468.1	\$	Roomspace	932
93030	24	rpp	866	988.75	166	285.5	883.9	1468.1	\$	Roomspace	934
93031	24	rpp	866	988.75	290.5	410	883.9	1468.1	\$	Roomspace	936
93032	24	rpp	866	988.75	415	534.5	883.9	1468.1	\$	Roomspace	938
93033	24	rpp	993.75	1116.5	-80.5	37.75	883.9	1468.1	\$	Roomspace	941
93034	24	rpp	993.75	1116.5	42.75	161	883.9	1468.1	\$	Roomspace	943
93035	24	rpp	993.75	1116.5	166	285.5	883.9	1468.1	\$	Roomspace	945
93036	24	rpp	993.75	1116.5	290.5	410	883.9	1468.1	\$	Roomspace	947
93037	24	rpp	993.75	1116.5	415	534.5	883.9	1468.1	\$	Roomspace	949

c

c

c Floor2 Room 940/942/944/946/948/954/955/956/957/958

94001	24	rpp	1181.5	1341.5	-85.5	-80.5	883.9	1468.1	\$S	wl	Rm940
94002	24	rpp	1377.5	1510	-85.5	-80.5	883.9	1468.1	\$S	wl	Rm954
94003	24	rpp	1205.5	1210.5	-80.5	-49.5	883.9	1468.1	\$W	wl	Rm940
94004	24	rpp	1205.5	1210.5	-13.5	119.5	883.9	1468.1	\$W	wl	Rm942
94005	24	rpp	1205.5	1210.5	155.5	171.5	883.9	1468.1	\$W	wl	Rm942
94006	24	rpp	1205.5	1210.5	207.5	368.5	883.9	1468.1	\$W	wl	Rm944
94007	24	rpp	1205.5	1210.5	404.5	420.5	883.9	1468.1	\$W	wl	Rm946
94008	24	rpp	1205.5	1210.5	456.5	539.5	883.9	1468.1	\$W	wl	Rm948
94009	24	rpp	1331.5	1336.5	-80.5	539.5	883.9	1468.1	\$E	wl	Rm954-958
94010	24	rpp	1210.5	1331.5	37.75	42.75	883.9	1468.1	\$N	wl	Rm940
94011	24	rpp	1210.5	1331.5	161	166	883.9	1468.1	\$N	wl	Rm942
94012	24	rpp	1210.5	1331.5	285.5	290.5	883.9	1468.1	\$N	wl	Rm944
94013	24	rpp	1210.5	1331.5	410	415	883.9	1468.1	\$N	wl	Rm946
94014	24	rpp	1210.5	1331.5	534.5	539.5	883.9	1468.1	\$N	wl	Rm948
94015	24	rpp	1210.5	1229	-9.25	37.75	883.9	1468.1	\$NW	block	Rm940
94016	24	rpp	1210.5	1229	239.5	285.5	883.9	1468.1	\$NW	block	Rm944
94017	24	rpp	1210.5	1229.5	521.5	534.5	883.9	1468.1	\$NW	block	Rm948
94018	24	rpp	1384.5	1389.5	-80.5	-5	883.9	1468.1	\$W	wl	Rm954
94019	24	rpp	1384.5	1389.5	31	119.5	883.9	1468.1	\$W	wl	Rm955
94020	24	rpp	1384.5	1389.5	155.5	171.5	883.9	1468.1	\$W	wl	Rm956
94021	24	rpp	1384.5	1389.5	207.5	368.5	883.9	1468.1	\$W	wl	Rm957
94022	24	rpp	1384.5	1389.5	404.5	420.5	883.9	1468.1	\$W	wl	Rm957
94023	24	rpp	1384.5	1389.5	456.5	539.5	883.9	1468.1	\$W	wl	Rm958
94024	24	rpp	1389.5	1510	37.75	42.75	883.9	1468.1	\$N	wl	Rm954
94025	24	rpp	1389.5	1510	161	166	883.9	1468.1	\$N	wl	Rm955
94026	24	rpp	1389.5	1510	285.5	290.5	883.9	1468.1	\$N	wl	Rm956
94027	24	rpp	1389.5	1510	410	415	883.9	1468.1	\$N	wl	Rm957
94028	24	rpp	1389.5	1510	534.5	539.5	883.9	1468.1	\$N	wl	Rm958
94029	24	rpp	1510	1515	-85.5	539.5	883.9	1468.1	\$E	wl	Rm954-958
94030	24	rpp	1210.5	1331.5	-80.5	37.75	883.9	1468.1	\$	Roomspace	940
94031	24	rpp	1210.5	1331.5	42.75	161	883.9	1468.1	\$	Roomspace	942
94032	24	rpp	1210.5	1331.5	166	285.5	883.9	1468.1	\$	Roomspace	944
94033	24	rpp	1210.5	1331.5	290.5	410	883.9	1468.1	\$	Roomspace	946
94034	24	rpp	1210.5	1331.5	415	534.5	883.9	1468.1	\$	Roomspace	948
94035	24	rpp	1389.5	1510	-80.5	37.75	883.9	1468.1	\$	Roomspace	954
94036	24	rpp	1389.5	1510	42.75	161	883.9	1468.1	\$	Roomspace	955
94037	24	rpp	1389.5	1510	166	285.5	883.9	1468.1	\$	Roomspace	956
94038	24	rpp	1389.5	1510	290.5	410	883.9	1468.1	\$	Roomspace	957
94039	24	rpp	1389.5	1510	415	534.5	883.9	1468.1	\$	Roomspace	958

c

c

c Floor2 Room 961/960/951/952/950 with the Elevator

c In the NW section where the lunchroom meets the bathrooms some walls were omitted

c for the sake of saving time. Removing these few walls decreases reflection and is

c therefore conservative.

96101	24	rpp	964	969	613.5	697	883.9	1468.1	\$W	wl	Rm961
96102	24	rpp	964	969	733	749	883.9	1468.1	\$W	wl	Rm961
96103	24	rpp	964	969	785	865	883.9	1468.1	\$W	wl	Rm960
96104	24	rpp	950	1121.5	865	870	883.9	1468.1	\$N	wl	Rm960

90010 21 rpp 817.25 820.25 954 1165.25 883.9 1468.1 \$E wl Rm900
 90011 21 rpp 817.25 820.25 342 918 883.9 1468.1 \$E wl Rm900
 c
 c
 c
 c ///Begin South Section of Floor2////////////////////////////////////
 c *****Notes for this section of Surfaces*****
 c The origin was place on the Southwest corner of Room 903 on the inside corner of the wall
 c All of the Roofs were placed in this section. The roof dimensions were not given in the exploded
 c drawings so instead the dimensions were taken from the 2nd floor exploded drawings. The dimensions of the
 c roofs were assumed to cover the exterior walls.
 c The roofs over the filter building and all of the stairwells were ignored.
 c
 c
 c Floor2 Room 903/904/South Mechanical - Mech
 90301 22 rpp -3 0 -15 463.75 883.9 1468.1 \$W exterior wl Rm903
 90302 22 rpp 0 2343.25 -15 -12 883.9 1468.1 \$\$ exterior wl Rm903
 90303 22 rpp 0 197.5 -12 0 883.9 1468.1 \$\$ i wl Rm903
 90304 22 rpp 197.5 202.5 -12 50.75 883.9 1468.1 \$\$E wl Rm903
 90305 22 rpp 202.5 253.25 45.75 50.75 883.9 1468.1 \$\$E wl Rm903
 90306 22 rpp 248.25 253.25 50.75 56.25 883.9 1468.1 \$\$E wl Rm903
 90307 22 rpp 248.25 253.25 128.25 182.75 883.9 1468.1 \$E wl Rm903
 90308 22 rpp 248.25 253.25 254.75 539.25 883.9 1468.1 \$E wl Rm904
 90309 22 rpp 0 248.25 141.75 146.75 883.9 1468.1 \$N wl Rm903
 90310 22 rpp 202.5 2343.25 -12 0 883.9 1468.1 \$\$ wl Mech
 90317 22 rpp 0 197.5 0 141.75 883.9 1468.1 \$Roomspace 903 Room Partial Fill
 90318 22 rpp 0 248.25 146.75 290.75 883.9 1468.1 \$Roomspace 904
 c
 c
 c ///Begin Roof Section for All Roofs @ Greater than 416'9"////////////////////////////////////
 c
 90311 24 rpp -10.25 2339.25 -310.75 1082.75 1468.1 1498.6 \$NW Section Roof 436'8"
 c
 c
 c
 90312 24 rpp 2339.25 2930 -1296 256.5 1257.3 1287.8 \$HLRF Roof 429'9"
 c
 c
 c
 90313 24 rpp -10.25 1959.8 -1552.75 -310.75 1041.4 1071.9 \$\$ Central Roof
 c
 c
 c
 90314 24 rpp 1959.8 2336.5 -694 -310.75 1122.7 1153.2 \$E Central Roof Elevated above main central roof
 c
 c
 c
 90315 24 rpp 1959.8 2339.25 -1552.75 -694 1041.4 1071.9 \$\$E Roof Same Delta as S main roof as observed
 c
 c
 c
 90316 24 rpp -10.25 1834.5 -2457.5 -1552.75 1041.4 1071.9 \$\$Southernmost Roof
 c
 c
 c
 90319 24 rpp -686.5 -10.25 -1017.5 -367.5 952.5 983 \$Western Roof/SAL Roof
 c
 c
 c
 90320 24 rpp -279.5 -10.25 -1435 -1017.5 952.5 983 \$\$ Western Roof/SAL Roof
 c
 c
 c
 c ///Begin Central Section of Floor2////////////////////////////////////
 c *****Notes for this section of Surfaces*****
 c This section was just a stairwell and was neglected. Not including it is a conservative assumption
 c because it reduces reflection of neutrons back to the detectors on Floor1.
 c
 c
 c ///Begin East Section of Floor2////////////////////////////////////

c *****Notes for this section of Surfaces*****

c The origin was place on the Southwest corner of Room 609 on the inside corner of the wall

c

c The intersection of the wall 60941 with the wall 60936 differs slightly from reality in that there is

c small sections of the wall omitted at the junction. This omission decreases reflectivity and is therefore

c conservative.

c

c

c Floor2 Room 609/608/607/Topp of hot cells

c Room 609 is used as the designation of both the small room 609 and as the

c rest of the walls for the area

60901 23 rpp	-7	-4	981.25	883.9	1071.9	\$W o wl Rm609
60902 23 rpp	-3	0	153	883.9	1071.9	\$W i wl
60903 23 rpp	0	243	150	153	883.9	\$N wl Rm
60905 23 rpp	199	241	48.5	53.5	883.9	\$SE wl Rm609
60906 23 rpp	199	202	46.25	48.25	883.9	\$SE wl Rm609
60907 23 rpp	199	202	0	13.25	883.9	\$SE wl Rm609
60908 23 rpp	-3	574	-4	0	883.9	\$S wl Rm609-607
60909 23 rpp	279.75	537.25	199	202	883.9	\$N wl Rm608
60910 23 rpp	534.25	537.25	0	199	883.9	\$E wl Rm607
60911 23 rpp	481.25	534.25	70	73.25	883.9	\$N wl Rm607
60912 23 rpp	434.75	437.75	0	15.25	883.9	\$SW wl Rm607
60913 23 rpp	434.75	437.75	45.25	53	883.9	\$W wl Rm607
60914 23 rpp	432.5	434.75	48.5	199	883.9	\$W wl Rm607
60915 23 rpp	332.5	402.5	48.5	53	883.9	\$S wl Rm608
60916 23 rpp	332.5	335.5	53	199	883.9	\$W wl Rm608
60917 23 rpp	279.75	282	53	199	883.9	\$Staircase wall <-----Check vs reality -----Started here after being sick-----
60918 23 rpp	356	364	2	12	883.9	\$Block S of Rm608<-----Check vs reality
60919 23 rpp	241	243	48.5	150	883.9	\$E wl Rm609
60920 23 rpp	570	574	0	288	883.9	\$E wl Rm609< Strange block here-----
60921 23 rpp	555.5	570	266.5	273.5	883.9	\$Block in E wl in SE Rm609
60922 23 rpp	574	1073	259.5	264.5	883.9	\$S wl in SE Rm609
60923 23 rpp	1068	1073	264.5	288	883.9	\$SE wl in SE Rm609
60924 23 rpp	1068	1073	324	342	883.9	\$E wl in SE Rm609
60925 23 rpp	1068	1073	486	527	883.9	\$NE wl in SE Rm609
60926 23 rpp	1057.5	1067.5	506	514	883.9	\$NE block in N wl in SE Rm609, ignored very small wall here
60927 23 rpp	574	1057.5	509	511	883.9	\$N wl in SE Rm609
60928 23 rpp	816.5	828.5	511	515	883.9	\$Block on N wl in SE Rm609
60929 23 rpp	816.5	828.5	505	509	883.9	\$Block on N wl in SE Rm609
60930 23 rpp	555.25	573.5	506.5	513.5	883.9	\$NW Block in N wl in SE Rm609
60931 23 rpp	570	574	462	506.5	883.9	\$NW wl in SE Rm609
60932 23 rpp	578.5	586.5	266	274	883.9	\$SW Column in SE Rm609
60933 23 rpp	818.5	826.5	266	274	883.9	\$S Column in SE Rm609
60934 23 rpp	1058.5	1066.5	266	274	883.9	\$SE Column in SE Rm609
60935 23 rpp	196.5	364.5	324	822	883.9	\$Top of hot cells <-----No details put in, fix this later-----
60936 23 rpp	574	1073	742.5	747.5	883.9	\$N wl in E Rm609
60937 23 rpp	1068	1073	562	742.5	883.9	\$E wl in E Rm609
60938 23 rpp	578.5	586.5	733	741	883.9	\$NW column in E Rm609
60939 23 rpp	818.5	826.5	733	741	883.9	\$N column in E Rm609<-----Ignored mezzanine and columns within it-----
60940 23 rpp	555.5	573.5	746.5	753.5	883.9	\$NW Block in E Rm609
60941 23 rpp	570	574	753.5	1548.5	883.9	\$E wl Rm609
60942 23 rpp	187.25	570	1544.5	1548.5	883.9	\$N wl Rm609
60943 23 rpp	187.25	191.25	994.5	1544.5	883.9	\$W wl of Mezzanine Rm609
60944 23 rpp	348.25	352.25	994.5	1544.5	883.9	\$E wl of Mezzanine Rm609
60945 23 rpp	-4	353.75	990.5	994.5	883.9	\$S wl of Mezzanine Rm609
60946 23 rpp	332	335	288	324	883.9	\$Dividing wl S of Hot cell Rm609
60947 23 rpp	25.5	35.5	266	274	883.9	\$SW Column Rm609
60948 23 rpp	25.5	35.5	506	514	883.9	\$W Column Rm609
60949 23 rpp	25.5	35.5	746	754	883.9	\$NW Column Rm609
60950 23 rpp	551	569	986	994	883.9	\$E Column Rm609
60951 23 rpp	548	569	1048.5	1057.5	883.9	\$E Column next column N of (60950)Rm609
60952 23 rpp	548	569	1285.5	1294.5	883.9	\$E Column next column N of (60951)Rm609
60953 23 rpp	548	569	1534.5	1543.5	883.9	\$E Column next column N of (60952) Rm609
60954 23 rpp	354.5	362.5	985	995	883.9	\$Column at SE Corner of Mezzanine Rm609
c 60955 23 rpp	-4	187.25	994.5	1548.5	800.1	\$Roof Next to Mezzanine Rm609 Assumed 50 cm thick
60956 23 rpp	-7	-4	981.25	1548.5	883.9	\$W wl Roof Rm609
60957 23 rpp	0	199	0	150	883.9	\$Roomspace 609 Room Partial Fill
60958 23 rpp	335.5	432.5	53	199	883.9	\$Roomspace 608


```

c
c
c
c
c
c
c
c -----BLANK LINE FOLLOWS THIS LINE-----
c
c =====
c
c #####
c # Data definition cards #
c #####
c
c Start of Data Card =====
c =====
c
c #####
c # Material definition cards#
c #####
c
c
c TAG=TAGmaterials
c Start of Materials =====
c
c Wherever possible natural isotopic distribution were used. .66c was used preferentially
c but if that library was not available then .60c, .55c, .50c was the hierarchy. These libraries
c were all evaluated at or near room temperature. Except for Argon the current library is .59c.
c same evaluation temp as the others.
c
c
c Standard material definitions were taken from PNNL - 15870 Materials List
c
c Calculated Density -0.001205
m1 6000.66c      0.000151  $ C Air
    7014.66c      0.784437  $ N
    8016.66c      0.210750  $ O
    18000.59c     0.004671  $ Ar
c
c
c Calculated Density -1.53 g/cc
m2 14000.60c    1          $ Si Dirt (Sand)
    8016.66c     2          $ O
c
c
c Calculated Density -2.3
m3 1001.66c     -0.022100  $ H Concrete (Ordinary)
    6000.66c     -0.002484  $ C
    8016.66c     -0.574930  $ O
    11023.66c    -0.015208  $ Na
    12000.66c    -0.001266  $ Mg
    13027.66c    -0.019953  $ Al
    14000.60c    -0.304627  $ Si
    19000.66c    -0.010045  $ K
    20000.66c    -0.042951  $ Ca
    26000.55c    -0.006435  $ Fe
c
c
c Calculated Density -0.29 g/cc
m4 20000.66c    1          $ Ca Drywall (Sheet Rock Brand)
    16000.66c    1          $ S
    8016.66c     6          $ O
    1001.66c     4          $ H
c
c
c Calculated Density 0.00359833
m5 26000.55c    0.00263792 $ Fe Metal walls
    24000.50c    0.000689167 $ Cr
    28000.50c    0.00027125  $ Ni
c

```

c Calculated Density
c A full office has the density of -0.04855
c A half full office has the density of -0.02427
m6 6000.66c -0.0215754 \$ C Office filler
1001.66c -0.00301979 \$ H
8016.66c -0.0239544 \$ O
c
c
c Calculated Density -0.05514 .020240g/cc
m7 13027.66c -0.0009904701 \$ Al Lab room sparsley filled
5010.66c -0.0036647 \$ B
11023.66c -0.0040609 \$ Na
8016.66c -0.31452 \$ O
14000.60c -0.037341 \$ Si
26000.55c -0.26313 \$ Fe
24000.50c -0.064005 \$ Cr
28000.50c -0.028447 \$ Ni
82000.50c -0.0032121 \$ Pb
6000.66c -0.23157 \$ C
1001.66c -0.032412 \$ H
7014.66c -0.016642 \$ N
c
c
c The density for a full lab is -0.10907 .03928g/cc
m8 13027.66c -0.0010014 \$ Al Lab room fully filled
5010.66c -0.0037051 \$ B
11023.66c -0.0041057 \$ Na
8016.66c -0.31567 \$ O
14000.60c -0.037752 \$ Si
26000.55c -0.26603 \$ Fe
24000.50c -0.06471 \$ Cr
28000.50c -0.02876 \$ Ni
82000.50c -0.0032475 \$ Pb
6000.66c -0.23413 \$ C
1001.66c -0.032769 \$ H
7014.66c -0.0081198 \$ N
c
c
c Calculated Density -0.06
m9 6000.66c -0.026664 \$ C 8" inch wood walls
1001.66c -0.003732 \$ H
8016.66c -0.029604 \$ O
c
c
c Calculated Density -0.12
m10 6000.66c -0.053328 \$ C 4" inch wood walls
1001.66c -0.007464 \$ H
8016.66c -0.059208 \$ O
c
c
c Calculated Density -2.6467 g/cc
m12 13027.66c -0.03177 \$ Al 1st Floor Deck/Basement1 Ceiling
20000.66c -0.04112 \$ Ca
26000.55c -0.0616 \$ Fe
1001.66c -0.00934 \$ H
8016.66c -0.49712 \$ O
14000.60c -0.31491 \$ Si
11023.66c -0.0271 \$ Na
24000.50c -0.0118 \$ Cr
28000.50c -0.00524 \$ Ni
c
c
c Calculated Density -7.92 g/cc
m13 24000.50c 0.202087 \$ Cr SS-304
25055.66c 0.020133 \$ Mn
26000.55c 0.688268 \$ Fe
28000.50c 0.089514 \$ Ni
c
c
c Calculated Density -0.539

m14 13027.66c -0.034 \$ Al Cinder Block
 20000.66c -0.044 \$ Ca
 26000.55c -0.014 \$ Fe
 1001.66c -0.01 \$ H
 8016.66c -0.532 \$ O
 14000.60c -0.337 \$ Si
 11023.66c -0.029 \$ Na

c
 c

c Calculated Density -0.4751
 m15 13027.66c -0.00454 \$ Al Exterior walls
 5010.66c -0.0168 \$ B
 8016.66c -0.2429 \$ O
 14000.60c -0.1712 \$ N
 11023.66c -0.01861 \$ Na
 26000.55c -0.404 \$ Fe
 24000.50c -0.09828 \$ Cr
 28000.50c -0.04368 \$ Ni

c
 c

c Optimally moderated Pu and H2O Solution Ref: NCS99
 c Calculated Density 32 g/l 239Pu in H2O
 m16 94239.66c 8.0614E-05 \$ Pu 239
 8016.66c 3.3374E-02 \$ O
 1001.66c 6.6748E-02 \$ H

c
 c

c Water Calculated Density of 1 g/cc
 m17 8016.66c 1 \$ O
 1001.66c 2 \$ H

c
 c

c Fe Representing a cask containing a criticality accident
 c Calculated Density -7.874 g/cc
 m18 26000.55c 1 \$ Fe

c
 c

c Calculated Density .9300 g/cc
 m19 1001.66c -0.143716 \$ H Polyethylene (Standard)
 6000.66c -0.856284 \$ C

c
 c
 c
 c
 c
 c
 c

c Translation Cards Begin Below Here

c
 c

c Sections are grouped by floor and the first numerical digit is the floor number with the exception
 c of the Basement floor being numbered as 4. For the translations in the y direction I used the elevational
 c drawing H-4-50013. It is very hard to read precisely. The decision was made to align the first floor inset
 c of the exterior walls of the first Basement floor. If the afore mentioned drawing is closely examined this
 c can be verified. Floors 1 and 2 were aligned with their exterior walls flush.

c
 c
 c

BB
 BBB

c

BB
 BBB

c

BB
 BBB

c BBB Basement 1
 BBB

c

BB
 BBB



c
c SE Section
c sdef pos 1753.5 680.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Pu Sphere in Rm34 B1
c sdef pos 2882 40 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm40c
c
c
c W Section
c sdef pos -202 171 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Pu Sphere in SW corner of Rm23B in cell 425 2321
c
c sdef pos -202 474 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Pu Sphere in W of Rm23 in cell 425 2322
c
c sdef pos -92 921 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Pu Sphere in E of Rm32 (Under SAL) in cell 426
c
c sdef pos -382 1141 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ Pu Sphere in NW of Rm32 (Under SAL)
c
c
c NW Section
c sdef pos 44.5 2577 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ NW corner of NW section B1 Rm45
c
c sdef pos 1144.5 1028.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ SE corner of NW section B1 -Center of B1
c
c sdef pos 44.5 2338.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ NW corner B1
c
c
c N Central Section
c Source in N of B1
c sdef pos 1314.5 2300.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ N B1 center of Rm90
c
c
c NE Section
c Source in E Central B1 in Rm 48
c sdef pos 2303.5 1228.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ E Edge central B1 Rm48
c
c Source in NE B1 N of Rm52
c sdef pos 2178.5 2288.5 50 ERG=D1 RAD=D2 WGT=3.94E15 \$ NE Corner B1
c
c -----
c
c First Floor Accident Locations Rm203, LR, Rm327A, Rm528, Truck Lock, Rm119, Rm410
c
c sdef pos -634.5 1132.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm203
c
c
c sdef pos 541.5 -847.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ LR
c
c
c sdef pos 40 2332.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm327A
c
c
c sdef pos 2277.5 2340.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm528
c
c
c sdef pos 3355.5 402 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Truck Lock
c
c
c sdef pos 2261.5 27.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm119
c
c
c sdef pos 1367.5 960.5 492 ERG=D1 RAD=D2 WGT=3.94E15 \$ Rm410
c
c
c Second Floor Accident Locations
c
c sdef pos 2875 1520 1072 ERG=D1 RAD=D2 WGT=3.94E15 \$ Above Rm 603
c
c
c sdef pos 44.5 2350 884 ERG=D1 RAD=D2 WGT=3.94E15 \$ Above Rm 327 in Rm903 cell202
c
c
c
c


```

c
sp1 -3 0.966 2.842
c
c
si2 0 19.539
c
c
c
c DXTRAN Spheres
c 461 276.1 273.5 412.2 11.45 12 $B1 N Column Rm22
c 462 1549.6 993.7 412.2 11.45 12 $B1 Next(2nd) Column moving E
c 463 1247.6 513.5 412.2 11.45 12 $B1 W Column above(4516) 2nd column above origin
c 464 1912.4 1425.3 863.6 11.45 12 $F1 W wl Rm516 Placed at the NW corner
c 465 1896.6 165.35 863.6 11.45 12 $F1 N wl Rm115 Placed Approx. where observed
c 466 474.4 1430.15 863.6 11.45 12 $F1 W block wl Rm316
c 467 2715.85 216.35 863.6 11.45 12 $F1 N wl Rm605
c 468 2706.1 1127.4 863.6 11.45 12 $F1 Central wl Rm603 Placed Approx. where observed
c
c
c
c DXT:N
c 276.1 273.5 412.2 13 30 $ 461
c 1549.6 993.7 412.2 13 30 $ 462
c 1247.6 513.5 412.2 13 30 $ 463
c 1912.4 1425.3 863.6 13 30 $ 464
c 1817 161.5 863.6 13 30 $ 465
c 474.4 1430.15 863.6 13 30 $ 466
c 2715.85 216.35 863.6 13 30 $ 467
c 2706.1 1127.4 863.6 13 30 $ 468
c
c
c
c
c
c
c 461 rcc 272.7 263.35 412.2 0 20.3 0 5.7 $B1 N Column Rm22
c 462 42 rcc 317.7 977.85 412.2 0 20.3 0 5.7 $B1 Next(2nd) Column moving E
c 462 1546.2 983.55 412.2
c 463 42 rcc 15.7 497.85 412.2 0 20.3 0 5.7 $B1 W Column above(4516) 2nd column above origin
c 463 1244.2 503.35 412.2
c 464 14 rcc 713.3 1174.65 863.6 0 20.3 0 5.7 $F1 W wl Rm516 Placed at the NW corner
c 464 1915.8 1415.15 863.6
c 465 17 rcc 1315.25 1059.45 863.6 20.3 0 0 5.7 $F1 N wl Rm115 Placed Approx. where observed
c 465 1806.75 161.95 863.6
c 466 13 rcc 102.3 1420 863.6 0 20.3 0 5.7 $F1 W block wl Rm316
c 466 477.8 1663.5 863.6
c 467 15 rcc 390.5 209.95 863.6 20.3 0 0 5.7 $F1 N wl Rm605
c 467 2726 211.95 863.6
c 468 15 rcc 367.2 1115.25 863.6 0 20.3 0 5.7 $F1 Central wl Rm603 Placed Approx. where observed
c 468 2702.7 1117.25 863.6
c
c
c
nps 100000000
c
c
cut:N 0 .000004
c
c
c SD2 934.875 934.875 934.875 934.875 934.875 934.875 934.875 934.875
c
c
c 729.7 729.7 729.7 729.7 729.7 729.7 729.7 729.7
c
c
c
F4:N (461) (462) (463)
(464) (465) (466)
(467) (468)
c

```

FC4 461=B1 Rm22, 462=B1 N of Rm34, 463=W of Rm35, 464=F1 W of Rm516,
465=F1 N of Rm115, 466=F1 W of Rm316, 467=F1 N of Rm605, 468=F1 E of 604
c
c
c
E4 4E-6 20

MCNP Input Modeled by Bryce Greenfield
c Listing for NIST 3" dry sphere; detailed src, sphere & detectors, Table 24
c
c 34567890123456789112345678921234567893123456789412345678951234567896123456789712345678
c
c
c
c Cell Records
c Fission Chamber Except Spaces, +Z
1 6 -21.45 -1 2 -3 imp:n=1 \$1,Pt
2 5 -2.581 1 -4 6 -5 imp:n=1 \$2,Al reduced for smearing
3 5 -2.7 7 -1 6 -2 imp:n=1 \$3,Al
4 8 -2.2 8 -9 10 -6 imp:n=1 \$4,KEL-F
5 5 -2.7 11 -12 13 -10 imp:n=1 \$5,Al
6 5 -2.7 14 -15 17 -16 imp:n=1 \$6,Al
7 5 -2.7 -18 19 -13 imp:n=1 \$7,Al
8 8 -2.2 20 -21 22 -19 imp:n=1 \$8,KEL-F
9 8 -2.2 23 -21 19 -24 imp:n=1 \$9,KEL-F
10 8 -2.2 25 -4 3 -26 imp:n=1 \$10,KEL-F
11 8 -2.2 27 -4 26 -28 imp:n=1 \$11,KEL-F
12 5 -2.7 36 -27 26 -29 imp:n=1 \$12,Al
13 5 -2.7 30 -36 31 -32 imp:n=1 \$13,Al
14 8 -2.2 33 -27 34 -35 imp:n=1 \$14,KEL-F
15 8 -2.046 27 -4 37 -35 imp:n=1 \$15,KEL-F reduced for smearing
16 5 -2.7 -27 29 -34 imp:n=1 \$16,Al
17 5 -2.7 38 -39 40 -41 imp:n=1 \$21,Al
18 5 -2.7 -39 42 -43 imp:n=1 \$22,Al
19 5 -2.7 4 -38 46 -42 imp:n=1 \$24,Al
20 5 -2.7 -4 46 -47 imp:n=1 \$25,Al
c Fission Chamber Except Spaces, -Z
21 6 -21.45 -51 53 -52 imp:n=1 \$1,Pt
22 5 -2.581 51 -54 55 -56 imp:n=1 \$2,Al reduced for smearing
23 5 -2.7 57 -51 52 -56 imp:n=1 \$3,Al
24 8 -2.2 58 -59 56 -60 imp:n=1 \$4,KEL-F
25 5 -2.7 61 -62 60 -63 imp:n=1 \$5,Al
26 5 -2.7 64 -65 66 -67 imp:n=1 \$6,Al
27 5 -2.7 -68 63 -69 imp:n=1 \$7,Al
28 8 -2.2 70 -71 69 -72 imp:n=1 \$8,KEL-F
29 8 -2.2 73 -71 74 -69 imp:n=1 \$9,KEL-F
30 8 -2.2 75 -54 76 -53 imp:n=1 \$10,KEL-F
31 8 -2.2 77 -54 78 -76 imp:n=1 \$11,KEL-F
32 5 -2.7 86 -77 79 -76 imp:n=1 \$12,Al
33 5 -2.7 80 -86 82 -81 imp:n=1 \$13,Al
34 8 -2.2 83 -77 85 -84 imp:n=1 \$14,KEL-F
35 8 -2.046 77 -54 85 -87 imp:n=1 \$15,KEL-F reduced for smearing
36 5 -2.7 -77 84 -79 imp:n=1 \$16,Al
37 5 -2.7 88 -89 91 -90 imp:n=1 \$21,Al
38 5 -2.7 -89 93 -92 imp:n=1 \$22,Al
39 5 -2.7 54 -88 92 -96 imp:n=1 \$24,Al

40 5 -2.7 -54 97 -96 imp:n=1 \$25,Al
 c Source, sphere, supports
 51 7 -1.85 -101 102 -103 imp:n=1 \$Cf
 52 11 -2.0 -104 103 -105 imp:n=1 \$A
 53 5 -2.7 104 -106 102 -105 imp:n=1 \$B
 54 5 -2.7 -106 107 -102 imp:n=1 \$C
 55 2 -7.92 108 -109 107 -105 imp:n=1 \$D
 56 2 -7.92 -109 110 -107 imp:n=1 \$E
 57 2 -7.92 111 -109 105 -112 imp:n=1 \$F
 58 2 -7.92 -109 112 -113 imp:n=1 \$G
 59 2 -7.92 -114 113 -115 imp:n=1 \$H
 60 2 -7.92 116 -109 113 -117 imp:n=1 \$I
 61 2 -7.92 114 -118 120 -119 imp:n=1 \$J
 62 2 -7.92 121 -106 119 -122 imp:n=1 \$K
 63 2 -7.92 123 -106 122 -124 imp:n=1 \$L
 64 2 -7.92 123 -125 124 -126 imp:n=1 \$M
 65 2 -7.92 123 -127 126 -128 imp:n=1 \$N
 66 2 -7.92 -127 128 -129 imp:n=1 \$O
 67 2 -7.92 -104 129 -130 imp:n=1 \$P
 68 2 -2.1 -131 -146 130 imp:n=1 \$Q Chain
 69 1 -0.001185 114 -121 119 -115 imp:n=1 \$R, water or air
 70 1 -0.001185 -121 115 -122 imp:n=1 \$S, water or air
 71 1 -0.001185 -123 122 -124 imp:n=1 \$T, water or air
 72 5 -2.7 141 -142 145 -146 imp:n=1 \$U stem support ring
 75 5 -2.7 38 -152 154 -146 imp:n=1 \$stem,+Z
 76 5 -2.7 38 -151 154 -146 imp:n=1 \$stem,-Z
 79 2 -7.92 158 -159 -124 imp:n=1 \$SS shell
 c Spaces
 c air cells above water line
 105 1 -0.001185 -141 129 -146 (131:-130) 104 151 152 imp:n=1 \$ around src shaft above O
 106 1 -0.001185 -141 124 -129 (125:126) 127 151 152 imp:n=1 \$ around src shaft below P
 107 1 -0.001185 -123 124 -128 imp:n=1 \$ just above T in central tube
 108 1 -0.001185 -149 141 124 -146 (-141:142:-145) imp:n=1 \$ away from src shaft
 c
 c air cells below water line
 109 1 -0.001185 148 -124 96 -46 -149 159
 imp:n=1 \$ outside SS sphere, inside detector Zs
 110 1 -0.001185 148 -124 46 -149 (38:43) (-40:39:43)
 (152:-38:-154) imp:n=1 \$ beyond +Z detector
 c inner face
 111 1 -0.001185 148 -124 -149 -96 (38:-93) (90:39:-93)
 (151:-38:-154) imp:n=1 \$ beyond -Z detector
 c inner face
 c water or air cells inside sphere but outside source+holder
 112 1 -0.001185 -116 114 113 -117 imp:n=1 \$ annular recess at top of src capsule
 113 1 -0.001185 -158 -120 (109:-110:117) (114:-113) imp:n=1 \$ below src holder
 114 1 -0.001185 -158 120 -124 (118:119) 106 imp:n=1 \$ at src holder elevations
 c air in source capsule
 115 1 -0.001185 -104 101 102 -103 imp:n=1 \$ gap immediately around Cf
 116 1 -0.001185 -108 106 107 -105 imp:n=1 \$ gap immediately inside src capsule wall D
 117 1 -0.001185 -111 105 -112 imp:n=1 \$ gap inside of F in source capsule
 c P-10 gas in +Z detector
 121 0 -4 47 -19 (-20:-22) imp:n=1 \$ before collector B
 122 0 -4 12 24 -10 imp:n=1 \$ gap outboard of Item 5
 123 0 -11 8 13 -10 (-14:-17:16) imp:n=1 \$ around Item 6
 124 0 -8 13 -2 (-7:-6) imp:n=1 \$ between collector B and Pt plate
 125 0 -4 27 28 -37 imp:n=1 \$ gap outboard of Item 12
 126 0 -36 25 26 -29 (-30:-31:32) imp:n=1 \$ around Item 13
 127 0 -25 3 -29 imp:n=1 \$ before collector B
 128 0 -4 34 -41 (-33:35) imp:n=1 \$ between collector B and Pt plate
 c P-10 gas in -Z detector
 131 0 -4 69 -97 (-20:72) imp:n=1 \$ before collector B
 132 0 -4 12 60 -74 imp:n=1 \$ gap outboard of Item 5
 133 0 -11 8 60 -63 (-14:-66:67) imp:n=1 \$ around Item 6
 134 0 -8 52 -63 (-7:56) imp:n=1 \$ between collector B and Pt plate
 135 0 -4 27 87 -78 imp:n=1 \$ gap outboard of Item 12
 136 0 -36 25 79 -76 (-30:-82:81) imp:n=1 \$ around Item 13
 137 0 -25 79 -53 imp:n=1 \$ before collector B
 138 0 -4 91 -84 (-33:-85) imp:n=1 \$ between collector B and Pt plate
 c

199 0 149:-148:146 imp:n=0 \$ external to model

c

c Surface Records

c Fission Chamber +Z

1 cz 0.953

2 pz 7.606

3 pz 7.634

4 cz 1.194

5 pz 7.634

6 pz 7.558

7 cz 0.921

8 cz 1.021

9 cz 1.194

10 pz 7.507

11 cz 1.119

12 cz 1.157

13 pz 7.126

14 cz 1.081

15 cz 1.119

16 pz 7.471

17 pz 7.253

18 cz 1.157

19 pz 7.113

20 cz 0.882

21 cz 1.194

22 pz 7.075

23 cz 1.157

24 pz 7.329

25 cz 0.858

26 pz 7.710

27 cz 1.150

28 pz 7.837

29 pz 8.091

30 cz 1.074

31 pz 7.746

32 pz 7.964

33 cz 0.874

34 pz 8.104

35 pz 8.142

36 cz 1.112

37 pz 7.888

38 cz 1.245

39 cz 1.786

40 pz 8.435

41 pz 8.529

42 pz 8.529

43 pz 8.583

46 pz 7.005

47 pz 7.056

c Fission Chamber -Z

51 cz 0.953

52 pz -7.606

53 pz -7.634

54 cz 1.194

55 pz -7.634

56 pz -7.558

57 cz 0.921

58 cz 1.021

59 cz 1.194

60 pz -7.507

61 cz 1.119

62 cz 1.157

63 pz -7.126

64 cz 1.081

65 cz 1.119

66 pz -7.471

67 pz -7.253

68 cz 1.157

69 pz -7.113

70 cz 0.882
71 cz 1.194
72 pz -7.075
73 cz 1.157
74 pz -7.329
75 cz 0.858
76 pz -7.710
77 cz 1.150
78 pz -7.837
79 pz -8.091
80 cz 1.074
81 pz -7.746
82 pz -7.964
83 cz 0.874
84 pz -8.104
85 pz -8.142
86 cz 1.112
87 pz -7.888
88 cz 1.245
89 cz 1.786
90 pz -8.435
91 pz -8.529
92 pz -8.529
93 pz -8.583
96 pz -7.005
97 pz -7.056
c
c source, holder
101 cy 0.1
102 py -0.04
103 py 0.04
104 cy 0.127
105 py 0.506
106 cy 0.318
107 py -0.154
108 cy 0.330
109 cy 0.381
110 py -0.205
111 cy 0.152
112 py 0.563
113 py 0.608
114 cy 0.114
115 py 2.289
116 cy 0.277
117 py 0.659
c Holder
118 cy 0.366
119 py 2.108
120 py 1.613
121 cy 0.254
122 py 2.616
123 cy 0.3
124 py 3.753
125 cy 1.27
126 py 3.879
127 cy 0.445
128 py 4.133
129 py 4.260
130 py 4.895
131 cy 0.159
132 py 79.0
c
141 cy 7.858
142 cy 8.493
143 cy 14.446
144 cy 20.010
145 py 11.43
146 py 11.667
148 py -11.667
149 cy 11.667

151 c/y 0 -7.62 0.21
 152 c/y 0 7.62 0.21
 154 py 0.0
 c
 157 cz 0.635
 158 so 3.810
 159 so 3.851

 c
 c Data Records
 c Source
 sdef erg=d1 pos=0 0 0 cel=51 rad=d2 ext=d3 axs=0 1 0
 sp1 -3 1.175 1.04
 si2 0 0.099
 sp2 -21 1
 si3 0.0399
 c Materials
 c
 c Air 0.001185 g/cc
 m1 7014.50c 3.8466e-5
 8016.50c 1.0348e-5
 18000 2.3223e-7
 c
 c SS304, 7.92 g/cc
 m2 6012.50c 1.5884e-4
 25055.50c 8.6816e-4
 15031.50c 3.4647e-5
 16032.50c 2.2309e-5
 14000.50c 6.3683e-4
 24000.50c 1.7428e-2
 28000.50c 7.5171e-3
 7014.50c 1.7026e-4
 26000.55c 5.9994e-2
 c
 c water, 0.9972 g/cc
 m4 1001.50c 6.6669e-1
 8016.50c 3.3334e-1
 mt4 lwtr.01t
 c
 c Al 6061, 2.70 g/cc
 m5 14000.50c 3.4736e-4
 26000.55c 1.0190e-4
 29000.50c 7.0365e-5
 25055.50c 2.2197e-5
 12000.50c 6.6899e-4
 24000.50c 6.0978e-5
 29000.50c 3.1082e-5
 22000.50c 2.5469e-5
 13027.50c 5.8639e-2
 c
 c Pt, 21.45 g/cc
 m6 78000.35c 6.6217e-2
 c
 c Cf2O2SO4, 1.85 g/cc
 m7 98252 3.5243e-3
 8016.50c 1.0573e-2
 16032 1.7622e-3
 c
 c KEL-F, 2.2 g/cc
 m8 6012.50c 2.2750e-2
 9019.50c 3.4125e-2
 17000.50c 1.1375e-2
 c
 c Al powder, 2.0 g/cc
 m11 13027.50c 6.0552e-2
 c
 c fissionable deposits
 m21 92235.50c 1.0
 m22 94239.55c 1.0
 m23 92238.50c 1.0

```

m24 93237.55c 1.0
c
c Tallies
fc2 Fission Rate Tallies. The deposit is inside Surface 157
f2:n (3 53) (2 52)
sd2 2.53354 6.42400 2.53354 3.17291
fs2 -157
fm2 (1 21 -6) (1 22 -6) (1 23 -6) (1 24 -6)
c
c
mode n
nps 822222222
ctme 1260.0
print

```

Plutonium Containing Optimally moderated H2O Sollution Minimum Accidents of Concern for RPL

```

c 3 Scenarios included in this deck. 1) Bare Sphere 2) Water Reflected Sphere
c 3) Iron Reflected Sphere.

```

```

c
c Modeled by Bryce Greenfield 12-10-2008
c

```

```

c Scenario 1: A Bare Sphere

```

```

c Cell cards

```

```

c 1 1 .10020 (-1) imp:n,p=1
c 2 0 (1 -2) imp:n,p=1
c 3 2 -0.001205 (2 -3) imp:n,p=1
c 4 0 (3) imp:n,p=0

```

```

c Scenario 2: A Water Reflected Sphere

```

```

c Cell cards

```

```

c 1 1 .10020 (-1) imp:n,p=1
c 2 3 -1 (1 -4) imp:n,p=1
c 3 2 -0.001205 (2 -3) imp:n,p=1
c 4 0 (4 -2) imp:n,p=1
c 5 0 (3) imp:n,p=0

```

```

c Scenario 3: Fe Shielded Sphere

```

```

c Cell cards

```

```

c 1 1 .10020 (-1) imp:n,p=1
c 2 4 -7.874 (1 -4) imp:n,p=1
c 3 2 -0.001205 (2 -3) imp:n,p=1
c 4 0 (4 -2) imp:n,p=1
c 5 0 (3) imp:n,p=0

```

```

c Blank line Follows

```

```

c Scenario 1: A Bare Sphere

```

```

c Surface cards

```

```

c 1 so 19.54 $ H20 and Pu Sphere
c 2 so 219.04 $ .50 cm less than 2m
c 3 so 220.04 $ .50 cm greater than 2m

```

```

c Scenario 2: A Water Reflected Sphere

```

```

c c
c c Surface cards

```

```

c 1 so 19.54 $ H20 and Pu Sphere
c 2 so 219.04 $ .50 cm less than 2m
c 3 so 220.04 $ .50 cm greater than 2m
c 4 so 25.54 $ Water Reflector

```

```

c

```

```

c
c c Scenario 3: A Metal Shielded Sphere
c c
c c Surface cards
c 1 so 19.54 $ H2O and Pu Sphere
c 2 so 219.04 $ .50 cm less than 2m
c 3 so 220.04 $ .50 cm greater than 2m
c 4 so 31.54 $ Fe Reflector
c
c
c
c
c
c Blank line Follows

c Data cards
c
c
c Materials Cards
c
c
c Optimally moderated Pu and H2O Solution Ref: NCS99
c Calculated Density 32 g/1239Pu in H2O
m1 plib=04p nlib=50m pnlib=24u
94239.60c 8.0614E-05 $ Pu 239
1001.50m .0666657 $ H
8016 .0333343 $ O
c
c
mpn1
82208
1001.50m
8016
c
c
c
c Air 0.001205 g/cc
m2 6012 -0.000124 $ C
7014 -0.755268 $ N
8016 -0.231781 $ O
18000 -0.012827 $ Ar
c
c
mpn2 6012
8016
8016
8016
c
c
c Water Calculated Density of 1 g/cc
m3 1001 .666657 $ H
8016 .333343 $ O
mt3 lwtr.01t
mpn3
1002
8016
c
c
c Fe Representing a cask containing a criticality accident
c Calculated Density -7.874 g/cc
m4 26056 1 $ Fe
c
mpn4
26056
c
c
phys:p 3j 1
c
c
MODE N P

```


c
 c Criticality Control Cards
 c kcode 2000 1.0 50 250
 c ksrc 0 0 0
 c
 sdef pos 0 0 0 ERG=D1 RAD=D2
 c
 sp1 -3 0.966 2.842
 c
 si2 0 19.539
 c
 c
 c This is an Average Energy Deposited over a cell Tally
 F6:N 3
 SD6 7.28905E+02
 c
 F16:P 3
 SD16 7.28905E+02

Calibration Analyses of the low field (80mrem/hr) NCD for building 325
 c Detectors are calibrated in a neutron tank using a Cf-252 source. This source
 c was born on 9-27-95 with an initial activity of .688Ci. Decay correct it is
 c .0208Ci as of 1-19-2008.

c
 c Modeled by Bryce Greenfield 1-19-2008

c
 c
 c Cell cards

2	2	-0.001205	(-2 8 9 10)	imp:n=1
3	3	-.93	(-6 5)	imp:n=1
4	4	-7.84	(-3 2 4)	imp:n=1
5	5	1.7487e-5	(-5)	imp:n=1
6	6	-3.35	(-7 3 4)	imp:n=1
7	2	-0.001205	(7 -999 6 5 11)	imp:n=1
8	2	-0.001205	(-4)	imp:n=1
9	4	-7.84	(-8)	imp:n=1
10	3	-.93	(-9 8)	imp:n=1
11	4	-7.84	(-10)	imp:n=1
c 12	3	-.93	(-12)	imp:n=1
13	33	-1.17	(-11)	imp:n=1
c 14	3	-.93	(-13)	imp:n=1
c 15	3	-.93	(-14)	imp:n=1
c 16	3	-.93	(-15)	imp:n=1
c 17	3	-.93	(-16)	imp:n=1

c
 c
 999 0 (999) imp:n=0

c
 c Blank line Follows-----

c
 c Surface cards

2	RCC 0 0 0	0 0	998 15.24	\$ Counting well 10m deep
3	RCC 0 0	-.5 0 0	1000.5 17.24	\$ Counting well wall assumed .5cm thick
4	RCC 0 0	998 0 0	2 15.24	\$ Opening at the top of the well
5	RCC 0	-11.16 1013	0 22.32 0 .635	\$ BF3 tube .5"X8" .635X20.32cm
6	RCC 0	-10.15 1013	0 20.32 0 5.715	\$ Polyethylene Moderating collar around BF3 tube 2.25"X8" 5.715X20.32cm
7	RCC 0 0	-100 0 0	1100 100	\$ Structural concrete
8	RCC 0 0	844.5 0 0	5.715 1.27	\$ 0.5"X2.25" Metal Source Holder
9	RCC 0 0	824.18 0 0	26.035 10.16	\$ 4"X2.75" Poly Colimator
10	RCC 0 0	820.18 0 0	4 15	\$ Metal Support Plate
11	RPP -13 13	-13 13	1002.285 1007.28	\$ Lucite Slab
c 11	RCC 0 0	1002.285 0 0	2.54 13	\$ Poly thermalizer slab
c 12	RPP -20 20	-20 20	1020 1026	\$ Reflector Box top

```

c 13 RPP -20 20 14 20 1002 1020      $ Reflector Box
c 14 RPP -20 -14 -14 14 1002 1020    $ Reflector Box
c 15 RPP 14 20 -14 14 1002 1020     $ Reflector Box
c 16 RPP -20 20 -20 -14 1002 1020   $ Reflector Box
c
c
c
999 RPP -500 500 -500 500 -400 2000 $ Void Box surrounding model
c
c Blank line Follows-----

c Data cards
c
c
c Materials Cards
c
c
c Air 0.001205 g/cc
m2 6012 -0.000124 $ C
    7014 -0.755268 $ N
    8016 -0.231781 $ O
    18000 -0.012827 $ Ar
c
c
c Polyethylene .93 g/cc
m3 1001 -0.143716 $H
    6012 -0.856284 $C
MT3 POLY.60t
c
c Lucite 1.19g/cc
m33 1001 -0.080538
    6012 -0.599848
    8016 -0.319614
c
c
c
c Fe Representing a cask containing a criticality accident
c Calculated Density -7.874 g/cc
m4 26056 1 $ Fe
c
c
c
c Boron-10 Trifluoride Fill Gas Assumed Pressure of .70atm~70kPa, .001963g/cc
m5 5010.60c .250 $B-10
    9019.60c .750 $F
c
c
c
c
c High Density Barritic Concrete rho=3.35g/cc
m6 1001 -0.003585 $ H
    8016 -0.311622 $ O
    12000 -0.001195 $ C
    13027 -0.004183 $ Al
    14000 -0.010457 $ Si
    16000 -0.107858 $ S
    20000 -0.050194 $ Ca
    26000 -0.047505 $ Fe
    56138.60c -0.463400 $ Ba
c
c
c MODE N
c
c sdef pos 0 0 847 ERG=D1
c
c Watt fission spectrum with spontaneous fission coefficients for Cf-252 from MCNP5 manual
sp1 -3 1.025 2.926
c
c

```

nps 5000000
 c
 c
 c This is a current tally over the surface of the poly collar
 c F2:N (6.1)
 c 6.2 6.3)
 c .4eV is the Cd cutoff
 c 4eV is a rough thermal cutoff where the Cd threshold becomes negligible
 c
 c E2 4E-6 20
 c
 c F12:N (5.1)
 c E12 4E-6 20
 c 5.2 5.3)
 c Surface area of BF3 tube
 c SD2 162.14 5.067 5.067
 c
 c Surface area of the Poly collar 934.875
 c SD2 935
 c
 c Cell Flux Tally over poly collar
 c 729.7 102.6 102.6
 F4:N 3
 SD4 2059.26
 E4 1.00E-07 1.00E-06 1.00E-05 1.00E-04 1.00E-03 1.00E-02
 1.00E-01 5.00E-01 1.00E+00 2.00E+00 3.00E+00 4.00E+00
 5.00E+00 6.00E+00
 c Cell Flux Tally over poly collar
 F14:N 3
 SD14 2059.26
 E14 4E-6 20
 F1:N 11.5
 C1 0 1
 E1 4E-6 20

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