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Prepared for the U.S. Department of Energy
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Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute

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SUMMARY

The use of thermoluminescent dosimeters (TLDs) for beta dosimetry has traditionally involved inaccuracies due to the energy-dependent response of the TLDs. In order to correct for the beta energy spectrum, researchers at the Pacific Northwest Laboratory (PNL--operated by Battelle Memorial Institute) have developed a dosimeter using TLDs under a number of different thicknesses of aluminum shields. These shields provide attenuation to the beta field that depends on the thickness of the shield and the energy of the beta particles striking the dosimeter. This type of dosimeter is able to automatically correct for the energy distribution of the beta radiation field, thus overcoming the energy-dependent inaccuracies of previous TLD-based dosimeters.

The PNL multi-element beta dosimeter has been used in four-element and seven-element configurations. The seven-element configurations were developed to provide better discrimination to low-energy betas. The dosimeters are assembled and analyzed in the PNL TLD Laboratory. Design considerations, analysis procedures, quality assurance, and error determinations for the dosimeters are described in this report. The methods of data analysis used for converting TLD response to dose are also described.

These multi-element dosimeters have been used to measure beta and gamma doses resulting from radioactive contaminants in the Three Mile Island Unit 2 containment building. Over 100 dosimeters have been used in three sets of experiments at a number of locations in the building. This report documents the experiments and presents the doses evaluated by the dosimeters.

ACKNOWLEDGMENTS

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INTRODUCTION

There is a considerable amount of radioactive material contaminating many interior surfaces of the containment building of the Three Mile Island Unit 2 reactor as a result of the accident in March 1979. As work has begun on performing decontamination and other tasks in the building, it is important to have an accurate description of the contamination on these surfaces. This report describes dosimeters that were developed to measure dose rates due to the surface contamination found in TMI-2 containment. These dosimeters are capable of measuring doses due to beta and gamma radiation emitted by radionuclides deposited on the contaminated surfaces and suspended in the air near these surfaces. This report discusses the design of the dosimeter, and the calibration procedures and methods of using them for dose determinations. The report also describes the use of the dosimeters in TMI-2 containment and presents the results of this application.

A dosimeter may be placed near a contaminated surface for two basic purposes: (1) to give an indication of the quantity of radioactive material on the surface and *(2)* to give an estimate of the radiological hazard to a person positioned near the surface. For evaluating the presence of radioactive material, the quantity "dose," measured in units of rad, is most useful. In this study, dose is measured by dosimeters made of ^{7}LiF, which has energy absorption characteristics for beta and gamma radiation that are very similar to that of tissue, so the dosimeters give a good indication of dose to tissue. For evaluating the radiological hazard to personnel, the "dose equivalent," measured in units of rem, is most useful. (The dose equivalent for beta dosimetry is usually measured at a depth of 7 mg/cm^2 in tissue.) Since this discussion is concerned only with beta and gamma radiation, the quantities "dose to tissue" and "dose equivalent" are nearly numerically equal. Therefore this discussion will always refer to the dose (meaning "dose to tissue") measured by the dosimeter.

Another radiological quantity, "exposure," is commonly confused with dose and dose equivalent. This quantity is strictly valid only for photons in air, and in this report it is only used when discussing calibration procedures

using photons. Exposure is measured in units of roentgens (R). There will be instances in this report where the term "expose" is used, however. This term will be used, for example, when a dosimeter is placed in a radiation field and is therefore exposed to radiation. In this situation the dosimeter will still be used to evaluate the dose.

The dosimeter described in this report is a passive device, designed to be exposed to a field of radiation for a well-defined period of time. As the dosimeter is struck by radiation, material damage occurs in the dosimeter. After the dosimeter is taken from the radiation field, it is processed to determine the amount of material damage, and thus evaluate the dose received by the dosimeter. When this dose is divided by the amount of time in the radiation field, the result is an average dose rate. For this type of passive dosimetry, the health physics community has found thermoluminescent dosimeters (TLDs) to be very useful. The material has been shown to be rugged and reliable, with well-defined characteristics for dose determinations. The dose response of TLDs to radiation is linear over a wide range of doses for gammas and betas of any energy likely to be encountered in TMI-2 containment.

The use of TLDs for beta dosimetry has traditionally involved inacurracies for beta dosimetry, however, due to the energy-dependent response of the TLDs to betas. In order to correct for differing beta energy spectra, researchers at the Pacific Northwest Laboratory (PNL) have developed a dosimeter using TLDs under shields of various thicknesses. These shields were chosen to provide differing amounts of attenuation to beta particles of a given energy, so that a mathematical analysis of the TLD responses would give an indication of the energy distribution of beta particles striking the dosimeter.

PNL FIULTI-ELEMENT BETA DOSIMETER DESCRIPTION

PHYSICAL DESCRIPTION OF THE DOSIMETER

The researchers developing this dosimeter wanted to demonstrate that passive beta dosimetry could be accomplished without the resources of a sophisticated laboratory, but could rather be done adequately using the resources available to most health physicists. The holder was made of heavy fiberboard and aluminum. The shields were made of either aluminum or aluminized mylar. The phosphor selected for this dosimeter is 35-mil thick TLD-700, manufactured by Harshaw, a type commonly used by health physicists. Each shield covers three TLD chips; this report refers to each set of three chips and the accompanying shield as a dosimeter element. Two versions of the multi-element dosimeters have been used. The original four-element design did not yield the desired degree of separation for lower energy beta spectra. Therefore, three additional thin shields were added to bring the total to seven. Each dosimeter package is comprised of two four- or seven-element dosimeters placed back-to-back. Thus the four-element dosimeter contains 24 TLD dosimeter chips, and the seven-element dosimeter contains 42 chips. (See Figure 1. This is actually a picture of the new eight-element dosimeter; the seven-element dosimeter is identical except that it has no 1-mil shield.)

It is desirable to have a compact unit that is easy to handle. A small size is also desirable to minimize the effect of a radiation field that varies with position. The final version of the dosimeter is no larger than a pocket calculator. Because most beta dosimetry is performed in fields of mixed gamma and beta radiation, it was considered important to be able to derive separate dose values for gammas and betas. This requirement is met through the attenuation of the various shields.

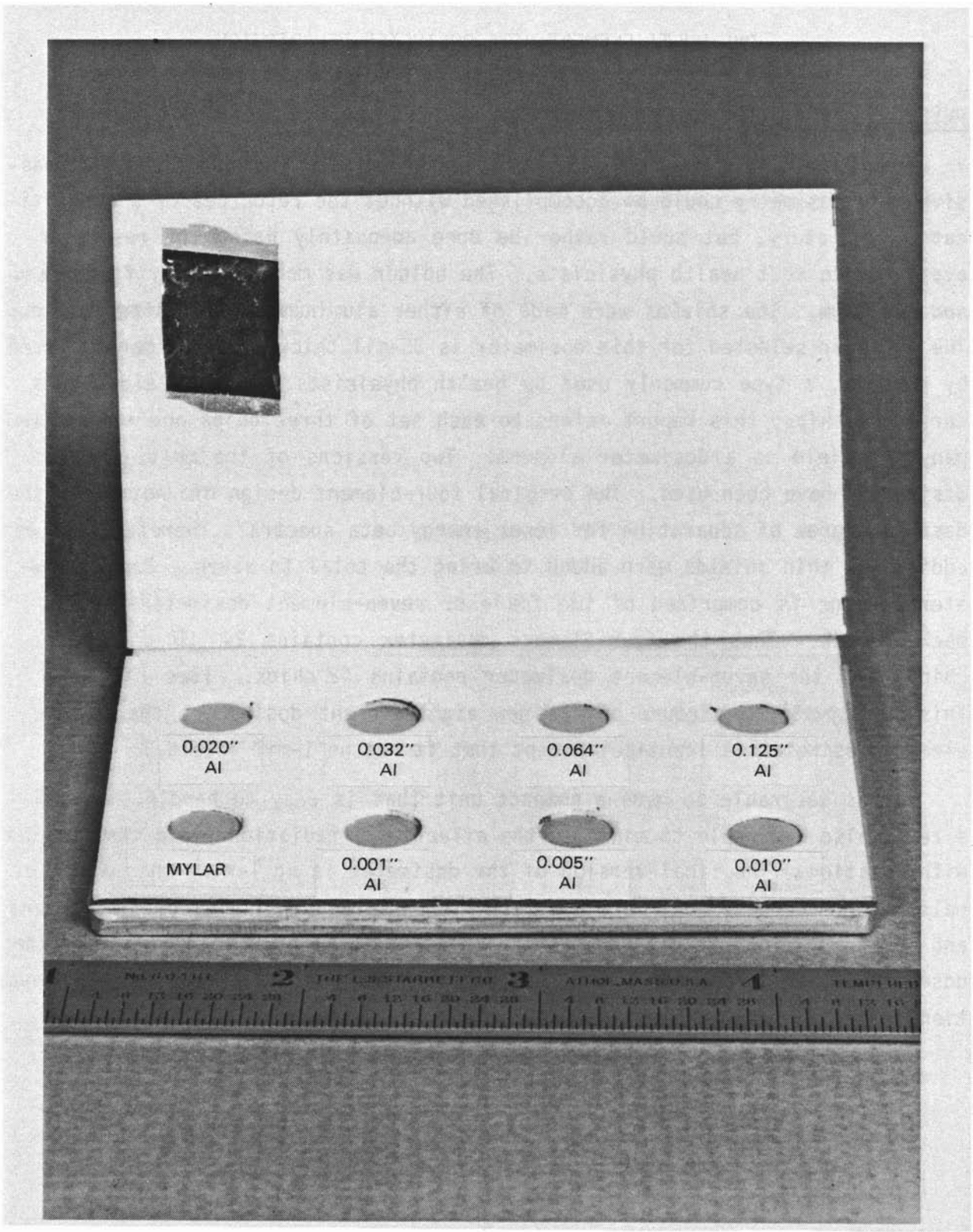

FIGURE 1. PNL Eight-Element Dosimeter

DOSIMETER SHIELD CHARACTERISTICS

All of the shields used in the multi-element dosimeter are made of aluminum (see Figure 2). In the case of the thinnest shield, 2×10^{-6} in., the aluminum is deposited on a mylar film. The other six shields in the seven-element dosimeter are square sheets of aluminum measuring 1.91 cm (3/4 in.) on a side. They have thicknesses of 0.013 cm (0.005 in.), 0.025 cm (0.010 in.), 0.051 cm (0.020 in.), 0.081 cm (0.032 in.), 0.163 cm (0.064 in.), and 0.318 cm (0.125 in.), respectively. (The four-element dosimeter used only the 0.051-cm, 0.081-cm, and the 0.318-cm shields.) The mass thickness can be obtained by multiplying by the density of aluminum, 2.7×10^3 mg/cm^3. The mass thicknesses of the shields range from 0.013 mg/cm^2 to 860 mg/cm^2. This information can be applied to the appropriate range-energy curve (Figure 3) (Evans 1955) to determine the attenuation of the various shields. For example, beta particles with an energy of 1.9 MeV or less will be stopped by the thickest shield, whereas betas with energies greater than 180 keV will penetrate the 0.013-cm thick shield. Although not shown on the curve, the aluminized mylar film will stop only those beta particles with energies less than 3 keV. None of the shields will significantly affect the penetration of gamma photons with energies greater than 40 keV.

The response of TLDs shielded as described above are shown in Figures 4 and 5 (Endres, Scherpelz and Roberson 1982). In these figures, TLD responses are presented for seven-element dosimeters exposed to different sources of beta and photon radiation. The TLD response is listed in units of nano-coulombs (nc), corresponding to the light output from a TLD reader used to analyze exposed TLDs. Since the sources had differing intensities, the TLD responses in nc were divided by the dose delivered to the dosimeter (specifically the dose to the mylar-covered TLDs), producing normalized responses in units of nc/rad. These TLD responses for each dosimeter element were plotted against the thickness of the aluminum shield covering the TLDs. These empirical results seem to agree well with the results of the beta range-energy curve, with TLD response decreasing as a function of shield thickness. Nearly all the beta particles emitted by $^{90}Sr/^{90}Y$ (maximum energy 2.3 MeV) are stopped by the thickest filter.

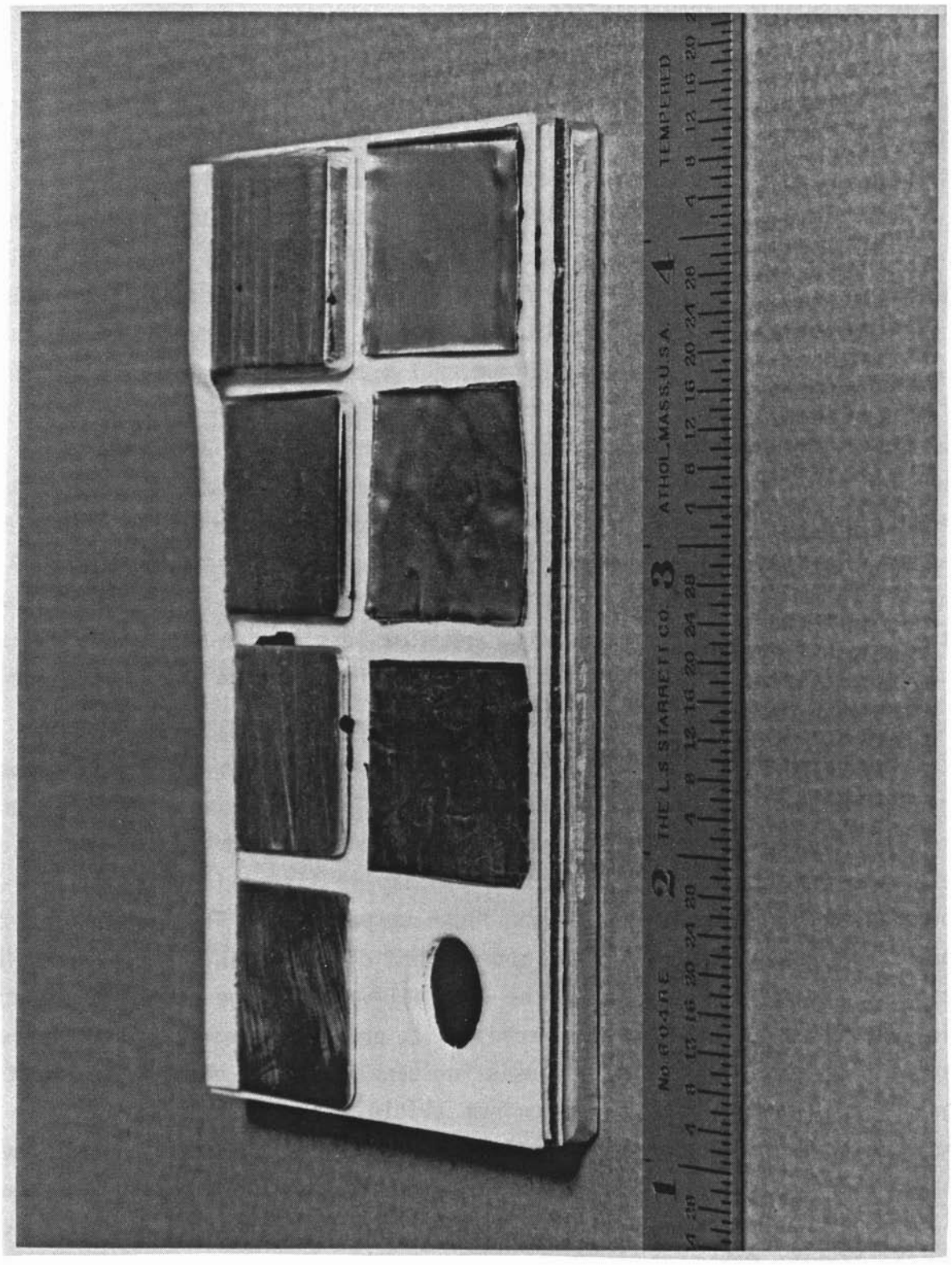

FIGURE 2. PNL Eight-Element Dosimeter Shields

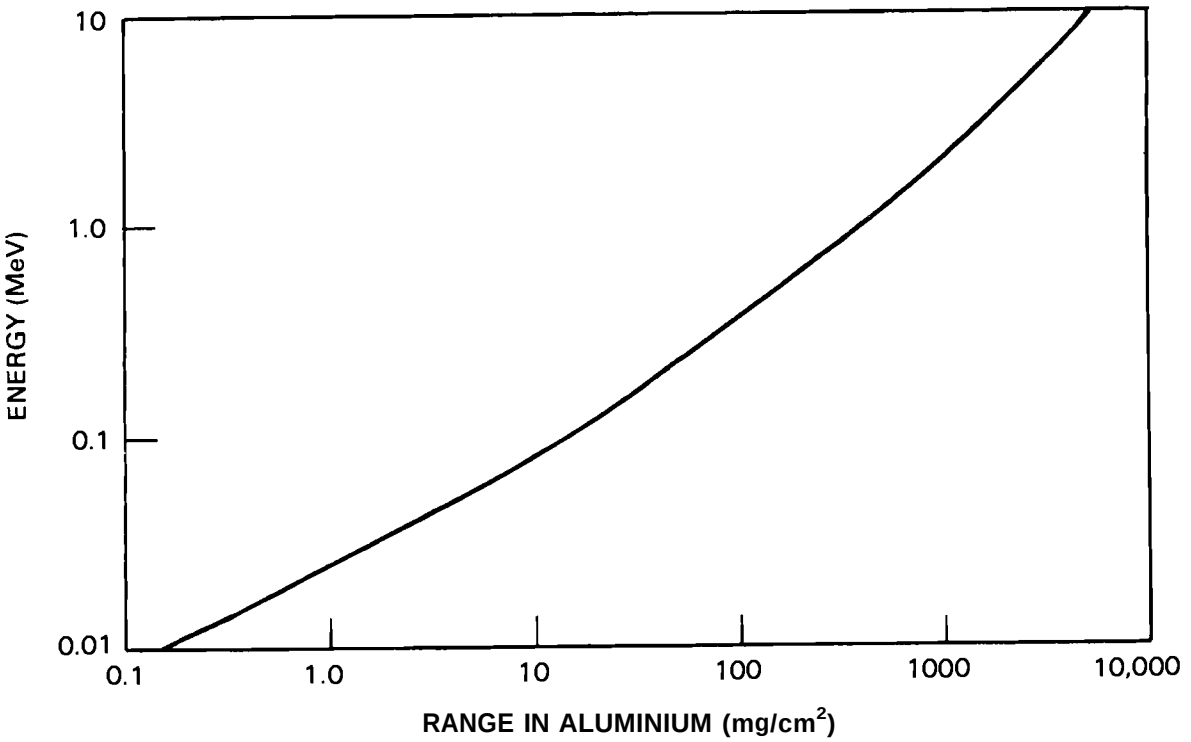

FIGURE 3. Beta Particle Range-Energy Curve

In Figure 4, natural uranium beta particles have an E_{max} similar to $^{90}Sr/^{90}Y$, but the simultaneous emission of low energy photons increases the dose to the TLD behind the thickest shield. The $^{106}Ru/^{106}Rh$ source (E_{max}, 3.5 MeV) irradiated the TLDs behind the thickest shield, but the two low energy beta sources. ^{85}Kr and ^{147}Pm, failed to irradiate the TLDs behind the 0.051-cm shield. Finally, the beta particles from the $^{137}Cs/^{137m}Ba$ source were stopped by the material encapsulating the source; the only TLD exposure was a result of the 662 keV gamma photons.

The PNL multi-element TLD dosimeters allow the user to make a correction for beta energy when converting the TLD data to dose values. Other beta dosimeters, including one type that was recently compared to the PNL multi-element dosimeter in a test at TMI-2, do not provide beta energy correction factors. The importance of making an energy correction is illustrated by Figures 6 and 7. Each graph compares two sets of dosimeters exposed to beta radiation at the same location. The ratios of indicated beta dose rates are plotted on the vertical axes, with logarithmic scales. The horizontal axes of

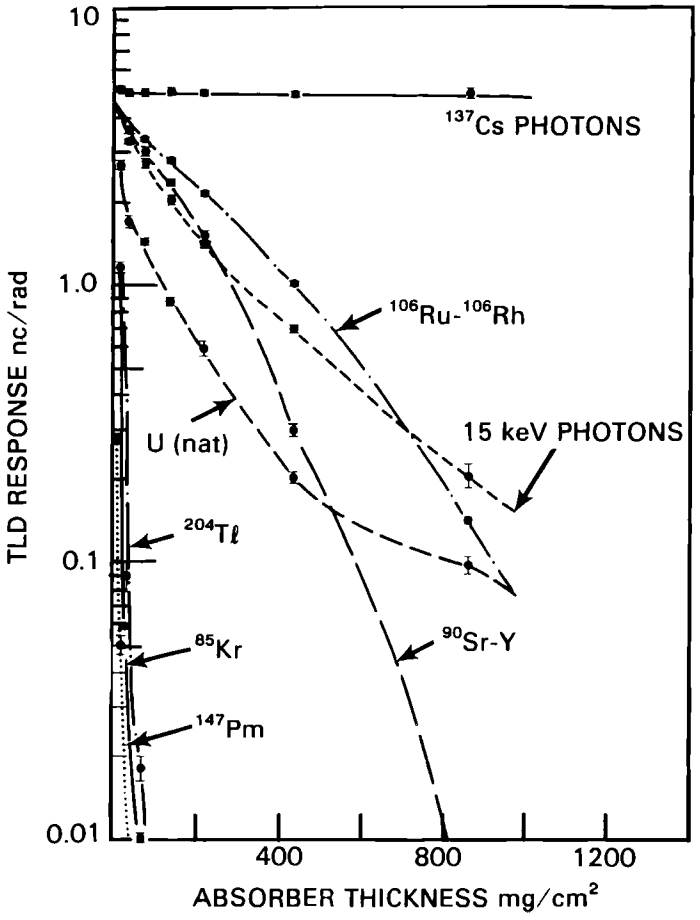

FIGURE 4 Beta Response Seven Element Dosimeter

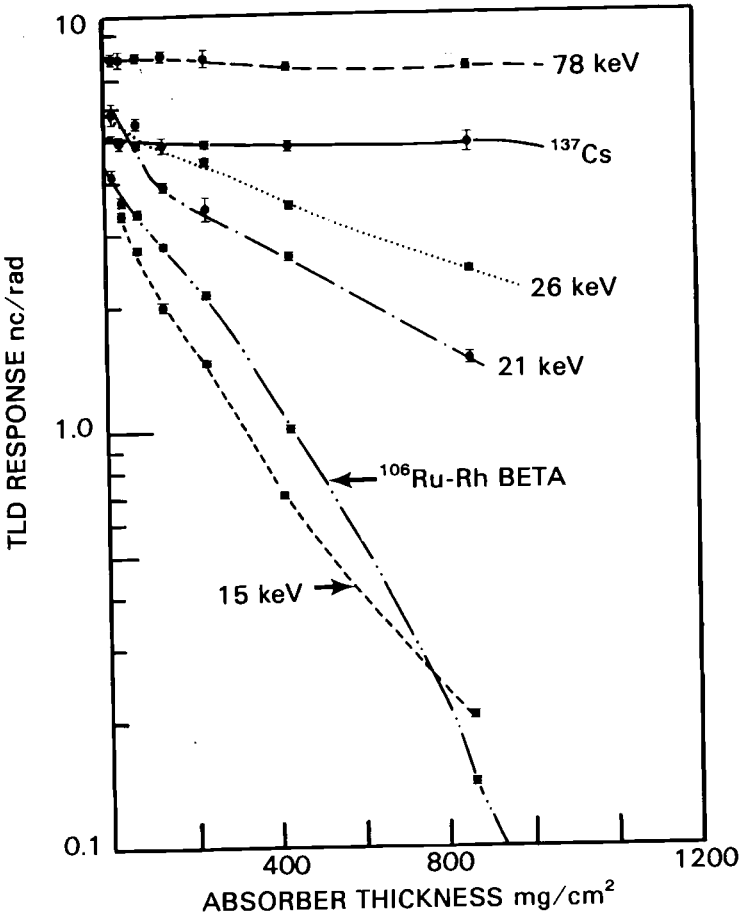

FIGURE 5 Photon Response - Seven Element Dosimeter

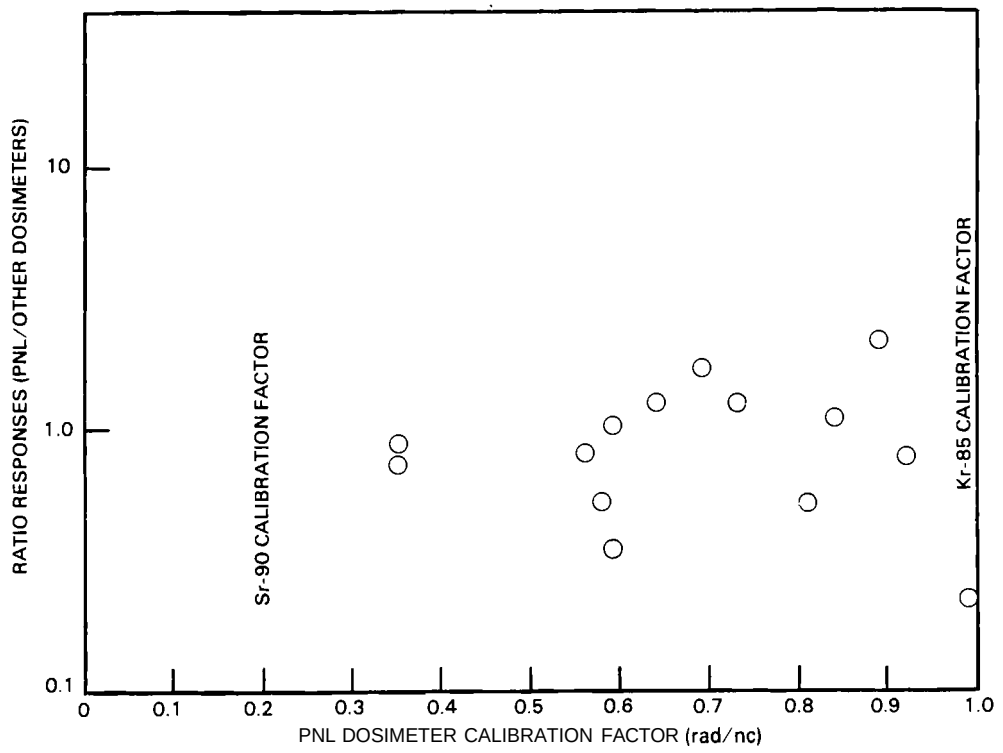

FIGURE 6. Comparison of PNL and Vendor 1 Dosimeters

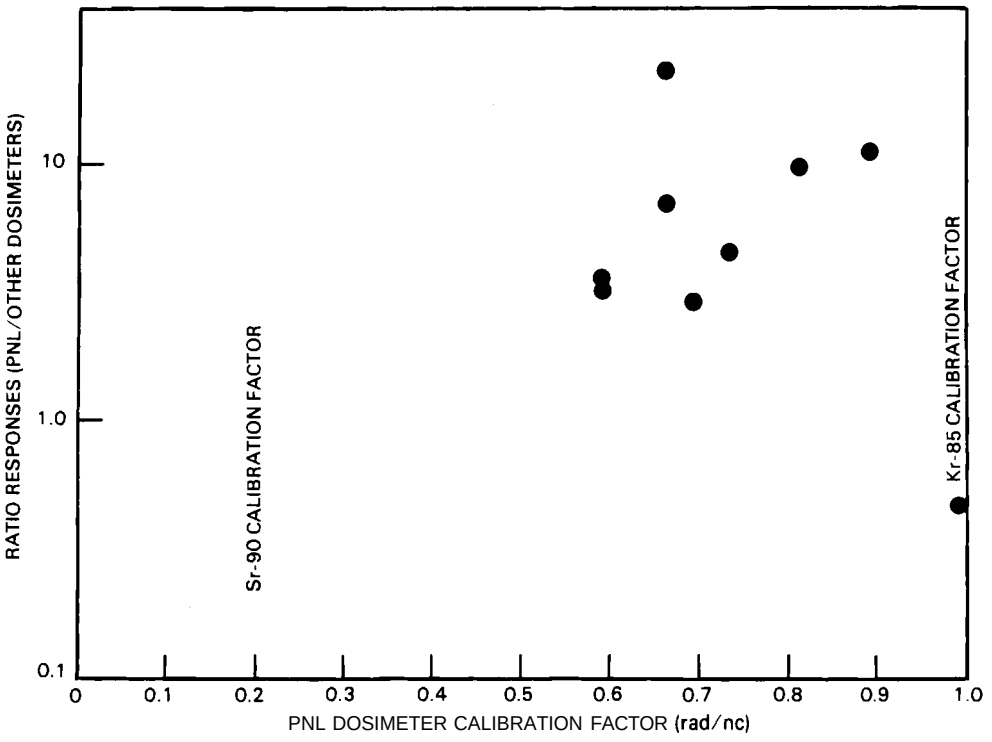

FIGURE 7. Comparison of PNL and Vendor 2 Dosimeters

these figures are used for presenting calibration factors, the values used to convert dosimeter response to dose. The calibration factors for the PNL dosimeters vary with energy, and in these studies this factor ranged from 0.35 to 0.99 rad/nc. Because the dosimeters from Vendor 2 rely on a single calibration factor, their dose determinations will be dependent on the source of calibration. If these dosimeters were calibrated with ^{90}Sr, a popular calibration source, the indicated dose could underestimate, by as much as a factor of 5, the dose as determined by PNL dosimeters. Because TLDs are known to have an energy-dependent response to beta radiation, PNL's TLD dosimeter results are expected to be more accurate than dosimeters using a fixed calibration factor.

CHARACTERISTICS AND QA PROCEDURES FOR THE TLDS

The TLDs used in the multi-element beta dosimeter are 0.318 cm by 0.318 cm by 0.089 cm (1/8 in. by 1/8 in. by 0.035 in.) ^{7}LiF ribbons (chips) with a mass of about 25 mg. They are available from the Harshaw Chemical Company as TLD-700s. The energy absorption characteristics of these TLDs to beta and gamma radiation resembles that of tissue. Lithium fluoride has an effective atomic number for photoelectric absorption of 8.14, compared with 7.42 for tissue and 7.64 for air. These high sensitivity ribbons are optically transparent, mechanically rugged, and conveniently handled.

When crystalline LiF is exposed to ionizing radiation at room temperature, electrons in the valence band are raised to the conduction bands. Imperfections in the LiF crystal lattice produced by dopants can trap the free electrons. Heating the LiF gives the electrons the additional energy that they need to escape the traps and return to the valence band. As the electrons return to a lower energy level, they emit visible light (3500-6000 Å). The amount of light emitted is proportional to the number of trapped electrons and is therefore proportional to the radiation dose.

The TLD-700 dosimeters are typically made in batches of thousands from the same batch of TLD powder. The manufacturer visually examines a representative statistical fraction of every batch for apparent defects and checks for thermoluminescent response at an exposure of 1 roentgen using a ^{60}Co source. The resulting TL response data are analyzed by a computer code which provides mean sensitivity and standard deviation data. These data are expressed as

percentage of the mean and stored by batch number for future reference. In a batch of thousands the typical measured standard deviation in sensitivity is in the range of 2% to 5% of the mean. Batch to batch means vary by less than 5%.

Batches of TLD material used in multi-element dosimeters receive additional screening at the PNL TLD Laboratory after receipt from the manufacturer. In the PNL screening, samples of 200 or more TLDs randomly selected from each new batch are annealed along with samples of 20-25 chips from an original reference set of TLD material and 20-25 chips from the set used in special studies. The chips are spread in vicor dishes and placed in a 400°C furnace under a nitrogen atmosphere for 1 hour, then transferred to a 100°C oven. After 2 hours, TLDs are placed in a low-background storage cave, where they are held for at least 24 hours. All transfers of heated chips are performed under dim light to avoid ultraviolet sensitization of the LiF.

After annealing, the samples are loaded into cardboard holders and irradiated with 250 mR gamma from a ^{137}Cs calibration source (off-phantom). A hot gas reader is normally used to compare light outputs. If the laboratory planchet reader is used, sample sizes are reduced. Sample means and standard deviations are calculated for each group. The irradiation/readout process is repeated twice to simulate the effects of reader annealing.

Batches are accepted if the sample mean falls within 5% of both reference sample means and the sample standard deviation is less than 10%. When the mean or standard deviation does not fall within acceptable limits, the batch sample and reference samples are reannealed and rescreened; the laboratory anneal will often stabilize chip responses sufficiently for samples to pass a second screening. If a sample is accepted after a second anneal and screening, the entire batch is annealed before use.

The LiF TLDs have a response that is a well-defined function of dose over the range of 10 mrad to 100,000 rad. When PNL's standard quality control procedures are observed, the TLD-700s can measure doses as low as 10 mrad with a standard deviation of less than 10%; higher doses can be measured with standard deviations as low as 2%. If several TLDs are used, doses as low as a few mrad can be measured by the TLD-700, but with standard deviations greater than 10%.

CALIBRATION AND MEASUREMENT

TLD READER SYSTEM

The instruments used to measure the energy absorbed by the TLDs in the multi-element dosimeter consist of a Harshaw Model 2000-A thermoluminescence analyzer and a Harshaw Model 2080 picoprocessor (see Figure 8). The thermoluminescence analyzer provides a means of heating the TLDs at a constant rate and uses a photomultiplier tube for measuring the amount of light produced (see Figure 9). The amount of light striking the photo-cathode of the photomultiplier tube is proportional to the energy absorbed by the TLDs.

The picoprocessor, or microprocessor-based picoammeter, allows for CRT presentation and storage of digitized glow curves. A glow curve is a plot of light output versus temperature for a TLD. A typical glow curve is evident on the video screen in Figure 8. Figure 10 presents a detailed representation of a glow curve for a TLD-700 read out in the PNL TLD Laboratory. An integration of the area under the glow curve represents the total light output of the TLD. This is the method used to analyze the TLDs from the PNL multi-element dosimeters. From the total light output, the dose to the TLD can be derived.

It is not necessary to use the new picoprocessor described above for glow curve analysis. Any good TLD reader with an x-y plotter is adequate. Calibration of the Model 2000-A thermoluminescence analyzer is checked through the use of a built-in ^{14}Carbon-activated sodium iodide (Tl) light source. The Model 2080 picoprocessor has an internal, electronic calibration source and the calibration can be checked from the keyboard. The complete system is checked with a set of reference TLD chips. These TLDs are irradiated with a gamma ray source of known strength such that a wide exposure range is obtained. The readout of the prepared standards gives a calibration curve in exposure versus charge.

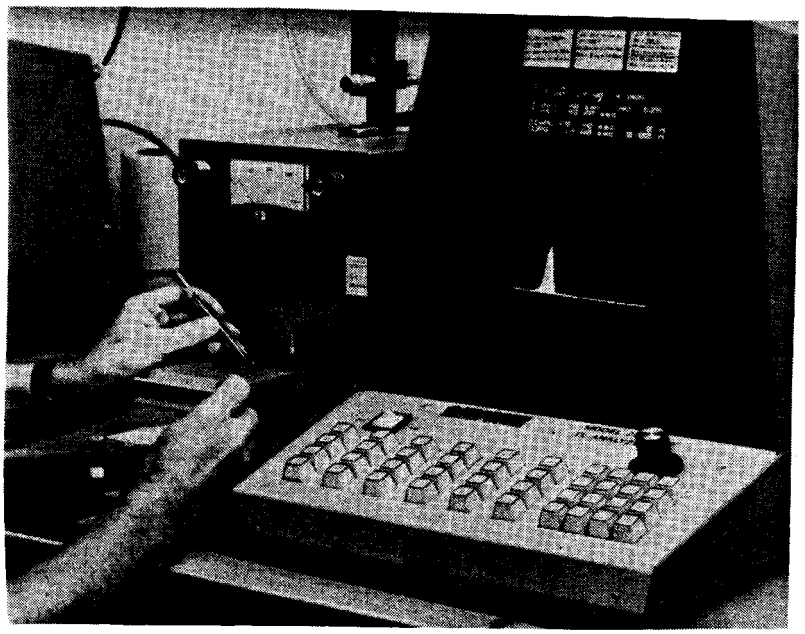

FIGURE 8. Harshaw Thermoluminescence Analyzer and Picoprocessor

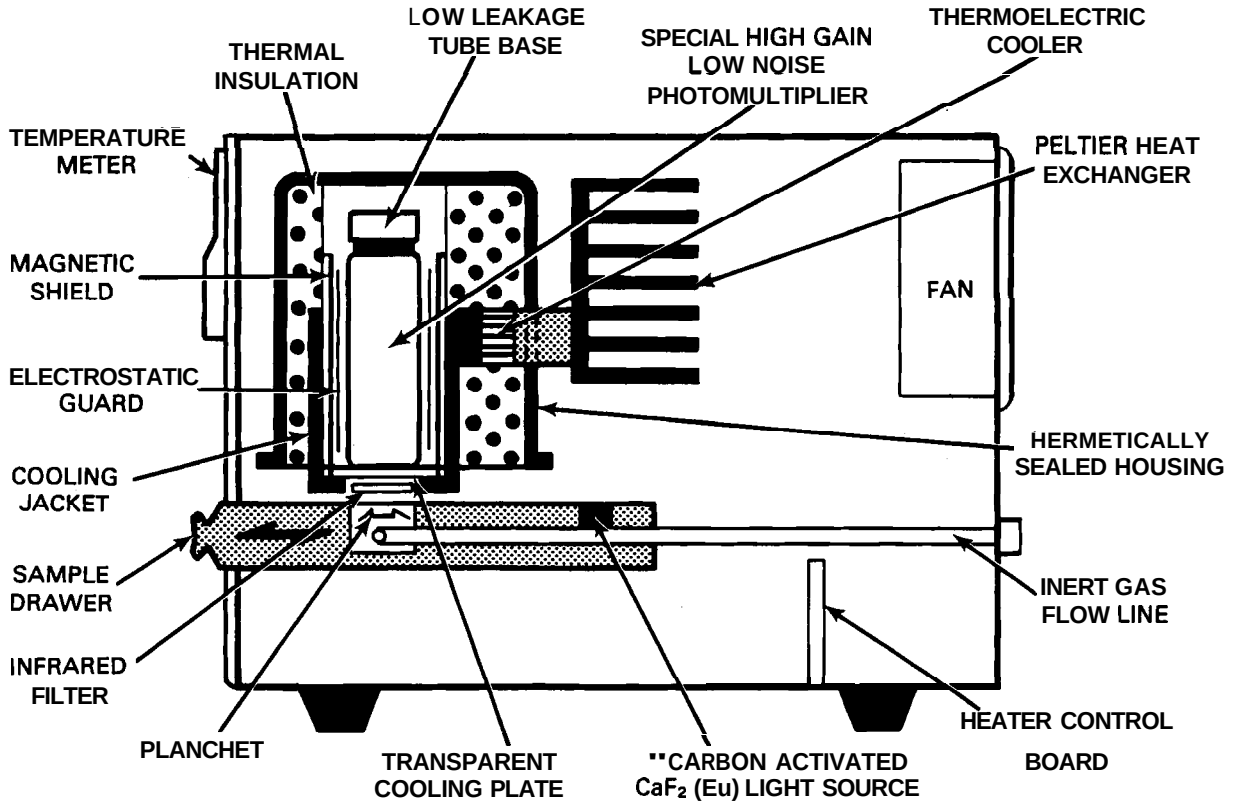

FIGURE 9. Physical Layout of Thermoluminescence Analyzer

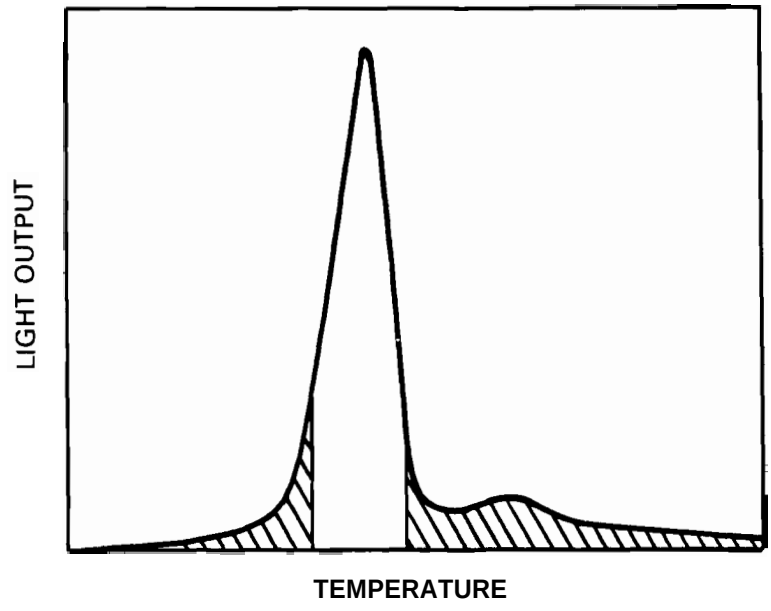

FIGURE 10. Typical TLD reader Glow Curve for a TLD-700

CIULTI-ELEMENT DOSIMETER CALIBRATION

The multi-element beta dosimeters were calibrated by exposing them to known radiation sources at the PNL Calibrations Laboratory. The beta sources used in these calibrations and the maximum energies of the emitted betas are presented in Table 1. The responses of the dosimeters to these calibration sources are presented in Figure 4.

TABLE 1. Beta Calibration Sources

Nuclide	Maximum Beta Energy (MeV)
^{147}Pm	0.23
^{85}Kr	0.62
^{204}Tl	0.76
$^{90}Sr/^{90}Y$	2.3
$^{106}Ru/^{106}Rh$	3.5

The dosimeters were also exposed to calibrated sources of x rays with energies ranging from 15 to 78 keV, and to a calibrated $^{137}Cs/^{137m}Ba$ source emitting 662-keV gammas. These measurements characterized the response of the dosimeters to photons. The responses of seven element dosimeters to these photon sources are presented in Figure 5. These studies demonstrated that the attenuation of photons is dependent on shield thickness if the energies are less than about 40 keV, but for photons with higher energies, the TLD response is fairly uniform for all elements. This characteristic of the dosimeter allows the use of the element with the thickest aluniinum filter to be used as an indicator of gamma dose. The beta calibration studies summarized in Figure 4 show that the element behind the 0.318-cm Al filter is very nearly insensitive to betas. A calibration factor for gammas was thus determined from the irradiation by $^{137}Cs/^{137m}Ba$ to be 0.204 rad/nc. This value can be multiplied by the response of the 0.318-cni Al-filtered element of any exposed dosimeter to determine the gamma dose. The TLD response of this element can also be subtracted from the TLD response of all other elements in an exposed dosimeter to obtain the beta components of the element responses.

The data from these calibration studies were used to derive calibration data used in determining the beta doses from field-exposed dosimeters. For each dosimeter exposed to a calibrated beta source, a beta "Calibration Factor" (CF) was determined by subtracting the gamma component (the reading of the element covered by the 0.318-cm Al shield) from the TLD response of the mylar-covered shield, and dividing this value (in nanocoulombs) into the beta dose (in rads) absorbed by the mylar-covered TLDs during the calibration measurement. The beta dose delivered by the calibration source is defined as the dose to tissue at a depth of 7 mg/cm^2. This factor could then be used to convert the responses of other dosimeters to a 7 mg/cm^2 dose, as long as the dosimeters were exposed to a field of betas with the same energy distribution as the beta calibration source. For each of the five elements with aluminum shields between 0.013 and 0.163 cm thick, the ratio of the element's beta response to the mylar-covered element's beta response was found for each calibration measurement. This ratio was a function of the calibration source's energy distribution: high beta energies resulted in high values of these ratios.

This data was plotted in Figure 11 for the most useful beta calibration measurements for each element. The Calibration Factor is plotted on the vertical scale and the CF value for each beta calibration source is identified. The element ratios are plotted on the horizontal scale. The points on the graph are the observed values for each of the element in each of the irradiations (the error associated with each point is less than 5%), and the lines are linear equations fitted to the observed values.

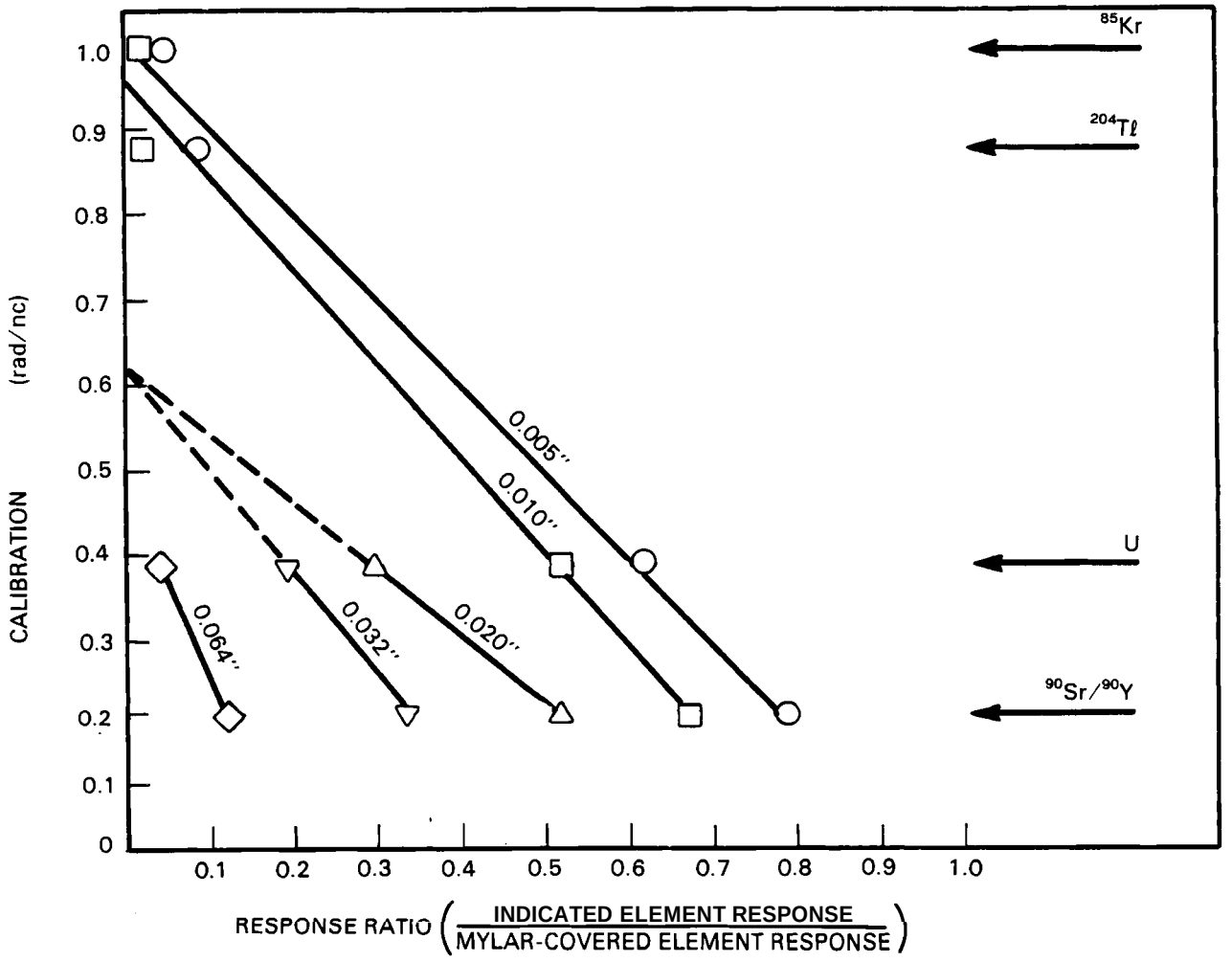

FIGURE 11. Calibration Factors Versus Element Ratios

DATA ANALYSIS METHOD

When exposed dosimeters are analyzed to determine the doses they were exposed to, the first task is to disassemble the dosimeters and extract the TLDs. As the TLDs are taken from the dosimeters, they are read out in the thermoluminescence analyzer and picoprocessor. This analysis results in TLD responses in units of nanocoulombs of light output. The TLD responses are then used as raw data in a computer program which converts the TLD responses to absorbed doses. This program first finds the gamma component of each dose, then subtracts the gamma response from each element response, and determines the ratios of Al-covered elements to the mylar-covered element. It uses these ratios, which are an indication of the beta energy spectrum, to select the appropriate calibration factor. This calibration factor is then multiplied by the mylar-covered element's response to determine the beta dose. This procedure will be illustrated by a sample dosimeter analysis.

The input data for the computer program consists of the TLD responses for all chips in the dosimeter. The program first looks at the TLD responses in sets of three for each element. Ideally these three chips should all have nearly identical readings. The program finds the mean and standard deviation for each set of three, and if a standard deviation is greater than 5%, it checks to see if two of the readings are close to each other; if so it rejects the "flier," and uses the mean value of the other two. If all three readings are quite dissimilar, it rejects all three if the element is one of 4, 5, or 6 (of the seven-element dosimeter); otherwise it accepts all three. This system is necessary to preserve data that is necessary for the analysis, but reject suspicious data that is unessential and may confuse the results.

Table 2 presents the "raw" data from a four-element dosimeter for an example data analysis to illustrate the operation of the computer code. In this example only the mean values of the three TLD readings for each element are recorded.

TABLE 2. Raw Data for Exposed Four-Element Dosimeter

Shield	Gamma + Beta (nc)	Beta (nc)
Mylar	543.0	200.6
0.051 cm Al	406.9	64.4
0.081 cm Al	366.0	23.6
0.318 cm Al	342.5	0

The reading for the TLDs under the thickest filter was used to indicate the gamma dose, and this value was subtracted from the other element readings to get responses due to betas alone. Ratios were then determined for the elements under each of the two thinnest aluminum shields to the mylar-covered element, and these two ratios indicated the energy distribution of the beta radiation incident on the dosimeter. These ratios were used to select the appropriate energy-dependent beta calibration factor for each shield from the set of calibration factors determined by the calibration irradiations. The CF values were determined by applying the fitted equations shown in Figure 11. These equations are listed in Table 3.

The average of the two calibration factors found by equations for #4 and #5 was then multiplied by the mylar-covered element's beta response to determine the beta dose. The worksheet for these calculations based on the raw data of Table 2, is presented in Table 4.

TABLE 3. Equations for Converting Element Ratios to Calibration Factors

Element	Shield Thickness (cm)	Equation
2	0.013	CF = -1.0032 * R + 0.9943
3	0.025	CF = -1.0960 * R + 0.9471
4	0.051	CF = -0.7438 * R + 0.6028
5	0.081	CF = -1.1420 * R + 0.5885
6	0.163	CF = -6.1597 * R + 0.6215

TABLE 4. Analysis of Exposed Four-Element Dosimeter

Shield (cm)	Ratio	Beta Calibration Factor Element (rad/nc)	Beta Calibration Factor Average (rad/nc)
0.051 Al	0.321	0.364	0.409
0.081 Al	0.118	0.454	

Beta Dose = (201 nc) * (0.409 rad/nc) = 82.4 rad
Gamma Dose = (342 nc) * (0.204 rad/nc) = 69.8 rad

The final two lines of Table 4 show the conversion of TLD response to dose. The beta dose calculation uses the beta component of the mylar-element response, with the calibration factor selected in Table 4. The gamma dose calculation uses the TLD response from the element shielded by the thickest aluminum shield, with a gamma calibration factor determined by the calibration irradiations.

A similar method of using beta-component responses to calculate ratios of aluminum-shielded elements to mylar-shielded elements was used in the analysis of data from seven-element dosimeters. A set of raw data from a seven-element dosimeter is presented in Table 5.

TABLE 5 Data for Exposed Seven-Element Dosimeter

Element	Shield	Gamma + Beta (nc)	Beta (nc)	Element Ratio	Calibration Factor
1	Mylar	240.3	79.8	1.0	-
2	0.013 cm Al	191.5	31.0	0.3887	0.6044
3	0.025 cm Al	185.5	25.0	0.3132	0.6038
4	0.051 cm Al	177.0	16.5	0.2071	(0.4488)
5	0.081 cm Al	163.1	2.6	0.0322	(0.5517)
6	0.163 cm Al	158.7	0	0	(0.6215)
7	0.318 cm Al	160.5	0	0	-

The gamma dose for this example was found by multiplying the TLD response of element 7 by the gamma calibration factor:

$$(160.5 \text{ nc}) * (0.204 \text{ rad/nc}) = 32.7 \text{ rad.}$$

To evaluate the beta dose, a calibration factor could have been found by averaging the CF values for elements 2-6: 0.566 rad/nc. However, it would be poor practice to include element 6 in the beta calibration factor determination, since no betas penetrated the filter--the TLD response was zero. Therefore limits were set on the ratios of each element: if the ratios were below the lower limits, the element was disregarded in the beta CF determination. If the ratio was above the upper limit, the CF for a $^{90}Sr/^{90}Y$ spectrum was assigned to that element. The reasoning for setting the lower limit was to avoid using the results of thick-filtered elements in a low-energy field where these elements would be insensitive. From the results of the calibration studies, the lower ratio limits were set for elements 4, 5, and 6 as the ratio values corresponding to the uranium spectrum. No lower limits were set for the two thin-aluminum-filtered elements (2 and 3), since these are the most sensitive for the low-energy fields. Upper limits were set for all elements, 2-6, corresponding to ratios for a $^{90}Sr/^{90}Y$ beta field. The linearity of the ratio-CF equations are suspect for beta energies above this limit, so the conservative assumption was made to assign the $^{90}Sr/^{90}Y$ CF value to any element response with a ratio higher than this limit ratio value. The average CF for a dosimeter exposure was therefore found as the average of the CF values for all elements with ratios above the lower limit. For this example, the average of CF values for elements 2 and 3 was 0.6041 rad/nc. Thus the beta dose was calculated as:

$$(79.8 \text{ nc}) * (0.6041 \text{ rad/nc}) = 48.2 \text{ rad.}$$

The discussion of limits to the ratio values illustrates the advantage of the seven-element dosimeter over the four-element dosinieter. In the four-element dosimeter a lower limit could not be set for the two important aluminum-covered elements, since the two thinnest filters were not available.

(In Figure 11 the equations for these two elements were shown as dashed lines above the uranium CF, showing that these segments were used for the four-element dosimeter analysis, but not for the seven-element dosimeter analysis.) Thus in low-energy beta fields we had to rely on the ratios from the 0.051-cm and 0.081-cm Al filters, even though the 0.013-cm and 0.025-cm filtered elements would have given more reliable CF values.

A computer code, RATIO7, has been written and used at PNL for the dosimeter data analysis. This code is listed in Appendix I.

Error Analysis

The major components of the error in a dosimeter measurement comes from uncertainties in:

TLD chips

TLD reader

Calibration measurement and curve fitting

Dosimeter placement and irradiation.

A thorough analysis of the measurement errors would involve isolating each individual factor affecting each component identified above, determining the variability of each factor, and combining all of these factors into one mathematical expression. A similar study was performed for the Hanford Multipurpose Dosimeter, and this study was recently published (Fi81). Since this type of error analysis is beyond the scope of this study, the errors in each dosimeter measurement were empirically approximated based on the results of each dosimeter's analysis.

The basic formula for converting a dosimeter response to measured dose is:

$$D = CF * TLD,$$

where D is the dose, CF is the calibration factor, and TLD is the TLD response of the appropriate element (for gammas, #7; for betas, #1 with gamma response subtracted off). The error analysis for these dosimeters consists of evaluating the observed variation for each of the two components, CF and TLD, and combining these into a total error for the measurement. The variation in CF

for betas is found by evaluating the standard deviation of the individual element CF values that are averaged to find the CF value used to determine the beta dose. The standard deviations of the three TLD counts for elements 1 and 7 were also evaluated and combined for the beta error:

$$\sigma_{TLD} = \sqrt{\sigma^2_{TLD-1} + \sigma^2_{TLD-2}}$$

These two standard deviations were then combined to get the total beta error:

$$\sigma_D = D \sqrt{\frac{\sigma_{CF}^2}{CF^2} + \frac{\sigma_{TLD}^2}{TLD^2}}$$

The error for the gamma dose was found in a similar manner, using the same equation for σ_D. However, since a fixed value was used for CF, the standard deviation for CF was fixed at 0.093*CF, based on uncertainties in the calibration measurements. σ_{TLD} was simpler for the gamma dose than for the beta dose, simply the standard deviation of the three TLD chips in element 7, the element used for the gamma dose determination.

COMPILATION OF DATA

DESCRIPTION OF EXPERIMENTS

Multi-element beta dosimeters have been exposed in three sets in the containment building of the Three Mile Island Unit II reactor. The three sets were used in the following experiments:

- pre-gross decontamination experiment
- post-gross decontamination experiment
- pre-flushing TLD tree.

In the pre-gross decontamination experiment, dosimeters were exposed between Deceniber 3 and Deceniber 15, 1981. Ten dosimeters were used in the vicinity of the dome monitor and on the elevator shaft roof, thirteen were placed on the 305 ft elevation, and 15 were placed on the 347 ft and 367 ft elevations. These dosimeters were returned to PNL and read out in the TLD readers in February 1982. The computer run used to analyze the data is presented in Appendix II. A summary of the dosimeter placements and the resulting dose rates are presented in Figures 12a, 12b, and 12c; and in Tables 6a, 6b, and 6c.

Tables 6a through 9 list four dose rates for each dosimeter location: the beta dose rates for the front and back of the dosimeter and the gamma dose rates for the front and back. With each dose rate is listed the associated error, expressed as one standard deviation. In some dosimeter analyses this error was larger than the evaluated dose rate itself, and if this error were subtracted from the evaluated dose rate, the value would be less than zero. Such a value would, of course, be nonsense. Any dose rate of zero (or smaller) should be interpreted as being lower than the dosimeter's minimum level of detection.

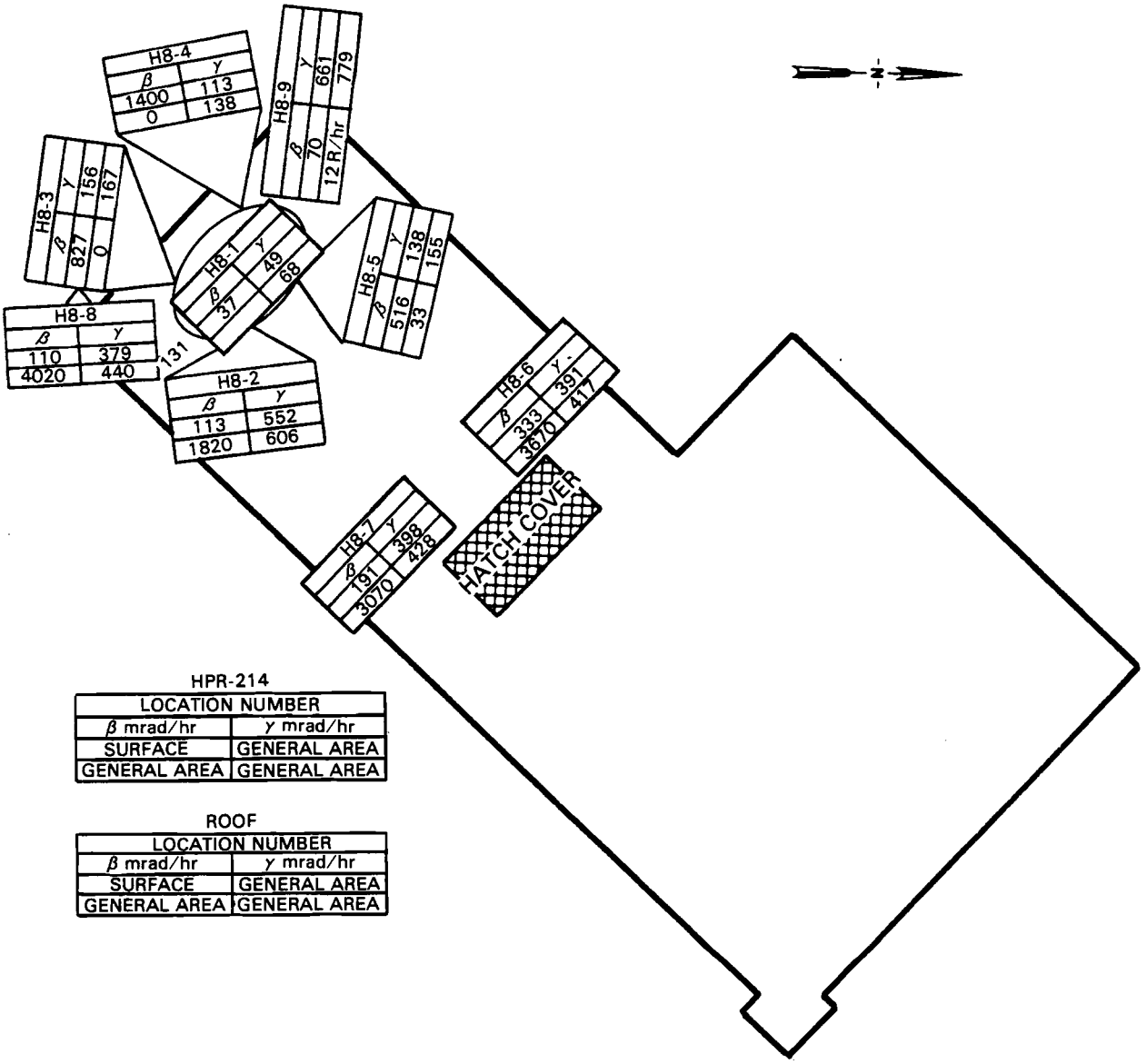

FIGURE 12a. Pre-Gross Decontamination Experiment Dosimeter Placement and Results - Dome Monitor and Elevator Shaft Roof

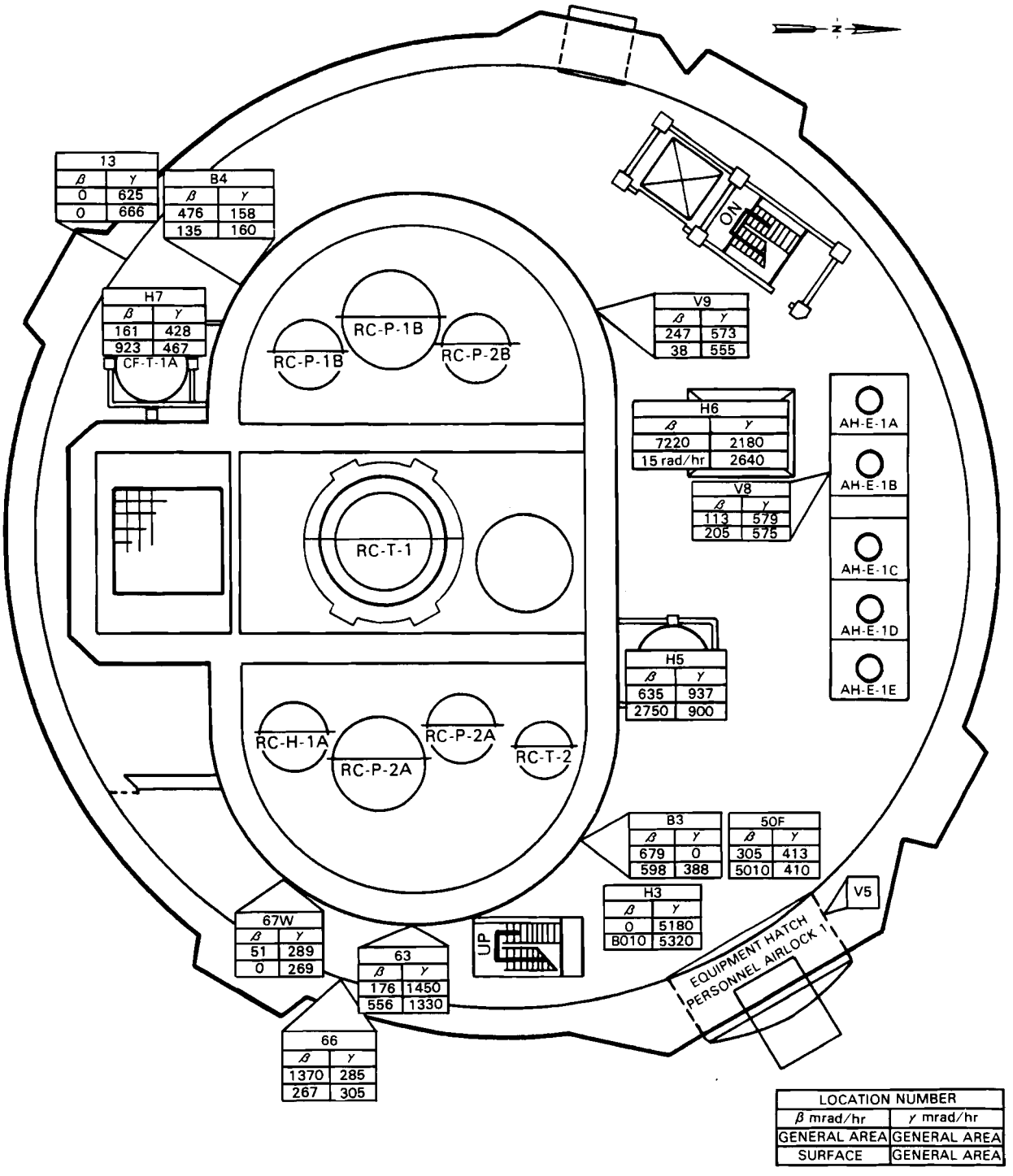

FIGURE 12b. Pre-Gross Decontaniination Experiment Dosimeter Placement and Results - 305 ft Elevation

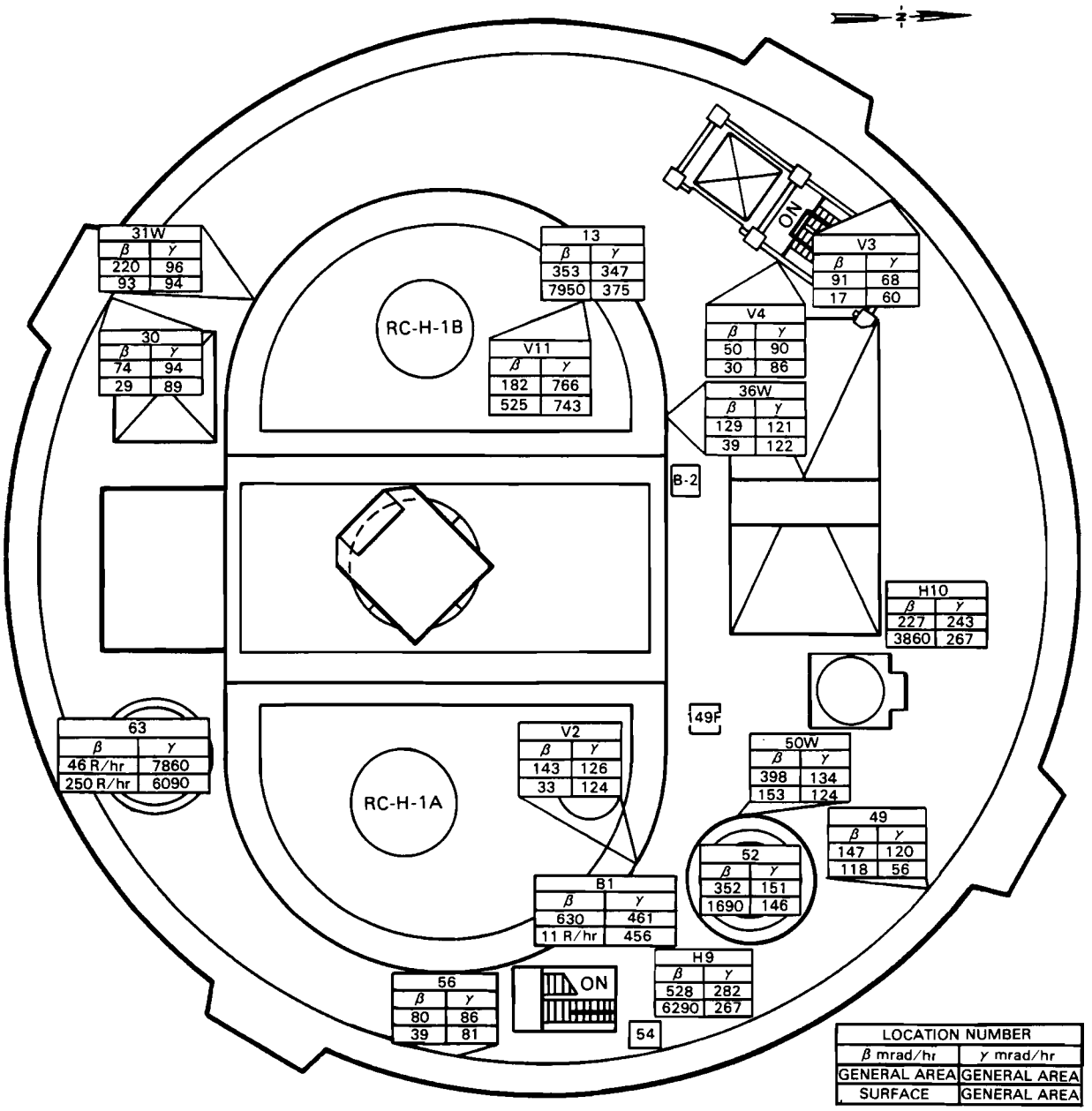

FIGURE 12c. Pre-Gross Decontamination Experiment Dosimeter Placement and Results - 347 and 367 ft Elevation

TABLE 6a. Pre-Gross Decontamination Experiment Dosimeter Placement and Results - Dome Monitor and Elevator Shaft Roof

Type Surface	TLD #	Location #	Location Description	Date and Time Exposure In	Date and Time Exposure Out	Exposure Time (hr)	Beta Dose Rate Front (mrad/hr)	Beta Dose Rate Back (mrad/hr)	Gamma Dose Rate Front (mrad/hr)	Gamma Dose Rate Back (mrad/hr)
Vertical o Horizontal Surface s Dome Monitor	1	H8-1	Horizontal surface, top of monitor	12/3/81 12:00	12/15/81 12:00	288	37.0 ± 20.1	131 ± 125	48.8 ± 4.6	68.2 ● 12.1
	2	H8-2	Vertical surface, side of monitor	12/3/81 12:00	12/15/81 12:00	288	113 ± 92	1820 ± 440	552 ± 52	606 ± 57
	3	H8-3	Vertical surface, side of monitor	12/3/81 12:00	12/15/81 12:00	288	827 ± 57	0	156 ± 16	167 ± 16
	4	H8-4	Vertical surface, side of monitor	12/3/81 12:00	12/15/81 12:00	288	1400 ± 89	0	113 ± 11	138 ± 14
	5	H8-5	Vertical surface, side of monitor	12/3/81 12:00	12/15/81 12:00	288	516 ± 268	33.0 ± 22.9	138 ± 13	155 ± 15
Elevator Shaft Roof Horizontal Surface	6	H8-6	Facing stairs and in front of hatch, TLO on immediate right	12/3/81 12:00	12/15/81 12:00	288	333 ± 83	3670 ± 79	391 ± 39	417 ± 39
	7	H8-7	Facing stairs and in front of TLO on immediate left	12/3/81 12:00	12/15/81 12:00	288	191 ± 72	3070 ± 250	398 ± 40	428 ± 41
	8	H8-8	Facing stairs and back to stairs, TLD on left corner of roof	12/3/81 12:00	12/15/81 12:00	288	110 ± 23	4020 ± 280	379 ± 36	440 ± 41
	9	H8-9	Facing monitor and back to stairs, TLD on right corner of roof	12/3/81 12:00	12/15/81 12:00	288	69.9k33.5	11700 ± 3790	661 ± 63	779 ± 74
Control	10	H8-10	Carried to roof and brought out	12/3/81 12:00	12/3/81 13:00	1	45.9 ± 20.2	49.0 ± 33.3	221 ± 21	219 ± 21

Notes:
1. HPR-214
   Horizontal and vertical measurements - front side of TLO system against monitor surface.
2. Elevator Roof Measurement
   Horizontal measurements - back side of TLO system against roof surface.

TABLE 6b. Pre-Gross Decontamination Experiment Dosimeter Placement and Results - 305 Foot Elevation

TLD #	Location #	Location Description	Date and Time Exposure In	Date and Time Exposure Out	Exposure Time (hr)	Beta Dose Rate Front (mrad/hr)	Beta Dose Rate Back (mrad/hr)	Gamma Dose Rate Front (mrad/hr)	Gamma Dose Rate Back (mrad/hr)
11	13	Vertical surface, taped to liner ~4 feet above floor, NE area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	0	0	625 ● 62	666 ± 63
12	H7	Horizontal surface, taped to floor, NE area of Rx Bldg., SE area under CF-T-1A	12/9/81 1427	12/15/81 1838	148.2	161 ± 64	923 ± 575	428 ± 41	467 ± 45
13	B4	Vertical surface, taped to underside of junction box, NE area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	476 ± 50	135 ± 16	158 ± 15	160 ± 15
14	V9	Vertical surface, taped to D-ring wall ~4 feet above floor, SE area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	247 ± 104	38.5 ± 81.3	573 ± 55	555 ± 54
15	H6	Horizontal surface, taped to West area of hatch cover, SE area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	7220 ± 481	14900 ± 10000	2180 ± 210	2640 ± 250
16	V8	Vertifical surface, taped to front side of aircooler B ~4 feet above floor, SE area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	113 ± 40	205 ± 100	579 ± 54	575 ± 57
18	H5	Horizontal surface, taped to floor, SW area of Rx Bldg., NE area under CP-T-1B	12/9/81 1427	12/15/81 1838	148.2	635 ± 283	2750 ± 1980	937 ± 110	900 ± 84
27	67W	Vertical surface, taped to O-ring wall ~4 feet above floor, NW area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	51.4 ± 39.5	0	289 ± 27	269 ± 26
26	66	Vertical surface, taped to liner ~4 feet above floor, NW area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	1370 ± 940	267 ± 54	285 ± 28	305 ± 31
25	63	Vertical surface, taped to D-ring wall ~4 feet above floor, W area of Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	176 ± 192	556 ± 319	1450 ± 140	1330 ± 130
23	H3	Horizontal surface, taped to floor, West area Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	0	8010 ± 610	5180 ± 480	5320 ± 520
19	B3	Vertical surface, taped to underside of junction box ~8 feet off floor	12/9/81 1427	12/15/81 1838	148.2	679 ± 52	598 ± 49	0	388 ± 37
21	50F	Horizontal surface, taped to floor, SW area of Rx Bldg.	12/9/81 1427	12/15/81 1838	148.2	305 ± 91	5010 ± 920	413 ± 42	410 ± 39

TABLE 6c. Pre-Gross Decontamination Experiment Dosimeter Placement and Results - 347 and 367 Foot Elevations

TLD #	Location #	Location Description	Date and Time Exposure In	Date and Time Exposure Out	Exposure Time (hr)	Beta Dose Rate Front (mrad/hr)	Beta Dose Rate Back (mrad/hr)	Gamma Dose Rate Front (mrad/hr)	Gamma Dose Rate Back (mrad/hr)
29	30	Vertical surface, taped to liner ~4 feet above floor by hatch cover, NE area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	74.1 ± 13.9	29.0 ± 14.0	94.0 ± 9.5	88.7 ± 8.3
30	31W	Vertical surface, taped to D-ring wall, ~4 feet above floor, NE area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	220 ± 8	92.9 ± 9.9	95.7 ± 9.2	93.7 ± 9.0
36	V3	Vertical surface, taped to liner behind enclosed stairwell ~4 feet above floor	12/9/81 1507	12/15/81 1838	147.52	90.9 ± 32.7	16.5 ± 9.6	68.1 ± 7.0	59.8 ± 5.6
39	V4	Vertical surface, taped to outside enclosed stairwell wall ~4 feet above floor	12/9/81 1507	12/15/81 1838	147.52	50.0 ± 19.4	29.9 ± 7.7	90.1 ± 9.1	86.1 ± 8.5
34	36W	Vertical surface, taped to D-ring wall ~4 feet above floor, SE area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	129 ± 25	39.3 ± 17.5	121 ± 12	122 ± 11
37	H10	Horizontal surface, taped to floor near SW corner of hatchcover, South area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	227 ± 42	3860 ± 600	243 ± 24	267 ± 27
43	50W	Vertical surface, taped to Esst side of head stand, SW area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	398 ± 32	153 ± 28	134 ± 14	124 ± 12
44	52	Horizontal surface, taped to top of head stand, SW area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	352 ± 49	1690 ± 78	151 ± 15	146 ± 14
51	V2	Vertical surface, taped to D-ring wall ~4 feet above floor, West area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	143 ± 26	32.9 ± 37.2	126 ± 12	124 ± 12
50	B1	Horizontal surface, placed on floor below junction box, West area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	630 ± 95	11200 ± 470	461 ± 44	456 ± 47
46	H9	Horizontal surface, taped to floor ~4 feet south of open stairwell, West area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	528 ± 319	6290 ± 340	282 ± 28	267 ± 26
48	56	Vertical surface, taped to liner ~4 feet above floor, West area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	80.2 ± 17.4	38.9 ± 27.3	85.6 ± 8.1	81.1 ± 8.1
49	63	Horizontal surface, West axis of in core instrumentation area	12/9/81 1507	12/15/81 1838	147.52	46400±14800	248000±21000	7860 ± 1280	6090 ± 640
40	13	Horizontal surface, 367 foot elevation, top D-ring wall, East area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	353 ± 34	7950 ± 810	347 ± 32	375 ± 36
41	V11	Vertical surface, 367 foot elevation, taped to inside D-ring wall, East area Rx Bldg.	12/9/81 1507	12/15/81 1838	147.52	182 ± 136	525 ± 123	766 ± 72	743 ± 70

The post-gross decontamination experiment was performed between March 25 and April 22, 1982. Fourteen dosimeters were exposed on the 305 ft elevation, seventeen were exposed on the 347 ft elevation, and two were exposed on the 367 ft level. The dosimeters were read out in the PNL TLD Laboratory in May 1982. The computer runs analyzing these dosimeters are presented in Appendix II, and the dosimeter placements and evaluated dose rates are presented in Figures 13a and 13b and in Tables 7a and 7b.

In the pre-flushing TLU tree experiment, four multi-element dosimeters were placed on each of four TLD trees. These trees were lowered from the 305 ft elevation down into the reactor basement to measure radiation levels before flushing of the 282 ft elevation walls. Each tree also contained dosimeters provided by Panasonic and Harshaw, providing for rough comparisons between the different types of dosimeters. The dosimeters were exposed on June 22, 1982 for about three hours. The multi-element dosimeters were returned to PNL and the TLDs read out in July 1982. The computer analysis is listed in Appendix II. Figure 14 shows the placement of the TLD trees from the viewpoint of the 305 ft level and Table 8 describes the placement of the trees. Table 9 presents the dose rates determined from the PNL multi-element dosimeters and compares them to the doses determined by the Panasonic and Harshaw dosimeters. Comparisons of the doses determined by the different types of dosimeters are presented in Figures 6 and 7.

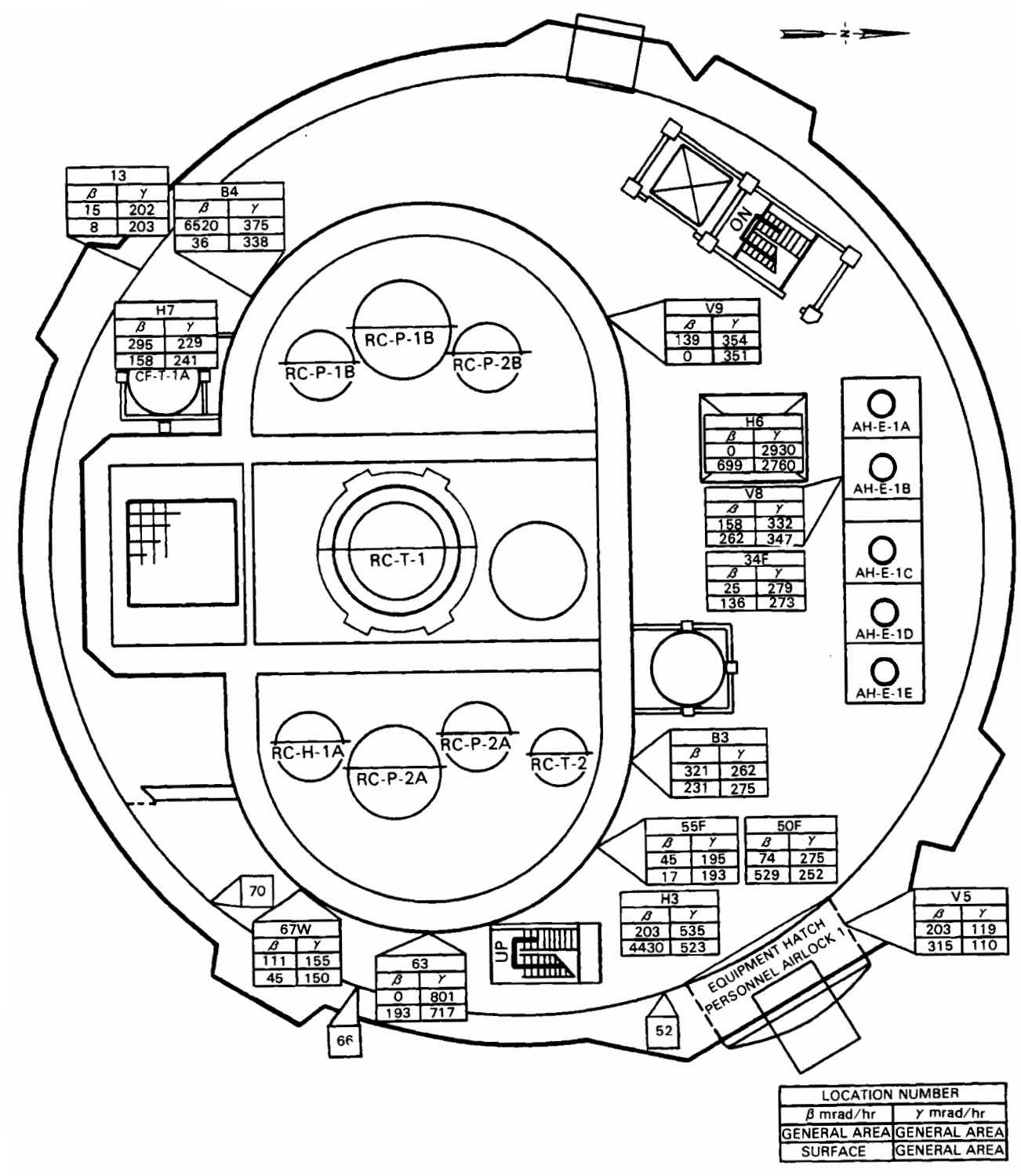

FIGURE 13a. Post Gross Decontamination Experiment Dosimeter Placement and Results - 305 Foot Elevation

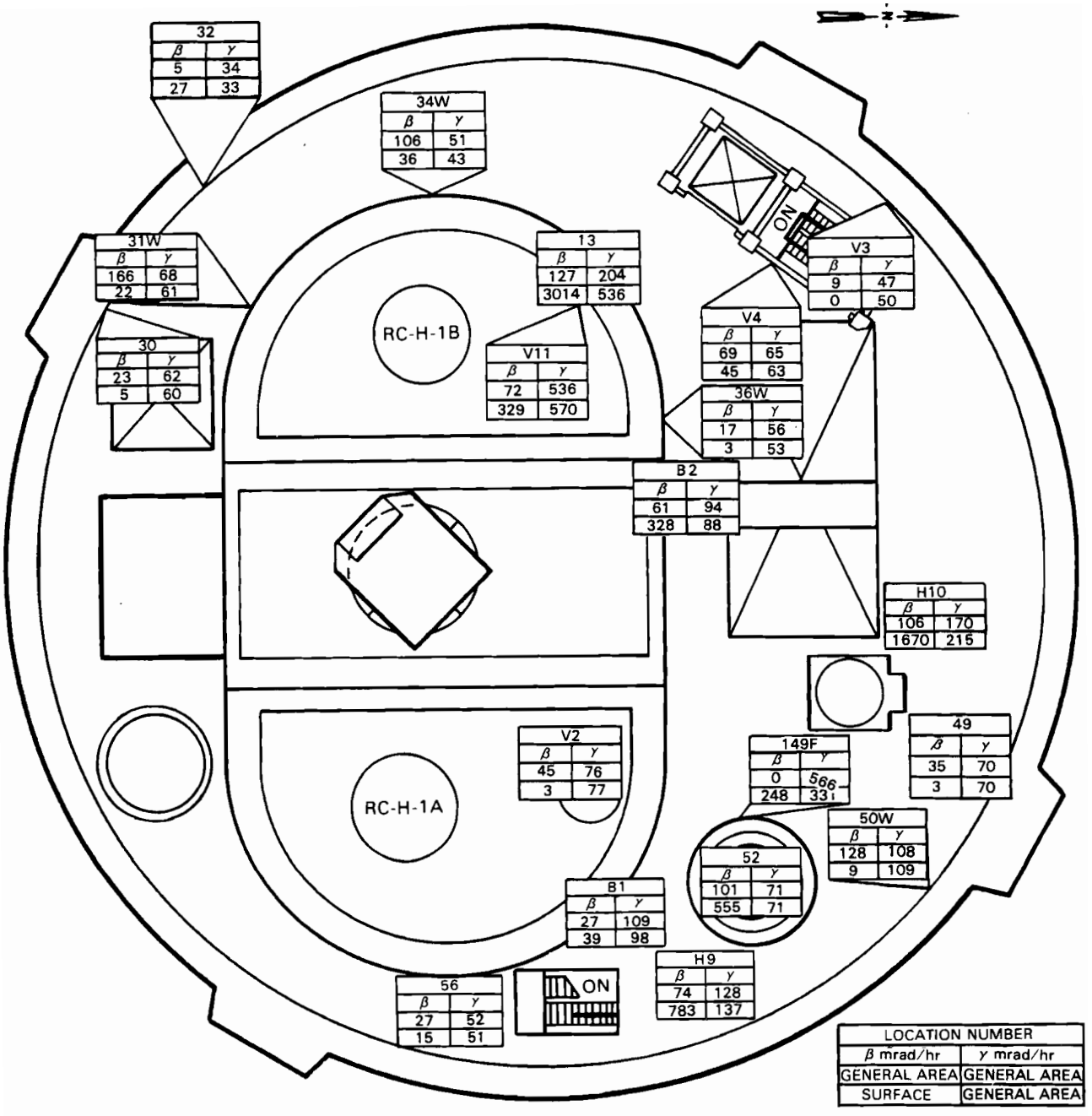

FIGURE 13b. Post Gross Decontamination Experiment Dosimeter Placement and Results - 347 and 367 Foot Elevations

TABLE 7a. Post Gross Decontamination Experiment Dosimeter Placement and Results - 305 Foot Elevation

TLD #	Location #	Location Description	Date and Time Exposure In	Date and Time Exposure Out	Exposure Time (hr)	Beta Dose Rate Front (mrad/hr)	Beta Dose Rate Back (mrad/hr)	Gamma Dose Rate Front (mrad/hr)	Gamma Dose Rate Back (mrad/hr)
	13	Vertical surface, taped to liner ~4 feet above floor, NE area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	15.2 ± 7.0	7.69 ± 5.46	202 ± 20	203 ± 19
2	H7	Horizontal surface, taped to floor, NE area of Rx Bldg., SE area under CF-T-1A	3/25/82 1500	4/22/82 1057	668	295 ± 192	158 ± 120	228 ± 23	241 ± 24
3	B4	Horizontal surface, placed on top of junction box, NE area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	6520 ± 1340	35.6 ± 36.9	375 ± 35	338 ± 32
4	V9	Vertical surface, taped to D-ring wall ~4 feet above floor, SE area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	139 ± 66	0	354 ± 35	351 ± 34
5	H6	Horizontal surface, taped to west area of hatch cover, SE area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	0	699 ± 195	2930 ± 280	2760 ± 270
6	V8	Vertical surface, taped to front side of aircooler B ~4 feet above floor, SE area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	158 ± 107	262 ± 235	332 ± 32	347 ± 32
58	34F	Horizontal surface, taped to floor, south area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	24.8 ± 37.7	136 ± 27	279 ± 27	273 ± 26
8	67W	Vertical surface, taped to O-ring wall ~4 feet above floor, NW area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	111 ± 73	45.1 ± 31.1	155 ± 15	150 ± 15
61	63	Vertical surface, taped to D-ring wall ~4 feet above floor, W area Rx Eldg.	3/25/82 1500	4/22/82 1057	668	0	193 ± 134	801 ± 77	717 ± 70
63	V5	Vertical surface, taped to south equipment hatch wall ~4 feet above floor	3/25/82 1500	4/22/82 1057	668	203 ± 22	315 ± 67	119 ± 12	110 ± 11
7	H3	Horizontal surface, taped to floor, West area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	230 ± 188	4430 ± 2090	535 ± 52	523 ± 54
64	55P	Vertical surface, taped to D-ring wall ~4 feet above floor, SW area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	45.0 ± 15.7	16.7 ± 28.3	195 ± 19	193 ± 20
65	B3	Vertical surface, taped to underside of junction box ~8 feet off floor	3/25/82 1500	4/22/82 1057	668	321 ± 33	231 ± 32	262 ± 27	275 ± 26
66	50F	Horizontal surface, taped to floor, SW area Rx Bldg.	3/25/82 1500	4/22/82 1057	668	73.7 ± 33.8	529 ± 67	275 ± 26	252 ± 24

TABLE 7b. Post Gross Decontamination Experiment Dosimeter Placement and Results - 347 and 367 Foot Elevations

TLD #	Location #	Location Description	Date and Time Exposure In	Date and Time Exposure Out	Exposure Time (hr)	Beta Dose Rate Front (mrad/hr)	Beta Dose Rate Back (mrad/hr)	Gamma Dose Rate Front (mrad/hr)	Gamma Dose Rate Back (mrad/hr)
13	30	Vertical surface, taped to liner ~4 feet above floor by hatch cover, NE area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	23.4 ± 7.2	5.37 ± 4.01	62.4 ± 6.1	59.8 ± 6.0
14	31W	Vertical surface, taped to D-ring wall ~4 feet above floor, NE area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	166 ± 14	22.3 ± 11.6	68.1 ± 6.6	61.3 ± 6.1
15	32	Vertical surface, taped to liner ~4 feet above floor, NE area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	5.28 ± 2.03	27.3 ± 6.5	34.1 ± 3.4	32.5 ± 3.1
18	34W	Vertical surface, taped to D-ring wall ~4 feet above floor, East area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	106 ± 12.3	35.8 ± 27.7	50.6 ± 4.8	43.0 ± 4.0
19	V3	Vertical surface, taped to liner behind enclosed stairwell ~4 feet above floor	3/26/82 1328	4/22/82 1057	645.5	8.78 ± 1.58	0	47.1 ± 4.6	50.0 ± 4.7
67	V4	Vertical surface, taped to outside enclosed stairwell wall ~4 feet above floor	3/26/82 1328	4/22/82 1057	645.5	69.2 ± 8.4	45.0 ± 9.7	65.5 ± 6.2	63.5 ± 6.1
12	36W	Vertical surface, taped to D-ring wall ~4 feet above floor, SE area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	17.2 ± 4.7	3.47 ± 2.49	56.5 ± 5.5	52.6 ± 5.1
68	B2	Horizontal surface, placed on top junction box, SE area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	61.3 ± 13.7	328 ± 9.9	94.4 ± 8.8	88.3 ± 8.3
70	H10	Horizontal surface, taped to floor near SW corner of hatch cover, South area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	106 ± 16	1670 ± 980	170 ± 16	215 ± 22
73	50W	Vertical surface, taped to East side of head stand, SW area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	128 ± 21	9.01 ± 6.76	108 ± 10	109 ± 10
11	149F	Horizontal surface, taped to floor by D-ring wall, SW area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	0	248 ± 199	566 ± 58	331 ± 33
74	52	Horizontal surface, taped to top of head stand, SW area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	101 ± 12	555 ± 36	70.7 ± 6.9	70.6 ± 7.1
75	49	Vertical surface, taped to liner ~4 feet above floor, SW area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	34.8 ± 11.8	3.29 ± 6.76	69.8 ± 6.8	70.4 ± 6.9
76	V2	Vertical surface, taped to D-ring wall ~4 feet above floor, West area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	44.6 ± 7.0	3.17 ± 8.12	76.3 ± 7.1	77.3 ± 7.3
77	B1	Horizontal surface, placed on top of junction box, West area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	26.6 ± 86	39.3 ± 5.1	109 ± 10	97.6 ± 9.3
78	H9	Horizontal surface, taped to floor ~4 feet South of open stairwell, West area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	74.4 ± 24.7	783 ± 119	128 ± 13	137 ± 13
80	56	Vertical surface, taped to liner ~4 feet above floor, West area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	26.5 ± 5.1	14.7 ± 4.4	52.0 ± 4.9	50.6 ± 4.9
71	13	Horizontal surface, 367 foot elevation, top D-ring wall, East area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	129 ± 35	3020 ± 130	205 ± 20	232 ± 22
72	V11	Vertical surface, 367 foot elevation, taped to inside D-ring wall, East area Rx Bldg.	3/26/82 1328	4/22/82 1057	645.5	73.6 ± 26.3	331 ± 54	536 ± 50	571 ± 54

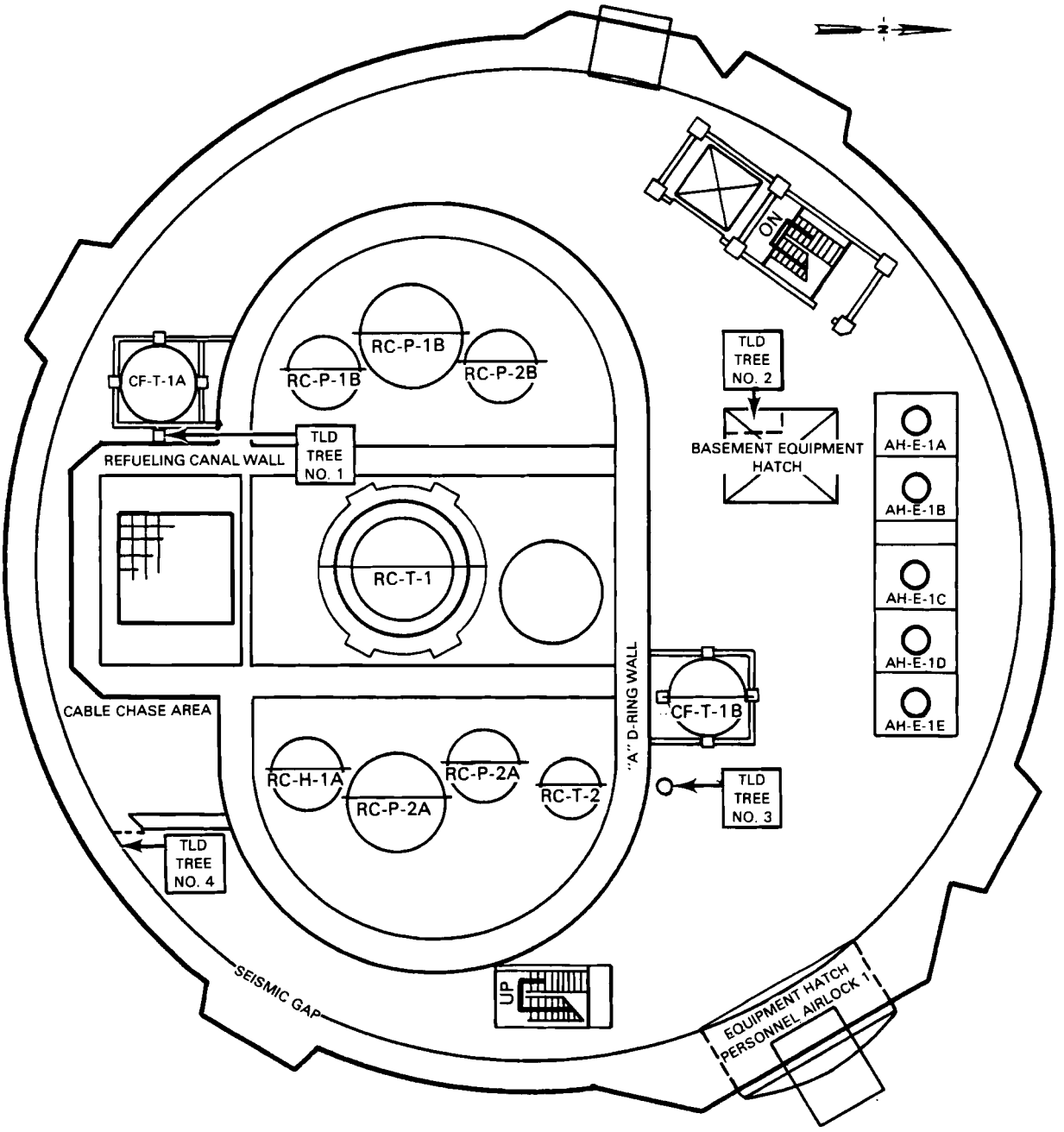

FIGURE 14. Preflushing of the Reactor Building Basement TLD Tree Measurement Locations

TABLE 8. **Placement of TLD Trees During Pre-Flushing of the Reactor Building Basement**

Tree #	Location Description	Orientation of TLD Tree	Comments
1	TLD tree lowered through penetration 220, behind CF-T-1A and against the east wall of the refueling canal on the 305 foot elevation into the basement.	The front side of the TLD tree was facing toward the east wall of the refueling canal.	There was no problem with the lowering or raising of the TLD tree.
2	TLD tree lowered through the NE section of the basement equipment hatch on the 305 foot elevation basement.	The front side of the TLD tree was facing toward personnel airlock #l.	There was no problem with the lowering or raising of the TLD tree.
3	TLD tree lowered through penetration R-37, west of CF-T-IB and against the "A" D-ring wall on the 305 foot elevation into the basement.	The front side of the TLD tree was facing toward the "A" D-ring wall.	There was a slight problem with the lowering and raising of the TLD tree.
4	TLD tree lowered down the seismic gap by the cable chase area (NW area of Rx. Bldg.) on the 305 foot elevation into the basement.	The front side of the TLD tree was facing toward the containment liner.	There was no problem with the lowering or raising of the TLD tree.

TABLE 9. Pre-Flushing Experiment TLD Tree - Beta and Gamma Doses from Three Types of Dosimeters

TLD Tree #	TLD #	Elevation (ft)	Exposure Dates In Date & Time	Exposure Dates Out Date & Time	Exposure (hrs)	PNL Dosimeter Dose Rates Beta Front (rad/hr)	PNL Dosimeter Dose Rates Beta Back (rad/hr)	PNL Dosimeter Dose Rates Gamma Front (rad/hr)	PNL Dosimeter Dose Rates Gamma Back (rad/hr)	Dose Rates Panasonic Beta (rad/hr)	Dose Rates Panasonic Gamma (rad/hr)	Dose Rates Harshaw Beta (rad/hr)	Dose Rates Harshaw Gamma (rad/hr)
1	85	300	6/22/82 0945	6/22/82 1252	3.12	0.097± 0.142	0.0394 ± 0.563	1.10 ± 0.10	1.04 ± 0.10	0.449	1.058	0.208	0.801
	84	295	6/22/82 0945	6/22/82 1252	3.12	1.41 ± 0.68	3.65 ± 0.69	2.91 ± 0.31	2.93 ± 0.28	1.122	3.205	NA	3.462
	82	290	6/22/82 0945	6/22/82 1252	3.12	57.1 ± 7.7	34.6 ± 3.7	15.2 ± 1.7	14.2 ± 1.4	26.603	15.705	5.256	15.865
	81	285	6/22/82 0945	6/22/82 1252	3.12	57.2 ± 5.2	83.4 ± 4.0	16.2 ± 1.6	15.0 ± 1.7	48.077	16.987	12.885	23.750
2	89	300	6/22/82 1039	6/22/82 1259	2.33	1.27 ± 1.15	1.67 ± 1.18	9.32 ± 0.97	8.81 ± 0.86	1.159	10.730	NA	10.043
	88	295	6/22/82 1039	6/22/82 1259	2.33	6.54 ± 3.77	1.97 ± 2.1	22.0 ± 0.99	22.2 ± 2.1	12.446	24.464	NA	22.919
	87	290	6/22/82 1039	6/22/82 1259	2.33	11.6 ± 5.8	3.48 ± 1.95	46.7 ± 4.5	45.0 ± 4.3	22.318	41.202	NA	38.283
	86	285	6/22/82 1039	6/22/82 1259	2.33	70.2 ± 15.4	29.4 ± 8.0	65.3 ± 6.1	65.6 ± 6.5	NA	85.837	7.125	76.824
3	93	300	6/22/82 0949	6/22/82 1254	3.08	0.341± 0.321	0.637 ± 0.199	5.86 ± 0.62	5.40 ± 0.51	0.390	7.143	NA	6.818
	92	295	6/22/82 0949	6/22/82 1254	3.08	4.25 ± 0.69	3.22 ± 1.26	8.50 ± 0.82	7.99 ± 0.75	5.520	10.390	NA	11.721
	91	290	6/22/82 0949	6/22/82 1254	3.08	429 ± 8.5	22.5 ± 5.0	19.4 ± 1.9	17.9 ± 1.7	61.688	17.857	18.539	21.851
	90	285	6/22/82 0949	6/22/82 1254	3.08	22.3 ± 4.9	136 ± 21	13.3 ± 1.2	15.2 ± 1.5	64.935	18.831	6.201	15.877
4	97	300	6/22/82 0951	6/22/82 1256	3.08	0.249± 0.130	0	1.20 ± 0.11	1.24 ± 0.12	0.312	1.461	NA	1.299
	96	295	6/22/82 0951	6/22/82 1256	3.08	1.04 ± 0.25	1.58 ± 0.53	2.73 ± 0.26	2.74 ± 0.27	1.429	2.987	NA	3.052
	95	290	6/22/82 0951	6/22/82 1256	3.08	43.2 ± 2.0	33.7 ± 3.9	8.90 ± 0.85	7.85 ± 0.74	42.208	9.091	13.377	13.020
	94	285	6/22/82 0951	6/22/82 1256	3.08	99.0 ± 8.0	26.2 ± 5.3	18.1 ± 1.7	14.6 ± 1.5	58.442	18.182	33.766	21.948

CONCLUSIONS

The PNL multi-element beta dosimeter is a reliable device for determining doses in fields of mixed beta and gamma radiation. The studies that used these dosimeters illustrated the importance of using an energy-dependent calibration factor for beta dose determination: using a fixed calibration factor can result in a poor estimate of the dose. As illustrated by Figure 7, using only the calibration factor for betas from $^{90}Sr/^{90}Y$ can result in an underestimate of the dose as large as a factor of 5. The comparisons between the PNL dosimeter and dosimeters supplied by Vendor 2, the PNL dosimeters evaluated higher beta doses than those evaluated by the other dosimeters, indicating that the PNL dosimeters were operating as expected.

In Figure 6, a comparison between the PNL and Vendor 1 dosimeters, there is no well-defined trend as to which type determines a higher or lower dose. The PNL dosimeters measured higher doses than the Vendor 1 dosimeters in roughly half of the comparisons and lower doses in the other comparisons. This result is consistent with the fact that both PNL and Vendor 1 use energy-dependent calibration factors.

There is one important factor that could contribute to the discrepancy between the PNL, Vendor 2, and Vendor 1 dosimeters in dose evaluation--possible nonuniformities in the beta radiation field being measured. Since the range of betas in air is quite short compared to photons and neutrons, a variation in the concentration of beta emitters on a surface can lead to a similar variation in the intensity of the beta radiation striking nearby dosimeters. Thus two dosimeters placed several inches apart from each other against a contaminated wall could be exposed to different beta doses if the contamination on the wall were not uniform. It is quite likely that this effect occurred in some of the dosimeter comparisons.

The nonuniformity of beta radiation fields could also contribute to a poor dose determination by a multi-element dosimeter. The analysis of our dosimeter assumes that the entire dosimeter is exposed to a constant radiation field. There have been some instances in which it is obvious that some elements were exposed to higher dose rates than were other elements. There were dosimeters that showed higher TLD responses in elements that were covered by

thick shields than in the mylar-covered element, indicating a nonuniform field. The data analysis for such a dosimeter usually rejected the contribution of such an element, since the ratio to the mylar chip would be outside the allowed range, but this resulted in a loss of potential data. Smaller discrepancies could perhaps not be rejected, but instead would introduce some confusion into the data analysis. The error analysis routine was designed to catch such discrepancies and signal the possibility of a poor dose determination by indicating a large error. An example of an apparently nonuniform beta field can be seen in the results from dosimeter #3, back, in the post-gross decontamination experiment. For this dosimeter, elements 4, 5, and 6 had higher TLD responses than element 1. The evaluated error for this beta dose was larger than the evaluated dose itself.

Another possible error occurs when a significant amount of low energy x-rays are present. The relationship between TLD response and absorber thickness is flat for photons with energies greater than about 40 keV, so that the response of these photons would be correctly subtracted from the element responses to give the beta response. Photons with low energies, however, are weak penetrators of aluminum, and Figures 4 and 5 show that the relative responses of the elements are similar for betas and low-energy x-rays. The presence of these low energy x-rays would therefore be an interference in the dosimeter's dose evaluation. Preliminary studies of radionuclides in the TMI-2 containment building have indicated that three radionuclides, ^{134}Cs, ^{137}Cs and ^{90}Sr (and their radioactive progeny), are responsible for producing most of the dose observed in the building (NRC 1981). During the radioactive decay of these nuclides, the radiation emitted consists almost exclusively of betas and gammas; x rays with energies less than 40 keV make a negligible contribution to the dose (Kocher 1981). Thus, the presence of low energy x-rays did not appear to be a serious problem in the TMI-2 dosimeter exposures.

The presence of a very high-intensity gamma field in along with the betas could be an interference due to poor counting statistics. Since the data analysis depends on subtracting the gamma contribution to the TLD response of each element, a small beta response in the presence of a high gamma response would result in a high error for the beta response. Gamma intensities during the TMI-2 exposures never seemed to be high enough to cause such interference.

Since betas are attenuated by relatively thin absorbers, any material placed between the aluminum shields and the source of betas will attenuate the beta radiation. For use in a contaminated environment such as the TMI-2 containment building, it is necessary to enclose the dosimeters in a plastic bag to avoid contamination of the dosimeter itself. This plastic packaging acts as an additional absorber over the dosimeter. The plastic has the effect of stopping some very low energy betas that otherwise would have produced a response in the dosimeter, and generally reducing the number of betas of all energies that strike the dosimeter. The dosimeter that is packaged in plastic therefore records a beta dose that is a bit lower than the dose that would have been recorded by an unpackaged dosimeter.

None of the uncertainties identified in this discussion are seen as seriously affecting the use of the multi-element beta dosimeters. Although the dosimeters are still under development, especially in developing improved algorithms for dose analyses, the dosimeter is an important tool for reliably estimating beta and gamma doses.

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APPENDIX I

SOURCE CODE LISTING FOR RATIO7

APPENDIX I

SOURCE CODE LISTING FOR RATIO7

```
0001    C
0002    C  This Program Analyzes Multi-element Beta Dosimeters.
0003    C  It is designed to handle either 4-element or 7-element
0004    C  dosimeters, with 3 TLD's in each element.
0005    C
0006    C  Written by R.I.S.  7/82
0007    C  Altered            1/83
0008    C
0009          CHARACTER31 ANS,BACK/'B '/,STAR(200,7,3)/4200*' '/
0010            CHARACTER33 OLDNEW,OLD/'OLD '/
0011          CHARACTER35 FRNTBK(2)/'FRONT ','BACK  '/
0012          CHARACTER98 HDG(7)/'MYLAR #1','.005" #2','.010" #3','.020" #4',
0013            1 '.032" #5','.064" #6','.125" #7'/
0014            CHARACTER324 FLNM
0015            CHARACTER*80 TITLE
0016          DIMENSION RAW(200,7,3),AVE(200,7),IPCT(200,7),RATIO(200,6),
0017            1 CAL(200,6),DOSE(200),ID(200),IFB(200),COEF(6),YINT(6),
0018            2 RATIOMAX(6),RATIOMIN(6),BETA(200,6),GAMMA(200),GAMDOS(200),
0019            3 ERBDOS(200),ERGDOS(200),HR(200)
0020            DATA CAL/1200*0./,RATIO/1200*0./
0021            DATA HR/200*2./
0022    C
0023    C  OPEN FILES
0024    C
0025            WRITE(6,10)
0026     10     FORMAT(/' Enter filename for input data:',$)
0027            READ(5,20)FLNM
0028     20     FORMAT(A24)
0029            OPEN(UNIT=10,FILE=FLNM,STATUS='OLD ',READONLY)
0030            OPEN(UNIT=15,FILE='RATIOOUT.DAT',STATUS='NEW',
0031            1 DISPOSE='PRINT/DELETE')
0032    C
0033    C  PRESET VALUES
0034    C
0035            COEF(2)=-1.0032
0036            COEF(3)=-1.0960
0037            COEF(4)=-.7438
0038            COEF(5)=-1.1142
0039            COEF(6)=-6.1597
0040            YINT(2)=.9943
0041            YINT(3)=.9471
0042            YINT(4)=.6028
0043            YINT(5)=.5885
0044            YINT(6)=.6215
0045            RATIOMAX(2)=.7800
0046            RATIOMAX(3)=.6641
0047            RATIOMAX(4)=.5174
0048            RATIOMAX(5)=.3325
0049            RATIOMAX(6)=.0655
0050            RATIOMIN(2)=0.
0051            RATIOMIN(3)=0.
0052            RATIOMIN(4)=.2996
0053            RATIOMIN(5)=.1871
0054            RATIOMIN(6)=.0392
0055            CALMAX=.218
0056            GCOEF=.2037
0057            DESCR=5.
```

```
0058            IDESCR=IINT(DESCR)
0059      C
0060      C  INPUT
0061      C
0062            WRITE(6,100)
0063      100   FORMAT(/'  Input')
0064            READ(10,110)TITLE
0065      110   FORMAT(A80)
0066          DO 160 I=1,200
0067          READ(10,*)ID(I)
0068            IF(ID(I).LE.0)GOTO 170
0069          READ(10,130)ANS
0070       130  FORMAT(A1)
0071            PRINT*,ID(I),ANS
0072          IFB(I)=1
0073          IF(ANS.EQ.BACK)IFB(I)=2
0074            READ(10,*)HR(I)
0075          DO 145 IC=1,7
0076       145  READ(10,*)(RAW(I,IC,J),J=1,3)
0077       160  CONTINUE
0078          ND=200
0079          WRITE(6,165)
0080       165  FORMAT(/'  *** LIMIT OF 200 DOSIMETERS -- ANALYSIS PROCEEDS ***')
0081      170   READ(10,171,END=174)OLDNEW
0082      171   FORMAT(A3)
0083            IF(OLDNEW .NE. OLD)GOTO 174
0084      C
0085      C  Use old Calibration Factors (Dosimeters read out before 3/82)
0086      C
0087            COEF(4)=-1.5103
0088            COEF(5)=-2.3398
0089            YINT(4)=.9901
0090            YINT(5)=.9901
0091            CALMAX=.3511
0092            RATIOMAX(4)=0.4231
0093            RATIOMAX(5)=0.2731
0094            GCOEF=.2394
0095      174   CONTINUE
0096      C
0097      C  PROCESS RAW COUNTS
0098      C
0099            WRITE(6,175)
0100       175  FORMAT(//'    OFF AND RUNNING...',//)
0101          IF(ND.NE.200)ND=I-1
0102          DO 200 I=1,ND
0103            WRITE(6,177)ID(I),FRNTBK(IFB(I))
0104      177   FORMAT(I8,1X,A5)
0105          DO 164 IC=1,7
0106          AVE(I,IC)=0.
0107          SUMX2=0.
0108          SUMX=0.
0109          DO 179 J=1,3
0110          AVE(I,IC)=AVE(I,IC)+RAW(I,IC,J)
0111          SUMX=SUMX+RAW(I,IC,J)
0112       179  SUMX2=SUMX2+RAW(I,IC,J)*RAW(I,IC,J)
0113          AVE(I,IC)=AVE(I,IC)/3.
0114            SD=0.
0115           IF(SUMX2-SUMX*SUMX/3. .GT. 0.)
0116            1             SD=SQRT((SUMX2-SUMX*SUMX/3.)/2.)
0117          IF(AVE(I,IC).GT.0.)SD=SD/AVE(I,IC)
0118       180  PCT=SD*100.
0119      C
0120      C  Test for fliers in the TLD data
0121      C
```

```
0122            IF(PCT .LE. DESCR) GOTO 183
0123            C12=100.*ABS(RAW(I,IC,1)-RAW(I,IC,2))/RAW(I,IC,2)
0124            C23=100.*ABS(RAW(I,IC,2)-RAW(I,IC,3))/RAW(I,IC,3)
0125            C31=100.*ABS(RAW(I,IC,3)-RAW(I,IC,1))/RAW(I,IC,1)
0126            NLO=0
0127            IF(C12 .LT. DESCR)NLO=NLO+1
0128            IF(C23 .LT. DESCR)NLO=NLO+1
0129            IF(C31 .LT. DESCR)NLO=NLO+1
0130            IF(NLO .GE. 2)GOTO 183
0131            IF(NLO .EQ. 1)GOTO 1830
0132    C -- accept AVE as is for thin elements & elt.7
0133            IF(IC .LT. 4 .OR. IC .EQ. 7)GOTO 183
0134    C -- if % > DESCR+3, reject element data for elt.4-6
0135            IF(PCT .LT. DESCR+3.) GOTO 183
0136            AVE(I,IC)=0.
0137            DO 1820 J=1,3
0138    1820    STAR(I,IC,J)='*'
0139            GOTO 183
0140    C -- one TLD is a flier
0141    1830    IF(C12 .LT. DESCR)ISTAR=3
0142            IF(C23 .LT. DESCR)ISTAR=1
0143            IF(C31 .LT. DESCR)ISTAR=2
0144            STAR(I,IC,ISTAR)='*'
0145            AVE(I,IC)=(3.*AVE(I,IC)-RAW(I,IC,ISTAR))/2.
0146            KK=1
0147            IF( ISTAR .EQ. 1) KK=2
0148            PCT=100.*SQRT(2.)*ABS(RAW(I,IC,KK)-AVE(I,IC))/AVE(I,IC)
0149    183     IF(IC .EQ. 1)SD2CTS=(PCT/100.*AVE(I,1))**2
0150            IF(IC .EQ. 7)SD2CTS=SD2CTS+(PCT/100.*AVE(I,7))**2
0151            IF(IC .EQ. 7)ERGDOS(I)=SQRT(.093*.093 + PCT/100.*PCT/100.)
0152            IPCT(I,IC)=INT(.5+PCT)
0153    C
0154    C  Subtract off Gamma Component of TLD responses
0155    C
0156     184    CONTINUE
0157           DO 185 IC=1,6
0158           BETA(I,IC)=AVE(I,IC)-AVE(I,7)
0159     185   IF(BETA(I,IC).LT.0.)BETA(I,IC)=0.
0160           GAMMA(I)=AVE(I,7)
0161    C
0162    C  Determine Calibration Factors
0163    C
0164
0165            IF(BETA(I,1).LE. 0.) GOTO 189
0166            DO 188 J=2,6
0167     188    RATIO(I,J)=BETA(I,J)/BETA(I,1)
0168     189    IF(AVE(I,2).GT.0. .OR. AVE(I,3).GT.0. .OR. AVE(I,6)
0169           1 .GT. 0.) GOTO 190
0170    C -- 4-Element Dosimeter
0171            DO 1892 J=4,5
0172            CAL(I,J)=RATIO(I,J)*COEF(J)+YINT(J)
0173    1892    IF(RATIO(I,J) .GT. RATIOMAX(J)) CAL(I,J)=CALMAX
0174            CAL(I,1)=(CAL(I,4)+CAL(I,5))/2.
0175            SD2CF=2.*(CAL(I,4)-CAL(I,1))**2
0176            GOTO 1995
0177    C -- 7-Element Dosimeter
0178    190     ICAL=0.
0179            SUMCF=0.
0180            SUMCF2=0.
0181            DO 199 J=2,6
0182            IF(RATIO(I,J) .LT. RATIOMAX(J)) GOTO 192
0183            CAL(I,J)=CALMAX
0184            ICAL=ICAL+1
0185            GOTO 195
```

```
0186    192     IF(RATIO(I,J) .LT. RATIOMIN(J)) GOTO 199
0187            CAL(I,J) = RATIO(I,J)*COEF(J) + YINT(J)
0188            ICAL=ICAL+1
0189    195     CAL(I,1) = CAL(I,1) + CAL(I,J)
0190            SUMCF=SUMCF+CAL(I,J)
0191            SUMCF2=SUMCF2+CAL(I,J)*CAL(I,J)
0192    199     CONTINUE
0193            CAL(I,1) = CAL(I,1)/ICAL
0194            SD2CF=(SUMCF2-SUMCF*SUMCF/ICAL)/(ICAL-1)
0195    C
0196    C  Calculate Doses
0197    C
0198    1995    GAMDOS(I)=GAMMA(I)*GCOEF
0199            ERGDOS(I)=ERGDOS(I)*GAMDOS(I)
0200            DOSE(I)=CAL(I,1)*BETA(I,1)
0201            ERBDOS(I)=0.
0202            IF(DOSE(I) .EQ. 0.)GOTO 200
0203            ERBDOS(I)=SQRT(SD2CF/CAL(I,1)/CAL(I,1) + SD2CTS/
0204           1 BETA(I,1)/BETA(I,1))*DOSE(I)
0205    200     CONTINUE
0206    C
0207    C  OUTPUT RAW DATA
0208    C
0209            WRITE(6,205)
0210    205     FORMAT(/'  Creating output')
0211          WRITE(15,210)TITLE,HDG
0212    210   FORMAT(1H1,A80,//55X,'SUMMARY OF DOSIMETER READINGS',
0213           1 //6X,'Dosimeter',  7(7X,A8),/13X,7(11X,'(nc)'))
0214           IL=0
0215          DO 250 I=1,ND
0216           IL=IL+1
0217           IF(IL.LT.7)GOTO 215
0218           WRITE(15,212)
0219    212    FORMAT(//10X,'( * indicates a rejected flier )')
0220           WRITE(15,210)TITLE,HDG
0221           IL=1
0222    215     WRITE(15,220)ID(I),FRNTBK(IFB(I)),(RAW(I,IC,1),STAR(I,IC,1),
0223           1 IC=1,7)
0224    220   FORMAT(//3X,I6,1X,A5,'  Raw', F8.2,A1,6(F14.2,A1))
0225          DO 225 J=2,3
0226    225   WRITE(15,230)(RAW(I,IC,J),STAR(I,IC,J),IC=1,7)
0227    230   FORMAT(17X,'Raw',F8.2,A1,6(F14.2,A1))
0228          WRITE(15,240)(AVE(I,IC),IPCT(I,IC),IC=1,7),
0229         +(BETA(I,IC),IC=1,6),(RATIO(I,IC),IC=2,6)
0230    240   FORMAT(/17X,'Ave',F8.2,'+/-',I2,'%',6(F9.2,'+/-',12.'%'),
0231         +/16X,'Beta',  F8.2,5F15.2,11X,'0.00',/16X,'Ratio'.  3X,'1.00',5F15.4)
0232    250   CONTINUE
0233           WRITE(15,212)
0234    C
0235    C  OUTPUT RESULTS
0236    C
0237          WRITE(15,255)TITLE
0238    255   FORMAT(1H1,A80,//28X,'*** RESULTS ***',45X,'CALCULATED  DOSES',
0239           1 //1X,'Dosimeter', 19X,'Calibration  Factors', 23X,'Mylar  Chip',
0240           2 5X,'Calculated  Beta', 7X,'Calculated  Gamma',
0241           3 /12X,'.005"',5X,'.010"',5X,'.020"',5X,'.032"',5X,'.064"',
0242           4 7X,'Ave. ',6X,'Reading ',8X,2('Dose     Error',9X),
0243           5 /9X,6(2X,'(rad/nc)'),7X,'(nc)',2(8X,'(rad)    (rad)'))
0244           IL=0
0245          DO 280 I=1,ND,2
0246           IL=IL+1
0247           IF(IL.LT.17)GOTO 258
0248           WRITE(15,255)TITLE
0249           IL=0
```

```
0250    258     WRITE(15,259)
0251    259     FORMAT(1X)
0252          WRITE(15,260)ID(I),FRNTBK(IFB(I)),(CAL(I,J),J=2,6),CAL(I,1),
0253         +BETA(I,1),DOSE(I),ERBDOS(I),GAMDOS(I),ERGDOS(I)
0254    260   FORMAT(I4,1X,A5,F7.2,5F10.2,F13.2,2(F13.2,F9.2))
0255          IP=I+1
0256          WRITE(15,260)ID(IP),FRNTBK(IFB(IP)),(CAL(IP,J),J=2,6),
0257         +CAL(IP,1),BETA(IP,1),DOSE(IP),ERBDOS(IP),GAMDOS(IP),ERGDOS(IP)
0258    280   CONTINUE
0259    L
0260    C  Output Summary Page of Doses, Dose Rates
0261    C
0262          WRITE(15,300)TITLE
0263    300   FORMAT(1H1,A80,//28X,'*** SUMMARY OF DOSES AND DOSE RATES ***',
0264          1 //1X,'Dosimeter ',5X,'Beta', 6X,'Gamma',3X,'Exposure', 3X,
0265          2 'Beta  Dose Rate',5X,'Gamma  Dose Rate', /9X,2(6X,'Dose'), 7X,
0266          3 'Time', 2(15X,'Error'), /10X,2(5X,'(rad)'),6X,'(hr)',1X,
0267          4 2(3X,'(rad/hr) (rad/hr)'))
0268          IL=0
0269          DO 350 I=1,ND,2
0270          IL=IL+1
0271          IF(IL .LT. 17)GOTO 310
0272          WRITE(15,300)TITLE
0273          IL=0
0274    310   BETADR=DOSE(I)/HR(I)
0275          GAMMADR=GAMDOS(I)/HR(I)
0276          ERRBDR=ERBDOS(I)/HR(I)
0277          ERRGDR=ERGDOS(I)/HR(I)
0278          WRITE(15,259)
0279          WRITE(15,320)ID(I),FRNTBK(IFB(I)),DOSE(I),GAMDOS(I),HR(I),BETADR,
0280          1 ERRBDR,GAMMADR,ERRGDR
0281    320   FORMAT(I3,1X,A5,1X,2F10.2,F10.1,1PE11.2E2,E9.2E2,2X,2E9.2E2)
0282          IP=I+1
0283          BETADR=DOSE(IP)/HR(IP)
0284          GAMMADR=GAMDOS(IP)/HR(IP)
0285          ERRBDR=ERBDOS(IP)/HR(IP)
0286          ERRGDR=ERGDOS(IP)/HR(IP)
0287          WRITE(15,320)ID(IP),FRNTBK(IFB(IP)),DOSE'IP),GAMDOS(IP),HR(IP),
0288          1 BETADR,ERRBDR,GAMMADR,ERRGDR
0289    350   CONTINUE
0290    L
0291    C  Final Comments
0292    C
0293
0294        WRITE(6,400)
0295    400 FORMAT(//5X,'END OF RUN',/)
0296          CLOSE(UNIT=10)
0297          CLOSE(UNIT=15,DISPOSE='PRINT/DELETE')
0298        STOP
0299        END
```

APPENDIX II

OUTPUT LISTINGS FOR RATIO7 RUNS

```
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13.38   DISK$USER_DISK1: CSCHE. BETDOSIRATIOOUT. DAT;1   VAX/VMS
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13:38   DISK$USER_DISK1: CSCHE. BETDOS]RATIOOUT. DAT; 1   VAX/VMS
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13:38   DISK$USER_DISK1: CSCHE. BETDOSIRATIOOUT. DAT;1   VAX/VMS
```

```
 SSSS   CCCC  H   H  EEEEE
S      C      H   H  E
S      C      H   H  E
 SSS   C      HHHHH  EEEE
    S  C      H   H  E
    S  C      H   H  E
SSSS    CCCC  H   H  EEEEE
```

```
RRRRRRRR      AAAAAA    TTTTTTTTTT     IIIIII      000000      000000    UU    UU  TTTTTTTTTT
RRRRRRRR      AAAAAA    TTTTTTTTTT     IIIIII      000000      000000    UU    UU  TTTTTTTTTT
RR      RR    AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RR      RR    AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RR      RR    AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RR      RR    AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RRRRRRRR      AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RRRRRRRR      AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT
RR  RR        AAAAAAAAAA  TT           II        OO    OO    OO    OO  UU    UU      TT
RR  RR        AAAAAAAAAA  TT           II        OO    OO    OO    OO  UU    UU      TT
RR    RR      AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT      ....
RR    RR      AA  AA      TT           II        OO    OO    OO    OO  UU    UU      TT      ....
RR      RR    AA  AA      TT         111111      OOOOOO      OOOOOO    UUUUUUUUW     TT      ....
RR      RR    AA  AA      TT         IIIIII      OOOOOO      OOOOOO    UUWUUUUUU     TT      ....
```

```
DDDDDDDD      AAAAAA    TTTTTTTTTT     ;;;;        11
DDDDDDDD      AAAAAA    TTTTTTTTTT     ;;;;        11
DD      DD    AA  AA      TT           ;;;;      1111
DD      DD    AA  AA      TT           ;;;;      1111
DD      DD    AA  AA      TT                      11
DD      DD    AA  AA      TT                      11
DD      DD    AA  AA      TT           ;;;;       11
DD      DD    AA  AA      TT           ;;;;       11
DD      DD    AAAAAAAAAA  TT           ;;;;       11
DD      DD    AAAAAAAAAA  TT           ;;;;       11
DD      DD    AA  AA      TT             ;;       11
DD      DD    AA  AA      TT             ;;       11
DDDDDDDD      AA  AA      TT           ;;       111111
DDDDDDDD      AA  AA      TT           ;;       111111
```

```
 SSSS   CCCC  H   H  EEEEE
S      C      H   H  E
S      C      H   H  E
 SSS   C      HHHHH  EEEE
    S  C      H   H  E
    S  C      H   H  E
SSSS    CCCC  H   H  EEEEE
```

```
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13:38   DISK$USER_DISK1: CSCHE. BETDOSIRATIOOUT. DAT;1   VAX/VMS
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13:38   DISK$USER_DISK1: [SCHE. BETDOS]RATIOOUT. DAT;1   VAX/VMS
VAX/VMS  SCHE        RATIOOUT 13-JUN-1983 13:38   TTA4:  13-JUN-1983 13:38   DISK$USER_DISK1: CSCHE. BETDOSIRATIOOUT. DAT;1   VAX/VMS
```

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
1 FRONT	Raw	74.56	0.00	0.00	66.25	57.20	0.00	59.20
	Raw	70.97	0.00	0.00	64.78	59.56	0.00	58.98
	Raw	75.20	0.00	0.00	61.02	59.64	0.00	58.10
	Ave	73.58+/- 3%	0.00+/- 0%	0.00+/- 0%	64.02+/- 4%	58.80+/- 2%	0.00+/- 0%	58.76+/- 1%
	Beta	14.82	0.00	0.00	5.26	0.04	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3548	0.0027	0.0000	
1 BACK	Raw	154.30	0.00	0.00	67.88	69.05	0.00	95.06
	Raw	119.80	0.00	0.00	67.61	63.82	0.00	80.58
	Raw	86.14	0.00	0.00	68.38	68.21	0.00	70.47
	Ave	120.08+/-28%	0.00+/- 0%	0.00+/- 0%	67.96+/- 1%	67.03+/- 4%	0.00+/- 0%	82.04+/-15%
	Beta	38.04	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
2 FRONT	Raw	734.00	0.00	0.00	623.80	686.80	0.00	671.60
	Raw	690.40	0.00	0.00	645.50	677.70	0.00	658.80
	Raw	713.50	0.00	0.00	620.80	667.30	0.00	662.20
	Ave	712.63+/- 3%	0.00+/- 0%	0.00+/- 0%	630.03+/- 2%	677.27+/- 1%	0.00+/- 0%	664.20+/- 1%
	Beta	48.43	0.00	0.00	0.00	13.07	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.2698	0.0000	
2 BACK	Raw	1372.00	0.00	0.00	804.30*	741.50	0.00	734.80
	Raw	1477.00	0.00	0.00	886.00	766.00	0.00	718.20
	Raw	1466.00	0.00	0.00	918.40	800.50	0.00	733.40
	Ave	1438.33+/- 4%	0.00+/- 0%	0.00+/- 0%	902.20+/- 3%	769.33+/- 4%	0.00+/- 0%	728.80+/- 1%
	Beta	709.53	0.00	0.00	173.40	40.53	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2444	0.0571	0.0000	
3 FRONT	Raw	483.10	0.00	0.00	227.50	204.10	0.00	188.10
	Raw	493.50	0.00	0.00	242.80	207.10	0.00	193.60
	Raw	484.80	0.00	0.00	229.40	212.90	0.00	180.60
	Ave	487.13+/- 1%	0.00+/- 0%	0.00+/- 0%	233.23+/- 4%	208.03+/- 2%	0.00+/- 0%	187.43+/- 3%
	Beta	299.70	0.00	0.00	45.80	20.60	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1528	0.0687	0.0000	
3 BACK	Raw	197.30	0.00	0.00	171.50	203.90	0.00	198.00
	Raw	189.50	0.00	0.00	182.00	201.90	0.00	201.90
	Raw	193.50	0.00	0.00	180.80	198.70	0.00	201.40
	Ave	193.43+/- 2%	0.00+/- 0%	0.00+/- 0%	178.10+/- 3%	201.50+/- 1%	0.00+/- 0%	200.43+/- 1%
	Beta	0.00	0.00	0.00	0.00	1.07	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
4 FRONT	Raw	567.20	0.00	0.00	171.50	153.90	0.00	138.30
	Raw	592.10	0.00	0.00	168.20	140.10	0.00	138.90
	Raw	627.00*	0.00	0.00	171.00	144.60	0.00	132.40
	Ave	579.65+/- 3%	0.00+/- 0%	0.00+/- 0%	170.23+/- 1%	146.20+/- 5%	0.00+/- 0%	136.53+/- 3%
	Beta	443.12	0.00	0.00	33.70	9.67	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0761	0.0218	0.0000	
4 BACK	Raw	150.20	0.00	0.00	153.40	166.20	0.00	163.80
	Raw	163.40	0.00	0.00	147.70	156.40	0.00	172.00
	Raw	164.50	0.00	0.00	149.50	163.80	0.00	162.20
	Ave	159.37+/- 5%	0.00+/- 0%	0.00+/- 0%	150.20+/- 2%	162.13+/- 3%	0.00+/- 0%	166.00+/- 3%
	Beta	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
5 FRONT	Raw	397.00	0.00	0.00	191.50	164.30	0.00	169.40
	Raw	352.50	0.00	0.00	177.70	172.50	0.00	164.30
	Raw	236.70	0.00	0.00	174.50	164.40	0.00	165.20
	Ave	328.73+/-25%	0.00+/- 0%	0.00+/- 0%	181.23+/- 5%	167.07+/- 3%	0.00+/- 0%	166.30+/- 2%
	Beta	162.43	0.00	0.00	14.93	0.77	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0919	0.0047	0.0000	
5 BACK	Raw	200.20	0.00	0.00	180.30	181.00	0.00	180.50
	Raw	193.00	0.00	0.00	179.80	184.40	0.00	191.10
	Raw	196.10	0.00	0.00	176.70	180.30	0.00	188.90
	Ave	196.43+/- 2%	0.00+/- 0%	0.00+/- 0%	178.93+/- 1%	181.90+/- 1%	0.00+/- 0%	186.83+/- 3%
	Beta	9.60	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
6 FRONT	Raw	571.80	0.00	0.00	472.30	445.50	0.00	450.50
	Raw	557.10	0.00	0.00	470.50	460.20	0.00	478.30
	Raw	590.40	0.00	0.00	491.60	458.00	0.00	482.30
	Ave	573.10+/- 3%	0.00+/- 0%	0.00+/- 0%	478.13+/- 2%	454.57+/- 2%	0.00+/- 0%	470.37+/- 4%
	Beta	102.73	0.00	0.00	7.77	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0756	0.0000	0.0000	
6 BACK	Raw	1709.00	0.00	0.00	582.90	562.20	0.00	500.10
	Raw	1740.00	0.00	0.00	636.10	588.10	0.00	555.70*
	Raw	1762.00	0.00	0.00	617.30	569.00	0.00	503.40
	Ave	1737.00+/- 2%	0.00+/- 0%	0.00+/- 0%	612.10+/- 4%	573.10+/- 2%	0.00+/- 0%	501.75+/- 0%
	Beta	1235.25	0.00	0.00	110.35	71.35	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0893	0.0578	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
7 FRONT	Raw	542.20	0.00	0.00	451.00	481.60	0.00	458.20
	Raw	481.70*	0.00	0.00	464.30	464.60	0.00	490.40
	Raw	525.70	0.00	0.00	445.80	469.80	0.00	486.20
	Ave	533.95+/- 2%	0.00+/- 0%	0.00+/- 0%	453.70+/- 2%	472.00+/- 2%	0.00+/- 0%	478.27+/- 4%
	Beta	55.68	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
7 BACK	Raw	1668.00*	0.00	0.00	634.70	543.00	0.00	523.60
	Raw	1503.00	0.00	0.00	611.00	582.60	0.00	504.80
	Raw	1570.00	0.00	0.00	635.50	533.10	0.00	517.60
	Ave	1536.50+/- 3%	0.00+/- 0%	0.00+/- 0%	627.07+/- 2%	552.90+/- 5%	0.00+/- 0%	515.33+/- 2%
	Beta	1021.17	0.00	0.00	111.73	37.57	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1094	0.0368	0.0000	
8 FRONT	Raw	496.10	0.00	0.00	472.60	451.60	0.00	454.40
	Raw	500.20	0.00	0.00	452.40	480.40	0.00	461.30
	Raw	509.10	0.00	0.00	475.50	450.90	0.00	453.40
	Ave	501.80+/- 1%	0.00+/- 0%	0.00+/- 0%	466.83+/- 3%	460.97+/- 4%	0.00+/- 0%	456.37+/- 1%
	Beta	45.43	0.00	0.00	10.47	4.60	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2304	0.1012	0.0000	
8 BACK	Raw	2084.00*	0.00	0.00	616.30	604.30	0.00	536.90
	Raw	1830.00	0.00	0.00	574.60	604.30	0.00	524.20
	Raw	1895.00	0.00	0.00	625.80	649.80	0.00	525.10
	Ave	1862.50+/- 2%	0.00+/- 0%	0.00+/- 0%	605.57+/- 4%	619.47+/- 4%	0.00+/- 0%	528.73+/- 1%
	Beta	1333.77	0.00	0.00	76.83	90.73	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0576	0.0680	0.0000	
9 FRONT	Raw	836.90	0.00	0.00	883.80	807.00	0.00	714.40*
	Raw	844.50	0.00	0.00	855.20	833.70	0.00	782.20
	Raw	875.80	0.00	0.00	842.00	881.30	0.00	807.90
	Ave	852.40+/- 2%	0.00+/- 0%	0.00+/- 0%	860.33+/- 2%	840.67+/- 4%	0.00+/- 0%	795.05+/- 2%
	Beta	57.35	0.00	0.00	65.28	45.62	0.00	0.00
	Ratio	1.00	0.0000	0.0000	1.1383	0.7954	0.0000	
9 BACK	Raw	3888.00	0.00	0.00	929.80	933.60	0.00	920.20
	Raw	3560.00	0.00	0.00	980.90	904.40	0.00	940.00
	Raw	5626.00	0.00	0.00	997.60	921.70	0.00	951.50
	Ave	4358.00+/-25%	0.00+/- 0%	0.00+/- 0%	969.43+/- 4%	919.90+/- 2%	0.00+/- 0%	937.23+/- 2%
	Beta	3420.77	0.00	0.00	32.20	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0094	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
10 FRONT	Raw	1.02	0.00	0.00	0.93	0.92	0.00	0.92
	Raw	0.99	0.00	0.00	0.93	0.92	0.00	0.92
	Raw	0.96	0.00	0.00	0.96	0.95	0.00	0.93
	Ave	0.99+/- 3%	0.00+/- 0%	0.00+/- 0%	0.94+/- 2%	0.93+/- 2%	0.00+/- 0%	0.92+/- 1%
	Beta	0.07	0.00	0.00	0.02	0.01	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2548	0.1154	0.0000	
10 BACK	Raw	1.01	0.00	0.00	0.98	0.92	0.00	0.92
	Raw	1.01	0.00	0.00	0.94	0.90	0.00	0.92
	Raw	0.97	0.00	0.00	0.94	0.94	0.00	0.90
	Ave	0.99+/- 2%	0.00+/- 0%	0.00+/- 0%	0.95+/- 3%	0.92+/- 2%	0.00+/- 0%	0.91+/- 1%
	Beta	0.08	0.00	0.00	0.04	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.5000	0.0500	0.0000	
11 FRONT	Raw	362.70	0.00	0.00	342.10	402.00	0.00	372.10
	Raw	375.20	0.00	0.00	345.30	382.30	0.00	394.00
	Raw	361.00	0.00	0.00	310.70*	386.60	0.00	395.50
	Ave	366.30+/- 2%	0.00+/- 0%	0.00+/- 0%	343.70+/- 1%	390.30+/- 3%	0.00+/- 0%	387.20+/- 3%
	Beta	0.00	0.00	0.00	0.00	3.10	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
11 BACK	Raw	356.40	0.00	0.00	367.10	388.60	0.00	420.20
	Raw	363.70	0.00	0.00	372.10	404.30	0.00	406.80
	Raw	373.50	0.00	0.00	345.20	416.00	0.00	409.30
	Ave	364.53+/- 2%	0.00+/- 0%	0.00+/- 0%	361.47+/- 4%	402.97+/- 3%	0.00+/- 0%	412.10+/- 2%
	Beta	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
12 FRONT	Raw	305.20	0.00	0.00	294.60	308.80	0.00	270.30
	Raw	357.90	0.00	0.00	294.70	292.00	0.00	263.30
	Raw	334.30	0.00	0.00	317.70	303.80	0.00	260.50
	Ave	332.47+/- 8%	0.00+/- 0%	0.00+/- 0%	302.33+/- 4%	301.53+/- 3%	0.00+/- 0%	264.70+/- 2%
	Beta	67.77	0.00	0.00	37.63	36.83	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.5553	0.5435	0.0000	
12 BACK	Raw	336.00	0.00	0.00	300.40	275.90	0.00	284.60
	Raw	511.20	0.00	0.00	304.90	259.00	0.00	287.40
	Raw	466.70	0.00	0.00	304.10	282.90	0.00	296.00
	Ave	437.97+/-21%	0.00+/- 0%	0.00+/- 0%	303.13+/- 1%	272.60+/- 5%	0.00+/- 0%	289.33+/- 2%
	Beta	148.63	0.00	0.00	13.80	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0928	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
13 FRONT	Raw	183.50	0.00	0.00	111.40	103.00	0.00	97.48
	Raw	181.90	0.00	0.00	109.10	99.26	0.00	96.79
	Raw	186.20	0.00	0.00	112.00	103.50	0.00	99.27
	Ave	183.87+/- 1%	0.00+/- 0%	0.00+/- 0%	110.83+/- 1%	101.92+/- 2%	0.00+/- 0%	97.85+/- 1%
	Beta	86.02	0.00	0.00	12.99	4.07	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1510	0.0474	0.0000	
13 BACK	Raw	121.50	0.00	0.00	98.50	98.28	0.00	97.92
	Raw	117.70	0.00	0.00	97.64	97.88	0.00	99.01
	Raw	119.10	0.00	0.00	97.40	96.98	0.00	100.70
	Ave	119.43+/- 2%	0.00+/- 0%	0.00+/- 0%	97.85+/- 1%	97.71+/- 1%	0.00+/- 0%	99.21+/- 1%
	Beta	20.22	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
14 FRONT	Raw	396.00	0.00	0.00	366.00	365.90	0.00	346.10
	Raw	427.80	0.00	0.00	385.50	365.20	0.00	356.30
	Raw	433.20	0.00	0.00	379.70	359.10	0.00	361.50
	Ave	419.00+/- 5%	0.00+/- 0%	0.00+/- 0%	377.07+/- 3%	363.40+/- 1%	0.00+/- 0%	354.63+/- 2%
	Beta	64.37	0.00	0.00	22.43	8.77	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3485	0.1362	0.0000	
14 BACK	Raw	367.40	0.00	0.00	335.60	362.80	0.00	335.60
	Raw	347.70	0.00	0.00	348.50	356.70	0.00	355.10
	Raw	341.20	0.00	0.00	324.70	347.20	0.00	340.10
	Ave	352.10+/- 4%	0.00+/- 0%	0.00+/- 0%	336.27+/- 4%	355.57+/- 2%	0.00+/- 0%	343.60+/- 3%
	Beta	8.50	0.00	0.00	0.00	11.97	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	1.4078	0.0000	
15 FRONT	Raw	2937.00	0.00	0.00	2938.00	1352.00	0.00	1375.00
	Raw	2989.00	0.00	0.00	2873.00	1362.00	0.00	1320.00
	Raw	2952.00	0.00	0.00	2798.00	1537.00*	0.00	1472.00*
	Ave	2959.33+/- 1%	0.00+/- 0%	0.00+/- 0%	2869.67+/- 2%	1357.00+/- 1%	0.00+/- 0%	1347.50+/- 3%
	Beta	1611.83	0.00	0.00	1522.17	9.50	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.9444	0.0059	0.0000	
15 BACK	Raw	4828.00	0.00	0.00	3368.00	1497.00	0.00	1642.00
	Raw	5054.00	0.00	0.00	3079.00	1354.00*	0.00	1606.00
	Raw	4875.00	0.00	0.00	3112.00	1533.00	0.00	1650.00
	Ave	4919.00+/- 2%	0.00+/- 0%	0.00+/- 0%	3186.33+/- 5%	1515.00+/- 2%	0.00+/- 0%	1632.67+/- 1%
	Beta	3286.33	0.00	0.00	1553.67	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4728	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
16 FRONT	Raw	390.30	0.00	0.00	374.70	382.30	0.00	353.30
	Raw	399.40	0.00	0.00	381.70	360.80	0.00	359.60
	Raw	398.70	0.00	0.00	352.90	381.60	0.00	362.70
	Ave	396.13+/- 1%	0.00+/- 0%	0.00+/- 0%	369.77+/- 4%	374.90+/- 3%	0.00+/- 0%	358.53+/- 1%
	Beta	37.60	0.00	0.00	11.23	16.37	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2988	0.4353	0.0000	
16 BACK	Raw	378.60*	0.00	0.00	362.00	395.40	0.00	364.90
	Raw	417.80	0.00	0.00	375.00	367.80	0.00	341.70
	Raw	414.00	0.00	0.00	369.80	361.80	0.00	361.50
	Ave	415.90+/- 1%	0.00+/- 0%	0.00+/- 0%	368.93+/- 2%	375.00+/- 5%	0.00+/- 0%	356.03+/- 4%
	Beta	59.87	0.00	0.00	12.90	18.97	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2155	0.3168	0.0000	
17 FRONT	Raw	1.43	0.00	0.00	1.27	1.27	0.00	1.23
	Raw	1.46	0.00	0.00	1.20	1.19	0.00	1.14
	Raw	1.42	0.00	0.00	1.23	1.19	0.00	1.25
	Ave	1.44+/- 1%	0.00+/- 0%	0.00+/- 0%	1.23+/- 3%	1.22+/- 4%	0.00+/- 0%	1.21+/- 5%
	Beta	0.23	0.00	0.00	0.03	0.01	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1111	0.0351	0.0000	
17 BACK	Raw	1.44	0.00	0.00	1.25	1.23	0.00	1.23
	Raw	1.47	0.00	0.00	1.22	1.20	0.00	1.29
	Raw	1.40	0.00	0.00	1.28	1.24	0.00	1.26
	Ave	1.43+/- 3%	0.00+/- 0%	0.00+/- 0%	1.25+/- 3%	1.22+/- 1%	0.00+/- 0%	1.26+/- 2%
	Beta	0.17	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
18 FRONT	Raw	664.80	0.00	0.00	589.60	590.30	0.00	622.90
	Raw	679.10	0.00	0.00	550.80	588.60	0.00	539.90
	Raw	692.00	0.00	0.00	577.40	570.20	0.00	576.70
	Ave	678.63+/- 2%	0.00+/- 0%	0.00+/- 0%	572.60+/- 3%	583.03+/- 2%	0.00+/- 0%	579.83+/- 7%
	Beta	98.80	0.00	0.00	0.00	3.20	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0324	0.0000	
18 BACK	Raw	1305.00	0.00	0.00	582.70	602.10	0.00	558.40
	Raw	1135.00	0.00	0.00	589.00	595.10	0.00	557.50
	Raw	651.00	0.00	0.00	587.70	574.90	0.00	555.00
	Ave	1030.33+/-33%	0.00+/- 0%	0.00+/- 0%	586.47+/- 1%	590.70+/- 2%	0.00+/- 0%	556.97+/- 0%
	Beta	473.37	0.00	0.00	29.50	33.73	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0623	0.0713	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
19 FRONT	Raw	309.10	0.00	0.00	238.80	235.50	0.00	0.00
	Raw	285.60	0.00	0.00	253.10	247.40	0.00	0.00
	Raw	265.10	0.00	0.00	226.80	247.80	0.00	0.00
	Ave	286.60+/- 8%	0.00+/- 0%	0.00+/- 0%	239.57+/- 5%	243.57+/- 3%	0.00+/- 0%	0.00+/- 0%
	Beta	286.60	0.00	0.00	239.57	243.57	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.8359	0.8498	0.0000	
19 BACK	Raw	327.30	0.00	0.00	227.70	227.60	0.00	234.70
	Raw	336.10	0.00	0.00	234.20	245.10	0.00	243.60
	Raw	326.00	0.00	0.00	243.00	231.80	0.00	242.40
	Ave	329.80+/- 2%	0.00+/- 0%	0.00+/- 0%	234.97+/- 3%	234.83+/- 4%	0.00+/- 0%	240.23+/- 2%
	Beta	89.57	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
21 FRONT	Raw	315.60	0.00	0.00	269.00	269.70	0.00	267.80
	Raw	313.40	0.00	0.00	251.80	258.90	0.00	249.30
	Raw	321.30	0.00	0.00	261.60	267.10	0.00	249.00
	Ave	316.77+/- 1%	0.00+/- 0%	0.00+/- 0%	260.80+/- 3%	265.23+/- 2%	0.00+/- 0%	255.37+/- 4%
	Beta	61.40	0.00	0.00	5.43	9.87	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0885	0.1607	0.0000	
21 BACK	Raw	866.60	0.00	0.00	270.00	254.40	0.00	255.80
	Raw	1144.00	0.00	0.00	260.80	244.00	0.00	257.10
	Raw	1032.00	0.00	0.00	268.60	264.70	0.00	248.80
	Ave	1014.20+/-14%	0.00+/- 0%	0.00+/- 0%	266.47+/- 2%	254.37+/- 4%	0.00+/- 0%	253.90+/- 2%
	Beta	760.30	0.00	0.00	12.57	0.47	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0165	0.0006	0.0000	
23 FRONT	Raw	3197.00	0.00	0.00	4928.00	5563.00	0.00	3224.00
	Raw	3234.00	0.00	0.00	5256.00	5228.00	0.00	3221.00
	Raw	3005.00	0.00	0.00	4939.00	5074.00	0.00	3172.00
	Ave	3145.33+/- 4%	0.00+/- 0%	0.00+/- 0%	5041.00+/- 4%	5288.33+/- 5%	0.00+/- 0%	3205.67+/- 1%
	Beta	0.00	0.00	0.00	1835.33	2082.67	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
23 BACK	Raw	6466.00	0.00	0.00	9283.00	7601.00	0.00	3564.00*
	Raw	6935.00	0.00	0.00	9006.00	8012.00	0.00	3222.00
	Raw	6618.00	0.00	0.00	9024.00	7566.00	0.00	3362.00
	Ave	6673.00+/- 4%	0.00+/- 0%	0.00+/- 0%	9104.33+/- 2%	7726.33+/- 3%	0.00+/- 0%	3292.00+/- 3%
	Beta	3381.00	0.00	0.00	5812.33	4434.33	0.00	0.00
	Ratio	1.00	0.0000	0.0000	1.7191	1.3115	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
25 FRONT	Raw	923.60	0.00	0.00	809.80	941.70	0.00	933.20
	Raw	941.90	0.00	0.00	811.30	871.80	0.00	884.30
	Raw	942.60	0.00	0.00	840.30	930.60	0.00	874.20
	Ave	936.03+/- 1%	0.00+/- 0%	0.00+/- 0%	820.47+/- 2%	914.70+/- 4%	0.00+/- 0%	897.23+/- 4%
	Beta	38.80	0.00	0.00	0.00	17.47	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.4502	0.0000	
25 BACK	Raw	942.00	0.00	0.00	836.20	700.70	0.00	841.80
	Raw	941.90	0.00	0.00	868.20	740.30	0.00	823.00
	Raw	919.30	0.00	0.00	878.00	742.70	0.00	796.00
	Ave	934.40+/- 1%	0.00+/- 0%	0.00+/- 0%	860.80+/- 3%	727.90+/- 3%	0.00+/- 0%	820.27+/- 3%
	Beta	114.13	0.00	0.00	40.53	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3551	0.0000	0.0000	
26 FRONT	Raw	426.80	0.00	0.00	198.00	192.60	0.00	181.40
	Raw	416.80	0.00	0.00	195.30	186.90	0.00	171.70
	Raw	397.40	0.00	0.00	205.20	187.70	0.00	176.60
	Ave	413.67+/- 4%	0.00+/- 0%	0.00+/- 0%	199.50+/- 3%	189.07+/- 2%	0.00+/- 0%	176.57+/- 3%
	Beta	237.10	0.00	0.00	22.93	12.50	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0967	0.0527	0.0000	
26 BACK	Raw	232.10	0.00	0.00	182.00	180.90	0.00	195.50
	Raw	233.00	0.00	0.00	194.00	193.50	0.00	181.40
	Raw	226.40	0.00	0.00	197.50	183.80	0.00	189.40
	Ave	230.50+/- 2%	0.00+/- 0%	0.00+/- 0%	191.17+/- 4%	186.07+/- 4%	0.00+/- 0%	188.77+/- 4%
	Beta	41.73	0.00	0.00	2.40	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0575	0.0000	0.0000	
27 FRONT	Raw	187.30	0.00	0.00	183.30	187.40	0.00	179.40
	Raw	154.40*	0.00	0.00	172.40	184.20	0.00	179.70
	Raw	192.90	0.00	0.00	174.00	178.80	0.00	177.10
	Ave	190.10+/- 2%	0.00+/- 0%	0.00+/- 0%	176.57+/- 3%	183.47+/- 2%	0.00+/- 0%	178.73+/- 1%
	Beta	11.37	0.00	0.00	0.00	4.73	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.4164	0.0000	
27 BACK	Raw	159.70	0.00	0.00	151.30	159.20	0.00	163.00
	Raw	155.70	0.00	0.00	156.50	173.30	0.00	170.50
	Raw	157.70	0.00	0.00	151.70	168.80	0.00	166.10
	Ave	157.70+/- 1%	0.00+/- 0%	0.00+/- 0%	153.17+/- 2%	167.10+/- 4%	0.00+/- 0%	166.53+/- 2%
	Beta	0.00	0.00	0.00	0.00	0.57	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
29 FRONT	Raw	78.19	0.00	0.00	61.22	62.53	0.00	57.89
	Raw	78.70	0.00	0.00	63.58	59.77	0.00	60.29
	Raw	74.76	0.00	0.00	63.82	62.86	0.00	55.60
	Ave	77.22+/- 3%	0.00+/- 0%	0.00+/- 0%	62.87+/- 2%	61.72+/- 3%	0.00+/- 0%	57.93+/- 4%
	Beta	19.29	0.00	0.00	4.95	3.79	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2564	0.1966	0.0000	
29 BACK	Raw	62.01	0.00	0.00	53.64	51.60	0.00	55.41
	Raw	59.08	0.00	0.00	54.81	56.46	0.00	54.22
	Raw	58.18	0.00	0.00	58.57	54.91	0.00	54.36
	Ave	59.76+/- 3%	0.00+/- 0%	0.00+/- 0%	55.67+/- 5%	54.32+/- 5%	0.00+/- 0%	54.66+/- 1%
	Beta	5.09	0.00	0.00	1.01	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1983	0.0000	0.0000	
30 FRONT	Raw	100.90	0.00	0.00	65.34	64.82	0.00	57.37
	Raw	100.60	0.00	0.00	62.85	61.91	0.00	59.59
	Raw	100.60	0.00	0.00	66.86	61.30	0.00	59.95
	Ave	100.70+/- 0%	0.00+/- 0%	0.00+/- 0%	65.02+/- 3%	62.68+/- 3%	0.00+/- 0%	58.97+/- 2%
	Beta	41.73	0.00	0.00	6.05	3.71	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1449	0.0888	0.0000	
30 BACK	Raw	71.48	0.00	0.00	55.74	53.67	0.00	56.06
	Raw	71.72	0.00	0.00	55.41	55.32	0.00	58.56
	Raw	60.45*	0.00	0.00	56.15	55.99	0.00	58.64
	Ave	71.60+/- 0%	0.00+/- 0%	0.00+/- 0%	55.77+/- 1%	54.99+/- 2%	0.00+/- 0%	57.75+/- 3%
	Beta	13.85	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
34 FRONT	Raw	107.70	0.00	0.00	81.71	83.58	0.00	76.76
	Raw	110.20	0.00	0.00	84.40	80.82	0.00	73.45
	Raw	107.00	0.00	0.00	81.32	80.60	0.00	73.31
	Ave	108.30+/- 2%	0.00+/- 0%	0.00+/- 0%	82.48+/- 2%	81.67+/- 2%	0.00+/- 0%	74.51+/- 3%
	Beta	33.79	0.00	0.00	7.97	7.16	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2358	0.2119	0.0000	
34 BACK	Raw	71.42*	0.00	0.00	72.36	69.95*	0.00	74.02
	Raw	78.98	0.00	0.00	71.46	65.26*	0.00	74.95
	Raw	82.48	0.00	0.00	66.48	77.79*	0.00	75.66
	Ave	80.73+/- 3%	0.00+/- 0%	0.00+/- 0%	70.10+/- 5%	0.00+/- 9%	0.00+/- 0%	74.88+/- 1%
	Beta	5.85	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
36 FRONT	Raw	59.92	0.00	0.00	45.37	40.76	0.00	40.32
	Raw	53.32*	0.00	0.00	44.19	40.34	0.00	41.48
	Raw	57.22	0.00	0.00	48.39	42.85	0.00	44.03
	Ave	58.57+/- 3%	0.00+/- 0%	0.00+/- 0%	45.98+/- 5%	41.32+/- 3%	0.00+/- 0%	41.94+/- 5%
	Beta	16.63	0.00	0.00	4.04	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2430	0.0000	0.0000	
36 BACK	Raw	40.81	0.00	0.00	36.31	33.52	0.00	36.62
	Raw	38.94	0.00	0.00	35.00	32.92	0.00	32.20*
	Raw	38.08	0.00	0.00	36.45	32.56	0.00	37.02
	Ave	39.28+/- 4%	0.00+/- 0%	0.00+/- 0%	35.92+/- 2%	33.00+/- 1%	0.00+/- 0%	36.82+/- 1%
	Beta	2.46	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
37 FRONT	Raw	210.40	0.00	0.00	168.80	164.80	0.00	154.10
	Raw	210.90	0.00	0.00	173.70	160.50	0.00	146.30
	Raw	216.30	0.00	0.00	171.50	155.80	0.00	149.10
	Ave	212.53+/- 2%	0.00+/- 0%	0.00+/- 0%	171.33+/- 1%	160.37+/- 3%	0.00+/- 0%	149.83+/- 3%
	Beta	62.70	0.00	0.00	21.50	10.53	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3429	0.1680	0.0000	
37 BACK	Raw	950.70	0.00	0.00	220.40	244.90	0.00	169.30
	Raw	819.60	0.00	0.00	224.60	254.90	0.00	157.80
	Raw	866.60	0.00	0.00	223.70	235.00	0.00	165.60
	Ave	878.97+/- 8%	0.00+/- 0%	0.00+/- 0%	222.90+/- 1%	244.93+/- 4%	0.00+/- 0%	164.23+/- 4%
	Beta	714.73	0.00	0.00	58.67	80.70	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0821	0.1129	0.0000	
39 FRONT	Raw	67.74	0.00	0.00	56.82	56.64	0.00	57.91
	Raw	69.20	0.00	0.00	56.25	60.37	0.00	55.00
	Raw	74.58*	0.00	0.00	60.79	58.84	0.00	53.71
	Ave	68.47+/- 2%	0.00+/- 0%	0.00+/- 0%	57.95+/- 4%	58.62+/- 3%	0.00+/- 0%	55.54+/- 4%
	Beta	12.93	0.00	0.00	2.41	3.08	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1866	0.2379	0.0000	
39 BACK	Raw	68.23*	0.00	0.00	55.55	54.12	0.00	54.36
	Raw	62.86	0.00	0.00	57.22	52.75	0.00	51.81
	Raw	61.50	0.00	0.00	50.80*	57.78	0.00	58.85*
	Ave	62.18+/- 2%	0.00+/- 0%	0.00+/- 0%	56.39+/- 2%	54.88+/- 5%	0.00+/- 0%	53.09+/- 3%
	Beta	9.10	0.00	0.00	3.30	1.80	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3628	0.1977	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
40 FRONT	Raw	260.50	0.00	0.00	206.60*	186.20	0.00	213.50
	Raw	269.20	0.00	0.00	190.40	197.50	0.00	187.60*
	Raw	269.20	0.00	0.00	187.60	194.60	0.00	214.00
	Ave	266.30+/- 2%	0.00+/- 0%	0.00+/- 0%	189.00+/- 1%	192.77+/- 3%	0.00+/- 0%	213.75+/- 0%
	Beta	52.55	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
40 BACK	Raw	1478.00	0.00	0.00	288.80	254.30	0.00	238.20
	Raw	1386.00	0.00	0.00	305.30	275.50	0.00	226.20
	Raw	1639.00	0.00	0.00	296.40	253.70	0.00	228.60
	Ave	1501.00+/- 9%	0.00+/- 0%	0.00+/- 0%	296.83+/- 3%	261.17+/- 5%	0.00+/- 0%	231.00+/- 3%
	Beta	1270.00	0.00	0.00	65.83	30.17	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0518	0.0238	0.0000	
41 FRONT	Raw	509.60	0.00	0.00	465.50	483.50	0.00	463.10
	Raw	502.80	0.00	0.00	496.80*	479.10	0.00	474.50
	Raw	523.50	0.00	0.00	445.60	502.80	0.00	478.20
	Ave	511.97+/- 2%	0.00+/- 0%	0.00+/- 0%	455.55+/- 3%	488.47+/- 3%	0.00+/- 0%	471.93+/- 2%
	Beta	40.03	0.00	0.00	0.00	16.53	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.4130	0.0000	
41 BACK	Raw	556.90	0.00	0.00	489.70	469.10	0.00	466.30
	Raw	547.10	0.00	0.00	470.70	460.10	0.00	450.10
	Raw	577.80	0.00	0.00	478.70	423.90*	0.00	457.60
	Ave	560.60+/- 3%	0.00+/- 0%	0.00+/- 0%	479.70+/- 2%	464.60+/- 1%	0.00+/- 0%	458.00+/- 2%
	Beta	102.60	0.00	0.00	21.70	6.60	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2115	0.0643	0.0000	
43 FRONT	Raw	146.10	0.00	0.00	91.14*	79.14	0.00	82.74
	Raw	141.80	0.00	0.00	83.90	82.48	0.00	86.55
	Raw	140.50	0.00	0.00	83.46	91.10*	0.00	79.24
	Ave	142.80+/- 2%	0.00+/- 0%	0.00+/- 0%	83.68+/- 0%	80.81+/- 3%	0.00+/- 0%	82.84+/- 4%
	Beta	59.96	0.00	0.00	0.84	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0140	0.0000	0.0000	
43 BACK	Raw	104.10	0.00	0.00	81.26	74.42	0.00	78.38
	Raw	98.02	0.00	0.00	78.62	76.22	0.00	74.53
	Raw	99.82	0.00	0.00	75.18	70.88	0.00	75.64
	Ave	100.65+/- 3%	0.00+/- 0%	0.00+/- 0%	78.35+/- 4%	73.84+/- 4%	0.00+/- 0%	76.18+/- 3%
	Beta	24.46	0.00	0.00	2.17	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0887	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
44 FRONT	Raw	151.90	0.00	0.00	92.25	96.26	0.00	88.58
	Raw	150.40	0.00	0.00	92.07	94.73	0.00	95.34
	Raw	143.60	0.00	0.00	92.46	96.04	0.00	94.45
	Ave	148.63+/- 3%	0.00+/- 0%	0.00+/- 0%	92.26+/- 0%	95.68+/- 1%	0.00+/- 0%	92.79+/- 4%
	Beta	55.84	0.00	0.00	0.00	2.89	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0517	0.0000	
44 BACK	Raw	388.70	0.00	0.00	110.10	107.00	0.00	89.91
	Raw	368.30	0.00	0.00	110.10	102.10	0.00	88.09
	Raw	364.80	0.00	0.00	122.70*	102.10	0.00	91.73
	Ave	373.93+/- 3%	0.00+/- 0%	0.00+/- 0%	110.10+/- 0%	103.73+/- 3%	0.00+/- 0%	89.91+/- 2%
	Beta	284.02	0.00	0.00	20.19	13.82	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0711	0.0487	0.0000	
45 FRONT	Raw	112.80	0.00	0.00	81.73	81.45	0.00	73.35
	Raw	103.00*	0.00	0.00	82.56	82.06	0.00	76.77
	Raw	112.70	0.00	0.00	78.13	80.69	0.00	75.88
	Ave	112.75+/- 0%	0.00+/- 0%	0.00+/- 0%	80.81+/- 3%	81.40+/- 1%	0.00+/- 0%	75.33+/- 2%
	Beta	37.42	0.00	0.00	5.47	6.07	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1463	0.1621	0.0000	
45 BACK	Raw	86.81	0.00	0.00	76.65	71.03	0.00	73.33
	Raw	82.71	0.00	0.00	77.62	77.00	0.00	76.88
	Raw	87.19	0.00	0.00	76.32	72.18	0.00	73.04
	Ave	85.57+/- 3%	0.00+/- 0%	0.00+/- 0%	76.86+/- 1%	73.40+/- 4%	0.00+/- 0%	74.42+/- 3%
	Beta	11.15	0.00	0.00	2.45	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2194	0.0000	0.0000	
46 FRONT	Raw	275.20	0.00	0.00	185.50	172.30	0.00	176.90
	Raw	208.00	0.00	0.00	194.60	166.20	0.00	166.60
	Raw	307.50	0.00	0.00	184.80	157.80	0.00	178.30
	Ave	263.57+/-19%	0.00+/- 0%	0.00+/- 0%	188.30+/- 3%	165.43+/- 4%	0.00+/- 0%	173.93+/- 4%
	Beta	89.63	0.00	0.00	14.37	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1603	0.0000	0.0000	
46 BACK	Raw	1238.00	0.00	0.00	228.10	196.40	0.00	163.50
	Raw	1185.00	0.00	0.00	216.50	193.80	0.00	169.30
	Raw	1127.00	0.00	0.00	214.30	204.10	0.00	160.30
	Ave	1183.33+/- 5%	0.00+/- 0%	0.00+/- 0%	219.63+/- 3%	198.10+/- 3%	0.00+/- 0%	164.37+/- 3%
	Beta	1018.97	0.00	0.00	55.27	33.73	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0542	0.0331	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
48 FRONT	Raw	68.67	0.00	0.00	56.97	51.87	0.00	53.48
	Raw	65.01	0.00	0.00	53.30	54.05	0.00	47.38*
	Raw	68.39	0.00	0.00	55.67	54.06	0.00	51.99
	Ave	67.36+/- 3%	0.00+/- 0%	0.00+/- 0%	55.31+/- 3%	53.33+/- 2%	0.00+/- 0%	52.74+/- 2%
	Beta	14.62	0.00	0.00	2.58	0.59	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1763	0.0405	0.0000	
48 BACK	Raw	61.67	0.00	0.00	50.13	51.52	0.00	51.22
	Raw	57.63	0.00	0.00	51.74	48.31	0.00	47.94
	Raw	52.56	0.00	0.00	52.70	51.01	0.00	50.84
	Ave	57.29+/- 8%	0.00+/- 0%	0.00+/- 0%	51.52+/- 3%	50.28+/- 3%	0.00+/- 0%	50.00+/- 4%
	Beta	7.29	0.00	0.00	1.52	0.28	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2091	0.0384	0.0000	
49 FRONT	Raw	11710.00	0.00	0.00	3981.00	5838.00	0.00	4711.00
	Raw	12600.00	0.00	0.00	4425.00*	5897.00	0.00	5550.00
	Raw	14610.00	0.00	0.00	4107.00	4400.00*	0.00	4269.00
	Ave	12973.33+/-11%	0.00+/- 0%	0.00+/- 0%	4044.00+/- 2%	5867.50+/- 1%	0.00+/- 0%	4843.33+/-13%
	Beta	8130.00	0.00	0.00	0.00	1024.17	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.1260	0.0000	
49 BACK	Raw	49580.00	0.00	0.00	10820.00	7611.00	0.00	3949.00
	Raw	53970.00	0.00	0.00	10490.00	7059.00	0.00	3597.00
	Raw	47020.00	0.00	0.00	9225.00*	7497.00	0.00	3720.00
	Ave	50190.00+/- 7%	0.00+/- 0%	0.00+/- 0%	10655.00+/- 2%	7389.00+/- 4%	0.00+/- 0%	3755.33+/- 5%
	Beta	46434.67	0.00	0.00	6899.67	3633.67	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1486	0.0783	0.0000	
50 FRONT	Raw	386.70	0.00	0.00	280.10	275.00	0.00	288.00
	Raw	383.90	0.00	0.00	263.50	267.10	0.00	278.80
	Raw	362.30	0.00	0.00	268.10	232.70*	0.00	284.50
	Ave	377.63+/- 4%	0.00+/- 0%	0.00+/- 0%	270.57+/- 3%	271.05+/- 2%	0.00+/- 0%	283.77+/- 2%
	Beta	93.87	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
50 BACK	Raw	2136.00	0.00	0.00	355.60	332.30	0.00	278.30
	Raw	1991.00	0.00	0.00	370.10	308.00	0.00	294.70
	Raw	2049.00	0.00	0.00	360.40	338.60	0.00	269.70
	Ave	2058.67+/- 4%	0.00+/- 0%	0.00+/- 0%	362.03+/- 2%	326.30+/- 5%	0.00+/- 0%	280.90+/- 5%
	Beta	1777.77	0.00	0.00	81.13	45.40	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0456	0.0255	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
51 FRONT	Raw	112.80	0.00	0.00	92.28	83.42	0.00	79.07
	Raw	116.80	0.00	0.00	89.51	82.22	0.00	75.09
	Raw	116.80	0.00	0.00	88.47	85.48	0.00	79.23
	Ave	115.47+/- 2%	0.00+/- 0%	0.00+/- 0%	90.09+/- 2%	83.71+/- 2%	0.00+/- 0%	77.80+/- 3%
	Beta	37.67	0.00	0.00	12.29	5.91	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3263	0.1569	0.0000	
51 BACK	Raw	82.62	0.00	0.00	81.68	70.00	0.00	79.42
	Raw	78.50	0.00	0.00	81.37	74.23	0.00	76.53
	Raw	90.15	0.00	0.00	77.99	77.28	0.00	73.61
	Ave	83.76+/- 7%	0.00+/- 0%	0.00+/- 0%	80.35+/- 3%	73.84+/- 5%	0.00+/- 0%	76.52+/- 4%
	Beta	7.24	0.00	0.00	3.83	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.5288	0.0000	0.0000	
52 FRONT	Raw	1.53	0.00	0.00	1.24	1.28	0.00	1.34
	Raw	1.61	0.00	0.00	1.30	1.18	0.00	1.28
	Raw	1.51	0.00	0.00	1.26	1.28	0.00	1.26
	Ave	1.55+/- 3%	0.00+/- 0%	0.00+/- 0%	1.26+/- 2%	1.25+/- 4%	0.00+/- 0%	1.29+/- 3%
	Beta	0.25	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
52 BACK	Raw	2.05	0.00	0.00	1.37	1.35	0.00	1.24
	Raw	2.09	0.00	0.00	1.29	1.30	0.00	1.30
	Raw	2.64*	0.00	0.00	1.28	1.25	0.00	1.24
	Ave	2.07+/- 2%	0.00+/- 0%	0.00+/- 0%	1.31+/- 4%	1.30+/- 4%	0.00+/- 0%	1.26+/- 3%
	Beta	0.81	0.00	0.00	0.05	0.04	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0627	0.0478	0.0000	
53 FRONT	Raw	1.45	0.00	0.00	1.25	1.06*	0.00	1.12
	Raw	1.37	0.00	0.00	1.24	1.18	0.00	1.15
	Raw	1.39	0.00	0.00	1.23	1.15	0.00	1.10
	Ave	1.40+/- 3%	0.00+/- 0%	0.00+/- 0%	1.24+/- 1%	1.17+/- 2%	0.00+/- 0%	1.12+/- 2%
	Beta	0.28	0.00	0.00	0.12	0.04	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4143	0.1500	0.0000	
53 BACK	Raw	1.44*	0.00	0.00	1.18	1.16	0.00	1.04
	Raw	1.58	0.00	0.00	1.12	1.04*	0.00	1.20*
	Raw	1.57	0.00	0.00	1.12	1.18	0.00	1.08
	Ave	1.57+/- 0%	0.00+/- 0%	0.00+/- 0%	1.14+/- 3%	1.17+/- 1%	0.00+/- 0%	1.06+/- 3%
	Beta	0.51	0.00	0.00	0.08	0.11	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1530	0.2140	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
54 FRONT	Raw	1.13	0.00	0.00	1.15	1.10*	0.00	1.07
	Raw	1.19	0.00	0.00	1.21	1.22	0.00	1.11
	Raw	1.31	0.00	0.00	1.10	1.16	0.00	1.10
	Ave	1.21+/- 8%	0.00+/- 0%	0.00+/- 0%	1.16+/- 5%	1.19+/- 3%	0.00+/- 0%	1.09+/- 2%
	Beta	0.11	0.00	0.00	0.06	0.10	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.5412	0.8588	0.0000	
54 BACK	Raw	1.39	0.00	0.00	1.14	1.16	0.00	1.15
	Raw	1.37	0.00	0.00	1.13	1.21	0.00	1.10
	Raw	1.48	0.00	0.00	1.14	1.12	0.00	1.12
	Ave	1.41+/- 4%	0.00+/- 0%	0.00+/- 0%	1.14+/- 1%	1.16+/- 4%	0.00+/- 0%	1.12+/- 2%
	Beta	0.29	0.00	0.00	0.01	0.04	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0463	0.1389	0.0000	
55 FRONT	Raw	2.48	0.00	0.00	1.65	1.63	0.00	1.58
	Raw	1.71*	0.00	0.00	1.57	1.50	0.00	1.70
	Raw	2.54	0.00	0.00	1.59	1.73	0.00	1.63
	Ave	2.51+/- 2%	0.00+/- 0%	0.00+/- 0%	1.60+/- 3%	1.62+/- 7%	0.00+/- 0%	1.64+/- 4%
	Beta	0.87	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
55 BACK	Raw	2.01	0.00	0.00	1.59	1.54	0.00	1.54
	Raw	2.22	0.00	0.00	1.61	1.51	0.00	1.54
	Raw	2.53	0.00	0.00	1.63	1.50	0.00	1.43
	Ave	2.25+/-12%	0.00+/- 0%	0.00+/- 0%	1.61+/- 1%	1.52+/- 1%	0.00+/- 0%	1.50+/- 4%
	Beta	0.75	0.00	0.00	0.11	0.02	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1474	0.0231	0.0000	
56 FRONT	Raw	2.29	0.00	0.00	1.54	1.67	0.00	1.50
	Raw	2.17	0.00	0.00	1.65	1.72	0.00	1.44
	Raw	2.44	0.00	0.00	1.66	1.62	0.00	1.53
	Ave	2.30+/- 6%	0.00+/- 0%	0.00+/- 0%	1.61+/- 4%	1.67+/- 3%	0.00+/- 0%	1.49+/- 3%
	Beta	0.81	0.00	0.00	0.12	0.18	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1535	0.2211	0.0000	
56 BACK	Raw	2.28	0.00	0.00	1.60	1.38	0.00	1.53
	Raw	2.21	0.00	0.00	1.58	1.42	0.00	1.35*
	Raw	2.44	0.00	0.00	1.59	1.54*	0.00	1.51
	Ave	2.31+/- 5%	0.00+/- 0%	0.00+/- 0%	1.59+/- 1%	1.40+/- 2%	0.00+/- 0%	1.52+/- 1%
	Beta	0.79	0.00	0.00	0.07	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0901	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
57 FRONT	Raw	2.49	0.00	0.00	1.74	1.68	0.00	1.62
	Raw	2.53	0.00	0.00	1.66	1.68	0.00	1.56
	Raw	2.60	0.00	0.00	1.83	1.72	0.00	1.58
	Ave	2.54+/- 2%	0.00+/- 0%	0.00+/- 0%	1.75+/- 5%	1.69+/- 1%	0.00+/- 0%	1.59+/- 2%
	Beta	0.96	0.00	0.00	0.16	0.11	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1675	0.1104	0.0000	
57 BACK	Raw	2.94	0.00	0.00	1.74	1.67	0.00	1.50*
	Raw	2.78	0.00	0.00	1.68	1.62	0.00	1.67
	Raw	3.12	0.00	0.00	1.74	1.61	0.00	1.61
	Ave	2.95+/- 6%	0.00+/- 0%	0.00+/- 0%	1.72+/- 2%	1.63+/- 2%	0.00+/- 0%	1.64+/- 3%
	Beta	1.31	0.00	0.00	0.08	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0616	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

*** RESULTS ***

CALCULATED DOSES

Dosimeter	Calibration Factors .005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Mylar Chip Reading (nc)	Calculated Beta Dose (rad)	Beta Error (rad)	Calculated Gamma Dose (rad)	Gamma Error (rad)
1 FRONT	0.00	0.00	0.45	0.98	0.00	0.72	14.82	10.65	5.80	14.07	1.32
1 BACK	0.00	0.00	0.99	0.99	0.00	0.99	38.04	37.67	35.89	19.64	3.48
2 FRONT	0.00	0.00	0.99	0.36	0.00	0.67	48.43	32.67	26.53	159.01	14.87
2 BACK	0.00	0.00	0.62	0.86	0.00	0.74	709.53	524.15	125.76	174.47	16.38
3 FRONT	0.00	0.00	0.76	0.83	0.00	0.79	299.70	238.05	16.32	44.87	4.46
3 BACK	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	47.98	4.49
4 FRONT	0.00	0.00	0.88	0.94	0.00	0.91	443.12	401.97	25.80	32.69	3.16
4 BACK	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	39.74	3.90
5 FRONT	0.00	0.00	0.85	0.98	0.00	0.92	162.43	148.65	77.18	39.81	3.76
5 BACK	0.00	0.00	0.99	0.99	0.00	0.99	9.60	9.50	6.59	44.73	4.37
6 FRONT	0.00	0.00	0.88	0.99	0.00	0.93	102.73	95.85	23.92	112.61	11.26
6 BACK	0.00	0.00	0.86	0.85	0.00	0.86	1235.25	1056.22	22.86	120.12	11.19
7 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	55.68	55.13	20.83	114.50	11.44
7 BACK	0.00	0.00	0.82	0.90	0.00	0.86	1021.17	882.73	70.81	123.37	11.70
8 FRONT	0.00	0.00	0.64	0.75	0.00	0.70	45.43	31.70	6.58	109.25	10.21
8 BACK	0.00	0.00	0.90	0.83	0.00	0.87	1333.77	1156.39	79.11	126.58	11.89
9 FRONT	0.00	0.00	0.35	0.35	0.00	0.35	57.35	20.14	9.65	190.33	18.23
9 BACK	0.00	0.00	0.98	0.99	0.00	0.98	3420.77	3362.59	1092.07	224.37	21.21
10 FRONT	0.00	0.00	0.61	0.72	0.00	0.66	0.07	0.05	0.02	0.22	0.02
10 BACK	0.00	0.00	0.35	0.87	0.00	0.61	0.08	0.05	0.03	0.22	0.02
11 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	92.70	9.17
11 BACK	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	98.66	9.33
12 FRONT	0.00	0.00	0.35	0.35	0.00	0.35	67.77	23.79	9.44	63.37	6.02
12 BACK	0.00	0.00	0.85	0.99	0.00	0.92	148.63	136.74	85.24	69.27	6.60
13 FRONT	0.00	0.00	0.76	0.88	0.00	0.82	86.02	70.60	7.42	23.42	2.20
13 BACK	0.00	0.00	0.99	0.99	0.00	0.99	20.22	20.02	2.35	23.75	2.23
14 FRONT	0.00	0.00	0.46	0.67	0.00	0.57	64.37	36.53	15.47	84.90	8.12
14 BACK	0.00	0.00	0.99	0.35	0.00	0.67	8.50	5.70	12.06	82.26	8.03
15 FRONT	0.00	0.00	0.35	0.98	0.00	0.66	1611.83	1069.78	713.26	322.59	31.41
15 BACK	0.00	0.00	0.35	0.99	0.00	0.67	3286.33	2203.82	1487.14	390.86	36.78
16 FRONT	0.00	0.00	0.54	0.35	0.00	0.44	37.60	16.73	5.88	85.83	8.06
16 BACK	0.00	0.00	0.66	0.35	0.00	0.51	59.87	30.41	14.78	85.23	8.48

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

Dosimeter	*** RESULTS *** Calibration Factors .005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Mylar Chip Reading (nc)	CALCULATED DOSES Calculated Beta Dose (rad)	Error (rad)	Calculated Gamma Dose (rad)	Error (rad)
17 FRONT	0.00	0.00	0.82	0.91	0.00	0.87	0.23	0.20	0.05	0.29	0.03
17 BACK	0.00	0.00	0.99	0.99	0.00	0.99	0.17	0.17	0.05	0.30	0.03
18 FRONT	0.00	0.00	0.99	0.91	0.00	0.95	98.80	94.08	42.00	138.81	16.30
18 BACK	0.00	0.00	0.90	0.82	0.00	0.86	473.37	406.94	292.73	133.34	12.41
19 FRONT	0.00	0.00	0.35	0.35	0.00	0.35	286.60	100.63	7.73	0.00	0.00
19 BACK	0.00	0.00	0.99	0.99	0.00	0.99	89.57	88.68	7.24	57.51	5.47
21 FRONT	0.00	0.00	0.86	0.61	0.00	0.74	61.40	45.15	13.51	61.13	6.24
21 BACK	0.00	0.00	0.97	0.99	0.00	0.98	760.30	742.74	136.99	60.78	5.75
23 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	767.44	71.71
23 BACK	0.00	0.00	0.35	0.35	0.00	0.35	3381.00	1187.07	90.92	788.10	77.03
25 FRONT	0.00	0.00	0.99	0.35	0.00	0.67	38.80	26.02	28.41	214.80	21.36
25 BACK	0.00	0.00	0.45	0.99	0.00	0.72	114.13	82.39	47.32	196.37	19.08
26 FRONT	0.00	0.00	0.84	0.87	0.00	0.86	237.10	202.81	13.97	42.27	4.10
26 BACK	0.00	0.00	0.90	0.99	0.00	0.95	41.73	39.51	7.93	45.19	4.53
27 FRONT	0.00	0.00	0.99	0.35	0.00	0.67	11.37	7.62	5.86	42.79	3.99
27 BACK	0.00	0.00	0.99	0.99	0.00	0.99	0.00	0.00	0.00	39.87	3.82
29 FRONT	0.00	0.00	0.60	0.53	0.00	0.57	19.29	10.93	2.06	13.87	1.41
29 BACK	0.00	0.00	0.69	0.99	0.00	0.84	5.09	4.28	2.07	13.09	1.23
30 FRONT	0.00	0.00	0.77	0.78	0.00	0.78	41.73	32.41	1.14	14.12	1.35
30 BACK	0.00	0.00	0.99	0.99	0.00	0.99	13.85	13.71	1.46	13.83	1.33
34 FRONT	0.00	0.00	0.63	0.49	0.00	0.56	33.79	19.06	3.64	17.84	1.72
34 BACK	0.00	0.00	0.99	0.99	0.00	0.99	5.85	5.80	2.58	17.93	1.68
36 FRONT	0.00	0.00	0.62	0.99	0.00	0.81	16.63	13.41	4.83	10.04	1.04
36 BACK	0.00	0.00	0.99	0.99	0.00	0.99	2.46	2.43	1.41	8.81	0.82
37 FRONT	0.00	0.00	0.47	0.60	0.00	0.53	62.70	33.52	6.18	35.87	3.47
37 BACK	0.00	0.00	0.87	0.73	0.00	0.80	714.73	568.94	88.54	39.32	3.92
39 FRONT	0.00	0.00	0.71	0.43	0.00	0.57	12.93	7.38	2.86	13.30	1.34
39 BACK	0.00	0.00	0.44	0.53	0.00	0.48	9.10	4.41	1.13	12.71	1.26
40 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	52.55	52.03	4.99	51.17	4.76
40 BACK	0.00	0.00	0.91	0.93	0.00	0.92	1270.00	1172.42	120.11	55.30	5.36
41 FRONT	0.00	0.00	0.99	0.35	0.00	0.67	40.03	26.85	20.13	112.98	10.67
41 BACK	0.00	0.00	0.67	0.84	0.00	0.76	102.60	77.48	18.11	109.65	10.38
43 FRONT	0.00	0.00	0.97	0.99	0.00	0.98	59.96	58.73	4.68	19.83	2.04
43 BACK	0.00	0.00	0.86	0.99	0.00	0.92	24.46	22.58	4.13	18.24	1.76

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

*** RESULTS ***

CALCULATED DOSES

Dosimeter	Calibration Factors						Mylar Chip	Calculated Beta		Calculated Gamma	
	.005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Reading (nc)	Dose (rad)	Error (rad)	Dose (rad)	Error (rad)
44 FRONT	0.00	0.00	0.99	0.87	0.00	0.93	55.84	51.91	7.17	22.21	2.25
44 BACK	0.00	0.00	0.88	0.88	0.00	0.88	284.02	249.79	11.54	21.52	2.05
45 FRONT	0.00	0.00	0.77	0.61	0.00	0.69	37.42	25.82	4.37	18.03	1.73
45 BACK	0.00	0.00	0.66	0.99	0.00	0.82	11.15	9.20	3.76	17.82	1.73
46 FRONT	0.00	0.00	0.75	0.99	0.00	0.87	89.63	77.90	47.03	41.64	4.16
46 BACK	0.00	0.00	0.91	0.91	0.00	0.91	1018.97	927.68	50.82	39.35	3.82
48 FRONT	0.00	0.00	0.72	0.90	0.00	0.81	14.62	11.84	2.57	12.62	1.20
48 BACK	0.00	0.00	0.67	0.90	0.00	0.79	7.29	5.74	4.03	11.97	1.19
49 FRONT	0.00	0.00	0.99	0.70	0.00	0.84	8130.00	6851.34	2176.99	1159.49	189.45
49 BACK	0.00	0.00	0.77	0.81	0.00	0.79	46434.67	36513.66	3082.13	899.03	93.91
50 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	93.87	92.94	14.00	67.93	6.41
50 BACK	0.00	0.00	0.92	0.93	0.00	0.93	1777.77	1645.79	69.54	67.25	6.95
51 FRONT	0.00	0.00	0.50	0.62	0.00	0.56	37.67	21.10	3.82	18.62	1.82
51 BACK	0.00	0.00	0.35	0.99	0.00	0.67	7.24	4.85	5.49	18.32	1.84
52 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	0.25	0.25	0.07	0.31	0.03
52 BACK	0.00	0.00	0.90	0.88	0.00	0.89	0.81	0.72	0.04	0.30	0.03
53 FRONT	0.00	0.00	0.36	0.64	0.00	0.50	0.28	0.14	0.06	0.27	0.03
53 BACK	0.00	0.00	0.76	0.49	0.00	0.62	0.51	0.32	0.10	0.25	0.02
54 FRONT	0.00	0.00	0.35	0.35	0.00	0.35	0.11	0.04	0.03	0.26	0.03
54 BACK	0.00	0.00	0.92	0.67	0.00	0.79	0.29	0.23	0.07	0.27	0.03
55 FRONT	0.00	0.00	0.99	0.99	0.00	0.99	0.87	0.86	0.07	0.39	0.04
55 BACK	0.00	0.00	0.77	0.94	0.00	0.85	0.75	0.64	0.25	0.36	0.04
56 FRONT	0.00	0.00	0.76	0.47	0.00	0.62	0.81	0.50	0.19	0.36	0.04
56 BACK	0.00	0.00	0.85	0.99	0.00	0.92	0.79	0.73	0.13	0.36	0.03
57 FRONT	0.00	0.00	0.74	0.73	0.00	0.73	0.96	0.70	0.05	0.38	0.04
57 BACK	0.00	0.00	0.90	0.99	0.00	0.94	1.31	1.23	0.19	0.39	0.04

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
1 FRONT	10.65	14.07	288.0	3.70E-02	2.01E-02	4.88E-02	4.57E-03
1 BACK	37.67	19.64	288.0	1.31E-01	1.25E-01	6.82E-02	1.21E-02
2 FRONT	32.67	159.01	288.0	1.13E-01	9.21E-02	5.52E-01	5.16E-02
2 BACK	524.15	174.47	288.0	1.82E+00	4.37E-01	6.06E-01	5.69E-02
3 FRONT	238.05	44.87	288.0	8.27E-01	5.67E-02	1.56E-01	1.55E-02
3 BACK	0.00	47.98	288.0	0.00E+00	0.00E+00	1.67E-01	1.56E-02
4 FRONT	401.97	32.69	288.0	1.40E+00	8.96E-02	1.13E-01	1.10E-02
4 BACK	0.00	39.74	288.0	0.00E+00	0.00E+00	1.38E-01	1.36E-02
5 FRONT	148.65	39.81	288.0	5.16E-01	2.68E-01	1.38E-01	1.31E-02
5 BACK	9.50	44.73	288.0	3.30E-02	2.29E-02	1.55E-01	1.52E-02
6 FRONT	95.85	112.61	288.0	3.33E-01	8.31E-02	3.91E-01	3.91E-02
6 BACK	1056.22	120.12	288.0	3.67E+00	7.94E-02	4.17E-01	3.88E-02
7 FRONT	55.13	114.50	288.0	1.91E-01	7.23E-02	3.98E-01	3.97E-02
7 BACK	882.73	123.37	288.0	3.07E+00	2.46E-01	4.28E-01	4.06E-02
8 FRONT	31.70	109.25	288.0	1.10E-01	2.28E-02	3.79E-01	3.55E-02
8 BACK	1156.39	126.58	288.0	4.02E+00	2.75E-01	4.40E-01	4.13E-02
9 FRONT	20.14	190.33	288.0	6.99E-02	3.35E-02	6.61E-01	6.33E-02
9 BACK	3362.59	224.37	288.0	1.17E+01	3.79E+00	7.79E-01	7.36E-02
10 FRONT	0.05	0.22	1.0	4.59E-02	2.02E-02	2.21E-01	2.06E-02
10 BACK	0.05	0.22	1.0	4.90E-02	3.33E-02	2.19E-01	2.05E-02
11 FRONT	0.00	92.70	148.2	0.00E+00	0.00E+00	6.25E-01	6.19E-02
11 BACK	0.00	98.66	148.2	0.00E+00	0.00E+00	6.66E-01	6.30E-02
12 FRONT	23.79	63.37	148.2	1.61E-01	6.37E-02	4.28E-01	4.06E-02
12 BACK	136.74	69.27	148.2	9.23E-01	5.75E-01	4.67E-01	4.45E-02
13 FRONT	70.60	23.42	148.2	4.76E-01	5.01E-02	1.58E-01	1.48E-02
13 BACK	20.02	23.75	148.2	1.35E-01	1.59E-02	1.60E-01	1.51E-02
14 FRONT	36.53	84.90	148.2	2.47E-01	1.04E-01	5.73E-01	5.48E-02
14 BACK	5.70	82.26	148.2	3.85E-02	8.13E-02	5.55E-01	5.42E-02
15 FRONT	1069.78	322.59	148.2	7.22E+00	4.81E+00	2.18E+00	2.12E-01
15 BACK	2203.82	390.86	148.2	1.49E+01	1.00E+01	2.64E+00	2.48E-01
16 FRONT	16.73	85.83	148.2	1.13E-01	3.97E-02	5.79E-01	5.44E-02
16 BACK	30.41	85.23	148.2	2.05E-01	9.98E-02	5.75E-01	5.72E-02

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
17 FRONT	0.20	0.29	1.0	1.97E-01	5.26E-02	2.89E-01	3.01E-02
17 BACK	0.17	0.30	1.0	1.73E-01	4.53E-02	3.01E-01	2.88E-02
18 FRONT	94.08	138.81	148.2	6.35E-01	2.83E-01	9.37E-01	1.10E-01
18 BACK	406.94	133.34	148.2	2.75E+00	1.98E+00	9.00E-01	8.37E-02
19 FRONT	100.63	0.00	148.2	6.79E-01	5.22E-02	0.00E+00	0.00E+00
19 BACK	88.68	57.51	148.2	5.98E-01	4.89E-02	3.88E-01	3.69E-02
21 FRONT	45.15	61.13	148.2	3.05E-01	9.11E-02	4.13E-01	4.21E-02
21 BACK	742.74	60.78	148.2	5.01E+00	9.24E-01	4.10E-01	3.88E-02
23 FRONT	0.00	767.44	148.2	0.00E+00	0.00E+00	5.18E+00	4.84E-01
23 BACK	1187.07	788.10	148.2	8.01E+00	6.14E-01	5.32E+00	5.20E-01
25 FRONT	26.02	214.80	148.2	1.76E-01	1.92E-01	1.45E+00	1.44E-01
25 BACK	82.39	196.37	148.2	5.56E-01	3.19E-01	1.33E+00	1.29E-01
26 FRONT	202.81	42.27	148.2	1.37E+00	9.43E-02	2.85E-01	2.77E-02
26 BACK	39.51	45.19	148.2	2.67E-01	5.35E-02	3.05E-01	3.06E-02
27 FRONT	7.62	42.79	148.2	5.14E-02	3.95E-02	2.89E-01	2.69E-02
27 BACK	0.00	39.87	148.2	0.00E+00	0.00E+00	2.69E-01	2.57E-02
29 FRONT	10.93	13.87	147.5	7.41E-02	1.39E-02	9.40E-02	9.53E-03
29 BACK	4.28	13.09	147.5	2.90E-02	1.40E-02	8.87E-02	8.32E-03
30 FRONT	32.41	14.12	147.5	2.20E-01	7.73E-03	9.57E-02	9.18E-03
30 BACK	13.71	13.83	147.5	9.29E-02	9.91E-03	9.37E-02	9.04E-03
34 FRONT	19.06	17.84	147.5	1.29E-01	2.47E-02	1.21E-01	1.17E-02
34 BACK	5.80	17.93	147.5	3.93E-02	1.75E-02	1.22E-01	1.14E-02
36 FRONT	13.41	10.04	147.5	9.09E-02	3.27E-02	6.81E-02	7.04E-03
36 BACK	2.43	8.81	147.5	1.65E-02	9.56E-03	5.98E-02	5.58E-03
37 FRONT	33.52	35.87	147.5	2.27E-01	4.19E-02	2.43E-01	2.35E-02
37 BACK	568.94	39.32	147.5	3.86E+00	6.00E-01	2.67E-01	2.66E-02
39 FRONT	7.38	13.30	147.5	5.00E-02	1.94E-02	9.01E-02	9.08E-03
39 BACK	4.41	12.71	147.5	2.99E-02	7.68E-03	8.61E-02	8.53E-03
40 FRONT	52.03	51.17	147.5	3.53E-01	3.38E-02	3.47E-01	3.23E-02
40 BACK	1172.42	55.30	147.5	7.95E+00	8.14E-01	3.75E-01	3.64E-02
41 FRONT	26.85	112.98	147.5	1.82E-01	1.36E-01	7.66E-01	7.24E-02
41 BACK	77.48	109.65	147.5	5.25E-01	1.23E-01	7.43E-01	7.04E-02
43 FRONT	58.73	19.83	147.5	3.98E-01	3.17E-02	1.34E-01	1.38E-02
43 BACK	22.58	18.24	147.5	1.53E-01	2.80E-02	1.24E-01	1.19E-02

Pre-Gross Decontamination Experiment, exposed 12/81 (TLD set #1)

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
44 FRONT	51.91	22.21	147.5	3.52E-01	4.86E-02	1.51E-01	1.52E-02
44 BACK	249.79	21.52	147.5	1.69E+00	7.82E-02	1.46E-01	1.39E-02
45 FRONT	25.82	18.03	1.0	2.58E+01	4.37E+00	1.80E+01	1.73E+00
45 BACK	9.20	17.82	1.0	9.20E+00	3.76E+00	1.78E+01	1.73E+00
46 FRONT	77.90	41.64	147.5	5.28E-01	3.19E-01	2.82E-01	2.82E-02
46 BACK	927.68	39.35	147.5	6.29E+00	3.44E-01	2.67E-01	2.59E-02
48 FRONT	11.84	12.62	147.5	8.02E-02	1.74E-02	8.56E-02	8.14E-03
48 BACK	5.74	11.97	147.5	3.89E-02	2.73E-02	8.11E-02	8.09E-03
49 FRONT	6851.34	1159.49	147.5	4.64E+01	1.48E+01	7.86E+00	1.28E+00
49 BACK	36513.66	899.03	147.5	2.48E+02	2.09E+01	6.09E+00	6.37E-01
50 FRONT	92.94	67.93	147.5	6.30E-01	9.49E-02	4.61E-01	4.35E-02
50 BACK	1645.79	67.25	147.5	1.12E+01	4.71E-01	4.56E-01	4.71E-02
51 FRONT	21.10	18.62	147.5	1.43E-01	2.59E-02	1.26E-01	1.23E-02
51 BACK	4.85	18.32	147.5	3.29E-02	3.72E-02	1.24E-01	1.25E-02
52 FRONT	0.25	0.31	1.0	2.52E-01	6.62E-02	3.10E-01	3.04E-02
52 BACK	0.72	0.30	1.0	7.17E-01	4.40E-02	3.02E-01	2.94E-02
53 FRONT	0.14	0.27	1.0	1.40E-01	5.91E-02	2.69E-01	2.57E-02
53 BACK	0.32	0.25	1.0	3.21E-01	9.96E-02	2.54E-01	2.46E-02
54 FRONT	0.04	0.26	1.0	3.98E-02	3.32E-02	2.62E-01	2.50E-02
54 BACK	0.23	0.27	1.0	2.28E-01	7.18E-02	2.69E-01	2.58E-02
55 FRONT	0.86	0.39	1.0	8.63E-01	7.47E-02	3.93E-01	3.93E-02
55 BACK	0.64	0.36	1.0	6.39E-01	2.46E-01	3.59E-01	3.67E-02
56 FRONT	0.50	0.36	1.0	4.97E-01	1.85E-01	3.57E-01	3.52E-02
56 BACK	0.73	0.36	1.0	7.27E-01	1.32E-01	3.64E-01	3.41E-02
57 FRONT	0.70	0.38	1.0	7.03E-01	4.66E-02	3.79E-01	3.59E-02
57 BACK	1.23	0.39	1.0	1.23E+00	1.88E-01	3.92E-01	3.79E-02

```
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
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                        SSSS   CCCC  H   H  EEEEE
                       S      C      H   H  E
                       S      C      H   H  E
                        SSS   C      HHHHH  EEEE
                           S  C      H   H  E
                           S  C      H   H  E
                       SSSS    CCCC  H   H  EEEEE
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RRRRRRRR      AAAAAA    TTTTTTTTTT    IIIIII     000000     000000    UU      UU  TTTTTTTTTT
RR      RR   AA    AA      TT        II       00      00  00      00  UU      UU      TT
RR      RR   AA    AA      TT        II       00      00  00      00  UU      UU      TT
RR      RR   AA    AA      TT        II       00      00  00      00  UU      UU      TT
RR      RR   AA    AA      TT        II       00      00  00      00  UU      UU      TT
RRRRRRRR     AA    AA      TT        II       00      00  00      00  UU      UU      TT
RRRRRRRR     AA    AA      TT        II       00      00  00      00  UU      UU      TT
RR  RR       AAAAAAAAAA    TT        II       00      00  00      00  UU      UU      TT
RR  RR       AAAAAAAAAA    TT        II       00      00  00      00  UU      UU      TT
RR    RR     AA    AA      TT        II       00      00  00      00  UU      UU      TT          ....
RR    RR     AA    AA      TT        II       00      00  00      00  UU      UU      TT          ....
RR      RR   AA    AA      TT      IIIIII       000000      000000    UUUUUUUUUU      TT          ....
RR      RR   AA    AA      TT      IIIIII       000000      000000    UUUUUUUUUU      TT          ....
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DDDDDDDD      AAAAAA    TTTTTTTTTT      ;;;;       222222
DD      DD   AA    AA      TT          ;;;;     22      22
DD      DD   AA    AA      TT          ;;;;     22      22
DD      DD   AA    AA      TT                           22
DD      DD   AA    AA      TT                           22
DD      DD   AA    AA      TT          ;;;;           22
DD      DD   AA    AA      TT          ;;;;           22
DD      DD   AAAAAAAAAA    TT          ;;;;         22
DD      DD   AAAAAAAAAA    TT          ;;;;         22
DD      DD   AA    AA      TT            ;;       22
DD      DD   AA    AA      TT              ;;     22
DDDDDDDD     AA    AA      TT            ;;       2222222222
DDDDDDDD     AA    AA      TT            ;;       2222222222
```

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                        SSSS   CCCC  H   H  EEEEE
                       S      C      H   H  E
                       S      C      H   H  E
                        SSS   C      HHHHH  EEEE
                           S  C      H   H  E
                           S  C      H   H  E
                       SSSS    CCCC  H   H  EEEEE
```

```
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
VAX/VMS  SCHE          RATIOOUT 13-JUN-1983 13:39   TTA4:  13-JUN-1983 13:43   DISK$USER_DISK1:[SCHE.BETDOS]RATIOOUT.DAT;2      VAX/VMS
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TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
1 FRONT	Raw	706.50	718.20	675.50	627.10	567.50	576.70	663.90
	Raw	722.80	730.40	755.60	623.20	572.60	530.10	681.10
	Raw	700.70	765.80	813.70	573.80	607.80	563.90	645.20
	Ave	710.00+/- 2%	738.13+/- 3%	748.27+/- 9%	608.03+/- 5%	582.63+/- 4%	556.90+/- 4%	663.40+/- 3%
	Beta	46.60	74.73	84.87	0.00	0.00	0.00	0.00
	Ratio	1.00	1.6037	1.8212	0.0000	0.0000	0.0000	
1 BACK	Raw	698.50	725.50	698.00	540.60	530.70	500.20	663.70
	Raw	674.40	746.20	735.30	576.20	547.30	534.60	677.20
	Raw	695.60	697.00	753.10	547.30	587.00*	577.70	656.90
	Ave	689.50+/- 2%	722.90+/- 3%	728.80+/- 4%	554.70+/- 3%	539.00+/- 2%	537.50+/- 7%	665.93+/- 2%
	Beta	23.57	56.97	62.87	0.00	0.00	0.00	0.00
	Ratio	1.00	2.4173	2.6676	0.0000	0.0000	0.0000	
2 FRONT	Raw	1076.00	749.90	753.60	917.60*	852.30	918.60	774.60
	Raw	1112.00	802.10	784.10	833.40	832.80	907.80	723.80
	Raw	967.60*	777.00	791.00	849.40	835.70	900.00	744.80
	Ave	1094.00+/- 2%	776.33+/- 3%	776.23+/- 3%	841.40+/- 1%	840.27+/- 1%	908.80+/- 1%	747.73+/- 3%
	Beta	346.27	28.60	28.50	93.67	92.53	161.07	0.00
	Ratio	1.00	0.0826	0.0823	0.2705	0.2672	0.4652	
2 BACK	Raw	873.80*	787.20	811.80	883.80	849.10	920.90	821.90
	Raw	1012.00	832.70	760.00	890.40	874.60	898.80	771.50
	Raw	989.90	766.00	862.40	889.80	928.80	948.60	774.60
	Ave	1000.95+/- 2%	795.30+/- 4%	811.40+/- 6%	888.00+/- 0%	884.17+/- 5%	922.77+/- 3%	789.33+/- 4%
	Beta	211.62	5.97	22.07	98.67	94.83	133.43	0.00
	Ratio	1.00	0.0282	0.1043	0.4663	0.4481	0.6305	
3 FRONT	Raw	4913.00	1493.00	1351.00	1385.00	1337.00	1315.00	1223.00
	Raw	6111.00	1502.00	1356.00	1533.00*	1175.00*	1395.00*	1349.00*
	Raw	6827.00	1627.00	1376.00	1352.00	1284.00	1259.00	1235.00
	Ave	5950.33+/-16%	1540.67+/- 5%	1361.00+/- 1%	1368.50+/- 2%	1310.50+/- 3%	1287.00+/- 3%	1229.00+/- 1%
	Beta	4721.33	311.67	132.00	139.50	81.50	58.00	0.00
	Ratio	1.00	0.0660	0.0280	0.0295	0.0173	0.0123	
3 BACK	Raw	1136.00	1126.00	1090.00	1195.00	1163.00	1138.00	1093.00
	Raw	1173.00	1088.00	1029.00	1121.00	1159.00	1251.00	1109.00
	Raw	1269.00*	1077.00	1043.00	1174.00	974.20*	1183.00	1124.00
	Ave	1154.50+/- 2%	1097.00+/- 2%	1054.00+/- 3%	1163.33+/- 3%	1161.00+/- 0%	1190.67+/- 5%	1108.67+/- 1%
	Beta	45.83	0.00	0.00	54.67	52.33	82.00	0.00
	Ratio	1.00	0.0000	0.0000	1.1927	1.1418	1.7891	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
4 FRONT	Raw	1363.00	1239.00	1237.00	1378.00*	1247.00	1276.00	1118.00
	Raw	1404.00	1244.00	1194.00	1254.00	1223.00	1105.00	1189.00
	Raw	1371.00	1217.00	1282.00	1239.00	1141.00	1190.00	1171.00
	Ave	1379.33+/- 2%	1233.33+/- 1%	1237.67+/- 4%	1246.50+/- 1%	1203.67+/- 5%	1190.33+/- 7%	1159.33+/- 3%
	Beta	220.00	74.00	78.33	87.17	44.33	31.00	0.00
	Ratio	1.00	0.3364	0.3561	0.3962	0.2015	0.1409	
4 BACK	Raw	1141.00	1056.00	1108.00	1166.00	1056.00	1036.00	1130.00
	Raw	1086.00	1121.00	1050.00	1153.00	1112.00	1190.00	1041.00*
	Raw	1079.00	1146.00	1110.00	1170.00	1163.00	1123.00	1172.00
	Ave	1102.00+/- 3%	1107.67+/- 4%	1089.33+/- 3%	1163.00+/- 1%	1110.33+/- 5%	1116.33+/- 7%	1151.00+/- 3%
	Beta	0.00	0.00	0.00	12.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
5 FRONT	Raw	9408.00	10070.00	9682.00	11860.00	11710.00	13740.00	9390.00
	Raw	8805.00	15070.00*	12290.00	12440.00	11250.00	13840.00	9638.00
	Raw	9172.00	10000.00	16010.00	12250.00	11520.00	15070.00*	9768.00
	Ave	9128.33+/- 3%	10035.00+/- 0%	12660.67+/-25%	12183.33+/- 2%	11493.33+/- 2%	13790.00+/- 1%	9598.67+/- 2%
	Beta	0.00	436.33	3062.00	2584.67	1894.67	4191.33	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
5 BACK	Raw	11030.00	10870.00	10240.00	11980.00	12490.00	18770.00	8962.00
	Raw	11740.00	10710.00	10780.00	11980.00	10990.00*	17100.00	8918.00
	Raw	10700.00	13310.00*	10200.00	13780.00*	11920.00	17430.00	9308.00
	Ave	11156.67+/- 5%	10790.00+/- 1%	10406.67+/- 3%	11980.00+/- 0%	12205.00+/- 3%	17766.67+/- 5%	9062.67+/- 2%
	Beta	2094.00	1727.33	1344.00	2917.33	3142.33	8704.00	0.00
	Ratio	1.00	0.8249	0.6418	1.3932	1.5006	4.1566	
6 FRONT	Raw	1311.00	1101.00	978.20	1191.00*	1062.00	1285.00	1094.00
	Raw	1143.00*	1205.00	1085.00	1325.00*	1060.00	1111.00*	1064.00
	Raw	1268.00	1275.00	1233.00	1011.00*	1042.00	1233.00	1113.00
	Ave	1289.50+/- 2%	1193.67+/- 7%	1098.73+/-12%	0.00+/-13%	1054.67+/- 1%	1259.00+/- 3%	1090.33+/- 2%
	Beta	199.17	103.33	8.40	0.00	0.00	168.67	0.00
	Ratio	1.00	0.5188	0.0422	0.0000	0.0000	0.8469	
6 BACK	Raw	1221.00	1179.00	1173.00	1167.00	1050.00	1283.00	949.50*
	Raw	1390.00	1138.00	1123.00	1220.00	1135.00	1226.00	1141.00
	Raw	1550.00	1085.00	1060.00*	1204.00	1046.00	1128.00*	1138.00
	Ave	1387.00+/-12%	1134.00+/- 4%	1148.00+/- 3%	1197.00+/- 2%	1077.00+/- 5%	1254.50+/- 3%	1139.50+/- 0%
	Beta	247.50	0.00	8.50	57.50	0.00	115.00	0.00
	Ratio	1.00	0.0000	0.0343	0.2323	0.0000	0.4646	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
7 FRONT	Raw	2084.00	1801.00	1614.00	2960.00	2604.00	2116.00	1771.00
	Raw	2019.00	1687.00	1718.00	2868.00	2443.00	2114.00	1792.00
	Raw	2052.00	1773.00	1661.00	2835.00	2463.00	2046.00	1704.00
	Ave	2051.67+/- 2%	1753.67+/- 3%	1664.33+/- 3%	2887.67+/- 2%	2503.33+/- 4%	2092.00+/- 2%	1755.67+/- 3%
	Beta	296.00	0.00	0.00	1132.00	747.67	336.33	0.00
	Ratio	1.00	0.0000	0.0000	3.8243	2.5259	1.1363	
7 BACK	Raw	6020.00	2312.00	2000.00	2457.00	3435.00*	1946.00	1703.00
	Raw	6077.00	2207.00	2020.00	2518.00	3718.00*	1899.00	1799.00
	Raw	6035.00	2281.00	2013.00	2589.00	4458.00*	1956.00	1647.00
	Ave	6044.00+/- 0%	2266.67+/- 2%	2011.00+/- 1%	2521.33+/- 3%	0.00+/-14%	1933.67+/- 2%	1716.33+/- 4%
	Beta	4327.67	550.33	294.67	805.00	0.00	217.33	0.00
	Ratio	1.00	0.1272	0.0681	0.1860	0.0000	0.0502	
8 FRONT	Raw	670.10	564.70	531.00	472.60	483.60	489.30	509.10
	Raw	560.50*	538.90	660.10	449.90	452.20	480.90	514.20
	Raw	652.10	502.80*	620.00	454.00	494.70	435.10*	503.90
	Ave	661.10+/- 2%	551.80+/- 3%	603.70+/-11%	458.83+/- 3%	476.83+/- 5%	485.10+/- 1%	509.07+/- 1%
	Beta	152.03	42.73	94.63	0.00	0.00	0.00	0.00
	Ratio	1.00	0.2811	0.6225	0.0000	0.0000	0.0000	
8 BACK	Raw	530.90	520.50	508.40	441.10	458.40	563.00*	503.60
	Raw	529.40	526.50	517.50	467.00	514.90*	474.70*	469.50
	Raw	571.00	516.10	480.40	459.10	449.70	518.70*	501.90
	Ave	543.77+/- 4%	521.03+/- 1%	502.10+/- 4%	455.73+/- 3%	454.05+/- 1%	0.00+/- 9%	491.67+/- 4%
	Beta	52.10	29.37	10.43	0.00	0.00	0.00	0.00
	Ratio	1.00	0.5637	0.2003	0.0000	0.0000	0.0000	
11 FRONT	Raw	1212.00*	828.70	992.30	888.90	1154.00	2295.00	1728.00
	Raw	1328.00	849.90	1018.00	936.80	1095.00	1867.00*	1880.00
	Raw	1391.00	843.80	999.00	933.50	1177.00	2321.00	1769.00
	Ave	1359.50+/- 3%	840.80+/- 1%	1003.10+/- 1%	919.73+/- 3%	1142.00+/- 4%	2308.00+/- 1%	1792.33+/- 4%
	Beta	0.00	0.00	0.00	0.00	0.00	515.67	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
11 BACK	Raw	1391.00	1026.00	813.60	1213.00	1814.00*	2210.00	1040.00
	Raw	1378.00	1010.00	907.70*	1227.00	1649.00	2581.00*	1095.00
	Raw	1288.00	1035.00	810.60	1127.00	1588.00	2210.00	1013.00
	Ave	1352.33+/- 4%	1023.67+/- 1%	812.10+/- 0%	1189.00+/- 5%	1618.50+/- 3%	2210.00+/- 0%	1049.33+/- 4%
	Beta	303.00	0.00	0.00	139.67	569.17	1160.67	0.00
	Ratio	1.00	0.0000	0.0000	0.4609	1.8784	3.8306	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
12 FRONT	Raw	230.70	221.70	202.40	188.50	197.10	182.70	182.70
	Raw	250.20*	212.90	210.10	187.30	201.10	195.20	181.80
	Raw	220.10	220.00	205.90	177.90	181.90*	192.10	172.70
	Ave	225.40+/- 3%	218.20+/- 2%	206.13+/- 2%	184.57+/- 3%	199.10+/- 1%	190.00+/- 3%	179.07+/- 3%
	Beta	46.33	39.13	27.07	5.50	20.03	10.93	0.00
	Ratio	1.00	0.8446	0.5842	0.1187	0.4324	0.2360	
12 BACK	Raw	172.90	186.50	186.90	178.40*	161.70	169.10	171.90
	Raw	194.20*	194.60	181.80	158.90	171.30	179.30	163.00
	Raw	181.00	194.50	184.20	161.90	171.60	165.90	165.10
	Ave	176.95+/- 3%	191.87+/- 2%	184.30+/- 1%	160.40+/- 1%	168.20+/- 3%	171.43+/- 4%	166.67+/- 3%
	Beta	10.28	25.20	17.63	0.00	1.53	4.77	0.00
	Ratio	1.00	2.4506	1.7147	0.0000	0.1491	0.4635	
13 FRONT	Raw	253.90	203.10	229.00	207.90	201.30	199.50	174.20*
	Raw	249.00	255.40	230.70	219.80	179.80*	200.10	193.70
	Raw	238.10	228.30	245.70	212.10	201.50	202.00	201.90
	Ave	247.00+/- 3%	228.93+/-11%	235.13+/- 4%	213.27+/- 3%	201.40+/- 0%	200.53+/- 1%	197.80+/- 3%
	Beta	49.20	31.13	37.33	15.47	3.60	2.73	0.00
	Ratio	1.00	0.6328	0.7588	0.3144	0.0732	0.0556	
13 BACK	Raw	197.60	187.10*	200.40	184.90	167.50	189.10	184.80
	Raw	202.80	212.70	189.80	189.50	183.80*	194.20	186.10
	Raw	216.00	205.00	214.10	186.10	170.10	183.60	197.80
	Ave	205.47+/- 5%	208.85+/- 3%	201.43+/- 6%	186.83+/- 1%	168.80+/- 1%	188.97+/- 3%	189.57+/- 4%
	Beta	15.90	19.28	11.87	0.00	0.00	0.00	0.00
	Ratio	1.00	1.2128	0.7463	0.0000	0.0000	0.0000	
14 FRONT	Raw	367.60	250.40	219.80*	240.40	204.70	215.40	191.60*
	Raw	357.30	261.70	250.80	210.30	218.90	206.70	219.90
	Raw	378.50	259.30	251.90	223.30	203.80	221.40	212.00
	Ave	367.80+/- 3%	257.13+/- 2%	251.35+/- 0%	224.67+/- 7%	209.13+/- 4%	214.50+/- 3%	215.95+/- 3%
	Beta	151.85	41.18	35.40	8.72	0.00	0.00	0.00
	Ratio	1.00	0.2712	0.2331	0.0574	0.0000	0.0000	
14 BACK	Raw	219.30	214.00	214.80	205.90	187.90	202.30	191.50
	Raw	236.00	210.40	186.80*	189.90	194.30	203.30	189.50
	Raw	234.30	206.70	205.60	194.10	199.40	202.80	201.60
	Ave	229.87+/- 4%	210.37+/- 2%	210.20+/- 3%	196.63+/- 4%	193.87+/- 3%	202.80+/- 0%	194.20+/- 3%
	Beta	35.67	16.17	16.00	2.43	0.00	8.60	0.00
	Ratio	1.00	0.4533	0.4486	0.0682	0.0000	0.2411	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
15 FRONT	Raw	123.50	130.40	116.20	119.60	104.20	96.64	112.40
	Raw	132.90*	123.10	110.30	121.70	103.10	111.10	106.00
	Raw	120.20	126.90	121.80	123.10	110.40	103.80	106.20
	Ave	121.85+/- 2%	126.80+/- 3%	116.10+/- 5%	121.47+/- 1%	105.90+/- 4%	103.85+/- 7%	108.20+/- 3%
	Beta	13.65	18.60	7.90	13.27	0.00	0.00	0.00
	Ratio	1.00	1.3626	0.5788	0.9719	0.0000	0.0000	
15 BACK	Raw	118.80	99.01	99.98	106.40	105.70	95.63	103.40
	Raw	105.70*	92.28	100.20	98.16	94.45	94.50	100.30
	Raw	123.60	106.20	94.10	105.50	99.77	92.70	105.40
	Ave	121.20+/- 3%	99.16+/- 7%	98.09+/- 4%	103.35+/- 4%	99.97+/- 6%	94.28+/- 2%	103.03+/- 2%
	Beta	18.17	0.00	0.00	0.32	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0176	0.0000	0.0000	
17 FRONT	Raw	4.08	2.97	2.84	3.05	2.56	2.78	2.58
	Raw	3.53*	2.65*	2.96	2.76*	2.91	2.86	2.48
	Raw	4.01	2.84	2.91	3.12	2.77	2.34*	2.65
	Ave	4.05+/- 1%	2.91+/- 3%	2.90+/- 2%	3.09+/- 2%	2.75+/- 6%	2.82+/- 2%	2.57+/- 3%
	Beta	1.48	0.34	0.33	0.52	0.18	0.25	0.00
	Ratio	1.00	0.2273	0.2259	0.3507	0.1193	0.1676	
17 BACK	Raw	4.13	3.12	2.97	2.56	2.78	2.53	2.63
	Raw	4.11	3.17	3.04	2.76	2.82	2.44	2.53
	Raw	3.98	3.46*	2.66*	2.71	2.53*	2.42	2.56
	Ave	4.07+/- 2%	3.15+/- 1%	3.00+/- 2%	2.68+/- 4%	2.80+/- 1%	2.47+/- 2%	2.57+/- 2%
	Beta	1.50	0.57	0.43	0.10	0.23	0.00	0.00
	Ratio	1.00	0.3816	0.2867	0.0695	0.1505	0.0000	
18 FRONT	Raw	262.10	197.80	176.70	179.80	157.90	168.00*	158.10
	Raw	260.30	197.70	184.00	174.70	165.40	151.00	159.90
	Raw	198.60*	179.10*	195.80*	176.60	165.90	157.20	163.50
	Ave	261.20+/- 0%	197.75+/- 0%	180.35+/- 3%	177.03+/- 1%	163.07+/- 3%	154.10+/- 3%	160.50+/- 2%
	Beta	100.70	37.25	19.85	16.53	2.57	0.00	0.00
	Ratio	1.00	0.3699	0.1971	0.1642	0.0255	0.0000	
18 BACK	Raw	152.60*	171.00*	164.00	139.60	141.70*	141.30	136.10
	Raw	198.40	144.40	173.50	143.50	158.90	139.90	136.20
	Raw	191.30	145.40	175.60	139.60	159.30	139.00	154.70*
	Ave	194.85+/- 3%	144.90+/- 0%	171.03+/- 4%	140.90+/- 2%	159.10+/- 0%	140.07+/- 1%	136.15+/- 0%
	Beta	58.70	8.75	34.88	4.75	22.95	3.92	0.00
	Ratio	1.00	0.1491	0.5943	0.0809	0.3910	0.0667	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
19 FRONT	Raw	176.40	182.50	175.30	144.40	167.40*	128.50	152.00
	Raw	174.10	178.00	174.20	144.80	151.40	130.40	151.60
	Raw	197.70*	183.30	175.10	142.30	144.50	130.20	144.20
	Ave	175.25+/- 1%	181.27+/- 2%	174.87+/- 0%	143.83+/- 1%	147.95+/- 3%	129.70+/- 1%	149.27+/- 3%
	Beta	25.98	32.00	25.60	0.00	0.00	0.00	0.00
	Ratio	1.00	1.2316	0.9852	0.0000	0.0000	0.0000	
19 BACK	Raw	123.60	139.50	156.10	128.40	118.70*	118.90	158.70
	Raw	126.10	147.80	150.90	127.10	132.40	120.00	136.00*
	Raw	125.80	148.70	149.00	136.80	126.10	121.40	157.90
	Ave	125.17+/- 1%	145.33+/- 3%	152.00+/- 2%	130.77+/- 4%	129.25+/- 3%	120.10+/- 1%	158.30+/- 0%
	Beta	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
21 FRONT	Raw	0.89	0.82	1.06	0.88	0.90	1.02	1.04
	Raw	0.90	0.97*	1.07	0.87	0.83	0.97	1.04
	Raw	0.89	0.83	1.02	0.87	0.86	1.03	1.04
	Ave	0.89+/- 1%	0.83+/- 1%	1.05+/- 3%	0.87+/- 1%	0.86+/- 4%	1.00+/- 3%	1.04+/- 0%
	Beta	0.00	0.00	0.01	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
21 BACK	Raw	1.02	0.93	1.05	0.94	0.95	0.95	0.90
	Raw	1.06	0.93	1.10	1.05*	0.97	1.05*	0.93
	Raw	1.02	0.98	1.08	0.94	1.04	0.94	0.92
	Ave	1.03+/- 2%	0.95+/- 3%	1.08+/- 2%	0.94+/- 0%	0.99+/- 5%	0.94+/- 1%	0.92+/- 1%
	Beta	0.11	0.03	0.16	0.03	0.07	0.03	0.00
	Ratio	1.00	0.2870	1.4000	0.2406	0.6000	0.2406	
33 FRONT	Raw	336.30	0.00	0.00	214.60	200.30	0.00	205.70
	Raw	344.60	0.00	0.00	204.60	207.90	0.00	183.40*
	Raw	330.40	0.00	0.00	229.20*	205.60	0.00	202.70
	Ave	337.10+/- 2%	0.00+/- 0%	0.00+/- 0%	209.60+/- 3%	204.60+/- 2%	0.00+/- 0%	204.20+/- 1%
	Beta	132.90	0.00	0.00	5.40	0.40	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0406	0.0030	0.0000	
33 BACK	Raw	207.40	0.00	0.00	197.70	180.10	0.00	170.90
	Raw	204.10	0.00	0.00	193.10	178.50	0.00	188.50*
	Raw	219.20	0.00	0.00	195.70	166.60	0.00	171.70
	Ave	210.23+/- 4%	0.00+/- 0%	0.00+/- 0%	195.50+/- 1%	175.07+/- 4%	0.00+/- 0%	171.30+/- 0%
	Beta	38.93	0.00	0.00	24.20	3.77	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.6216	0.0967	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
58 FRONT	Raw	973.30	0.00	0.00	931.40	990.20	0.00	913.10
	Raw	1029.00	0.00	0.00	919.90	917.40	0.00	898.70
	Raw	894.10	0.00	0.00	926.80	927.50	0.00	937.20
	Ave	965.47+/- 7%	0.00+/- 0%	0.00+/- 0%	926.03+/- 1%	945.03+/- 4%	0.00+/- 0%	916.33+/- 2%
	Beta	49.13	0.00	0.00	9.70	28.70	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1974	0.5841	0.0000	
58 BACK	Raw	971.50*	0.00	0.00	922.00	825.20*	0.00	909.30
	Raw	1086.00	0.00	0.00	893.40	908.30	0.00	876.40
	Raw	1048.00	0.00	0.00	903.30	909.20	0.00	898.70
	Ave	1067.00+/- 3%	0.00+/- 0%	0.00+/- 0%	906.23+/- 2%	908.75+/- 0%	0.00+/- 0%	894.80+/- 2%
	Beta	172.20	0.00	0.00	11.43	13.95	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0664	0.0810	0.0000	
59 FRONT	Raw	1.06	0.00	0.00	0.96	0.94	0.00	0.96
	Raw	1.07	0.00	0.00	0.96	0.92	0.00	0.93
	Raw	1.03	0.00	0.00	0.99	0.98	0.00	1.02
	Ave	1.05+/- 2%	0.00+/- 0%	0.00+/- 0%	0.97+/- 2%	0.95+/- 4%	0.00+/- 0%	0.97+/- 4%
	Beta	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
59 BACK	Raw	1.01	0.00	0.00	0.95	0.90	0.00	0.95
	Raw	0.98	0.00	0.00	0.92	0.95	0.00	1.02
	Raw	0.99	0.00	0.00	0.99	0.96	0.00	0.84
	Ave	0.99+/- 2%	0.00+/- 0%	0.00+/- 0%	0.95+/- 4%	0.93+/- 3%	0.00+/- 0%	0.94+/-10%
	Beta	0.06	0.00	0.00	0.01	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2558	0.0000	0.0000	
61 FRONT	Raw	2657.00	0.00	0.00	2444.00	2670.00	0.00	2369.00*
	Raw	2508.00	0.00	0.00	2418.00	2716.00	0.00	2583.00
	Raw	2690.00	0.00	0.00	2570.00	2674.00	0.00	2673.00
	Ave	2618.33+/- 4%	0.00+/- 0%	0.00+/- 0%	2477.33+/- 3%	2686.67+/- 1%	0.00+/- 0%	2628.00+/- 2%
	Beta	0.00	0.00	0.00	0.00	58.67	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
61 BACK	Raw	2694.00	0.00	0.00	2466.00	2225.00	0.00	2278.00
	Raw	2694.00	0.00	0.00	2621.00	2275.00	0.00	2400.00
	Raw	2624.00	0.00	0.00	2615.00	2314.00	0.00	2374.00
	Ave	2670.67+/- 2%	0.00+/- 0%	0.00+/- 0%	2567.33+/- 3%	2271.33+/- 2%	0.00+/- 0%	2350.67+/- 3%
	Beta	320.00	0.00	0.00	216.67	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.6771	0.0000	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
63 FRONT	Raw	652.90	0.00	0.00	415.90	385.60	0.00	368.70
	Raw	646.90	0.00	0.00	418.00	412.70	0.00	396.50
	Raw	617.10	0.00	0.00	401.00	395.50	0.00	401.60
	Ave	638.97+/- 3%	0.00+/- 0%	0.00+/- 0%	411.63+/- 2%	397.93+/- 3%	0.00+/- 0%	388.93+/- 5%
	Beta	250.03	0.00	0.00	22.70	9.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0908	0.0360	0.0000	
63 BACK	Raw	819.80	0.00	0.00	434.00	369.00	0.00	342.40
	Raw	753.20	0.00	0.00	466.60	369.00	0.00	368.20
	Raw	774.10	0.00	0.00	473.20	367.80	0.00	369.30
	Ave	782.37+/- 4%	0.00+/- 0%	0.00+/- 0%	457.93+/- 5%	368.60+/- 0%	0.00+/- 0%	359.97+/- 4%
	Beta	422.40	0.00	0.00	97.97	8.63	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2319	0.0204	0.0000	
64 FRONT	Raw	761.40	0.00	0.00	720.00	654.50	0.00	656.80
	Raw	779.60	0.00	0.00	700.70	690.50	0.00	613.70
	Raw	731.30	0.00	0.00	721.20	667.80	0.00	648.10
	Ave	757.43+/- 3%	0.00+/- 0%	0.00+/- 0%	713.97+/- 2%	670.93+/- 3%	0.00+/- 0%	639.53+/- 4%
	Beta	117.90	0.00	0.00	74.43	31.40	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.6313	0.2663	0.0000	
64 BACK	Raw	651.70	0.00	0.00	607.40	618.40	0.00	622.50
	Raw	656.00	0.00	0.00	597.30	606.90	0.00	668.30
	Raw	647.40	0.00	0.00	667.00*	617.80	0.00	608.10
	Ave	651.70+/- 1%	0.00+/- 0%	0.00+/- 0%	602.35+/- 1%	614.37+/- 1%	0.00+/- 0%	632.97+/- 5%
	Beta	18.73	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
65 FRONT	Raw	1294.00	0.00	0.00	917.50	890.50	0.00	861.50
	Raw	1251.00	0.00	0.00	927.30	923.80	0.00	824.30
	Raw	1290.00	0.00	0.00	894.90	847.20	0.00	894.30
	Ave	1278.33+/- 2%	0.00+/- 0%	0.00+/- 0%	913.23+/- 2%	887.17+/- 4%	0.00+/- 0%	860.03+/- 4%
	Beta	418.30	0.00	0.00	53.20	27.13	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1272	0.0649	0.0000	
65 BACK	Raw	1188.00	0.00	0.00	897.30	889.10	0.00	881.70
	Raw	1133.00	0.00	0.00	913.20	869.00	0.00	924.80
	Raw	1163.00	0.00	0.00	851.90	873.50	0.00	899.90
	Ave	1161.33+/- 2%	0.00+/- 0%	0.00+/- 0%	887.47+/- 4%	877.20+/- 1%	0.00+/- 0%	902.13+/- 2%
	Beta	259.20	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
66 FRONT	Raw	1023.00	0.00	0.00	842.90*	896.10	0.00	879.30
	Raw	992.40	0.00	0.00	943.60	885.60	0.00	921.90
	Raw	1901.00*	0.00	0.00	932.80	880.60	0.00	908.30
	Ave	1007.70+/- 2%	0.00+/- 0%	0.00+/- 0%	938.20+/- 1%	887.43+/- 1%	0.00+/- 0%	903.17+/- 2%
	Beta	104.53	0.00	0.00	35.03	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3351	0.0000	0.0000	
66 BACK	Raw	1428.00	0.00	0.00	803.40	847.30	0.00	814.70
	Raw	1494.00	0.00	0.00	973.70*	857.80	0.00	839.60
	Raw	1453.00	0.00	0.00	808.30	898.50	0.00	820.00
	Ave	1458.33+/- 2%	0.00+/- 0%	0.00+/- 0%	805.85+/- 0%	867.87+/- 3%	0.00+/- 0%	824.77+/- 2%
	Beta	633.57	0.00	0.00	0.00	43.10	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0680	0.0000	
67 FRONT	Raw	247.40*	0.00	0.00	211.90	226.80*	0.00	208.60
	Raw	284.30	0.00	0.00	218.60	208.10	0.00	210.00
	Raw	292.10	0.00	0.00	219.60	204.30	0.00	203.70
	Ave	288.20+/- 2%	0.00+/- 0%	0.00+/- 0%	216.70+/- 2%	206.20+/- 1%	0.00+/- 0%	207.43+/- 2%
	Beta	80.77	0.00	0.00	9.27	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1147	0.0000	0.0000	
67 BACK	Raw	234.30*	0.00	0.00	212.40	201.50	0.00	206.60
	Raw	260.90	0.00	0.00	212.00	197.40	0.00	199.60
	Raw	250.40	0.00	0.00	206.30	198.10	0.00	197.70
	Ave	255.65+/- 3%	0.00+/- 0%	0.00+/- 0%	210.23+/- 2%	199.00+/- 1%	0.00+/- 0%	201.30+/- 2%
	Beta	54.35	0.00	0.00	8.93	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1644	0.0000	0.0000	
68 FRONT	Raw	384.20	0.00	0.00	307.60	308.00	0.00	295.70
	Raw	359.20	0.00	0.00	281.00	294.20	0.00	299.60
	Raw	359.20	0.00	0.00	297.90	301.50	0.00	302.20
	Ave	367.53+/- 4%	0.00+/- 0%	0.00+/- 0%	295.50+/- 5%	301.23+/- 2%	0.00+/- 0%	299.17+/- 1%
	Beta	68.37	0.00	0.00	0.00	2.07	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0302	0.0000	
68 BACK	Raw	668.10	0.00	0.00	313.80	287.10	0.00	275.50
	Raw	675.90	0.00	0.00	326.50	303.90	0.00	281.00
	Raw	679.90	0.00	0.00	319.00	293.60	0.00	282.60
	Ave	674.63+/- 1%	0.00+/- 0%	0.00+/- 0%	319.77+/- 2%	294.87+/- 3%	0.00+/- 0%	279.70+/- 1%
	Beta	394.93	0.00	0.00	40.07	15.17	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1015	0.0384	0.0000	

(* indicates a rejected flier)

TMI Post-Cross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
70 FRONT	Raw	668.20	0.00	0.00	527.40	512.90	0.00	535.40
	Raw	653.40	0.00	0.00	509.60	520.10	0.00	534.90
	Raw	634.10	0.00	0.00	502.70	495.90	0.00	542.20
	Ave	651.90+/- 3%	0.00+/- 0%	0.00+/- 0%	513.23+/- 2%	509.63+/- 2%	0.00+/- 0%	537.50+/- 1%
	Beta	114.40	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
70 BACK	Raw	1276.00	0.00	0.00	687.00	742.40*	0.00	717.80
	Raw	2968.00	0.00	0.00	649.20	818.80*	0.00	664.40
	Raw	3233.00	0.00	0.00	674.80	677.10*	0.00	663.70
	Ave	2492.33+/-43%	0.00+/- 0%	0.00+/- 0%	670.33+/- 3%	0.00+/-10%	0.00+/- 0%	681.97+/- 5%
	Beta	1810.37	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
71 FRONT	Raw	832.10	0.00	0.00	656.80	668.60	0.00	629.50
	Raw	811.30	0.00	0.00	650.30	682.60	0.00	669.70
	Raw	846.90	0.00	0.00	692.80	695.80	0.00	650.60
	Ave	830.10+/- 2%	0.00+/- 0%	0.00+/- 0%	666.63+/- 3%	682.33+/- 2%	0.00+/- 0%	649.93+/- 3%
	Beta	180.17	0.00	0.00	16.70	32.40	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0927	0.1798	0.0000	
71 BACK	Raw	4490.00	0.00	0.00	1014.00	929.30	0.00	730.90
	Raw	4197.00	0.00	0.00	1028.00	918.00	0.00	742.40
	Raw	4382.00	0.00	0.00	1021.00	915.80	0.00	727.70
	Ave	4356.33+/- 3%	0.00+/- 0%	0.00+/- 0%	1021.00+/- 1%	921.03+/- 1%	0.00+/- 0%	733.67+/- 1%
	Beta	3622.67	0.00	0.00	287.33	187.37	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0793	0.0517	0.0000	
72 FRONT	Raw	1926.00	0.00	0.00	1866.00	1871.00	0.00	1700.00
	Raw	1834.00	0.00	0.00	1813.00	1874.00	0.00	1708.00
	Raw	1987.00	0.00	0.00	1843.00	1680.00*	0.00	1685.00
	Ave	1915.67+/- 4%	0.00+/- 0%	0.00+/- 0%	1840.67+/- 1%	1872.50+/- 0%	0.00+/- 0%	1697.67+/- 1%
	Beta	218.00	0.00	0.00	143.00	174.83	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.6560	0.8020	0.0000	
72 BACK	Raw	2115.00	0.00	0.00	1758.00	1772.00	0.00	1782.00
	Raw	2199.00	0.00	0.00	1778.00	1628.00	0.00	1851.00
	Raw	2189.00	0.00	0.00	1780.00	1743.00	0.00	1795.00
	Ave	2167.67+/- 2%	0.00+/- 0%	0.00+/- 0%	1772.00+/- 1%	1714.33+/- 4%	0.00+/- 0%	1809.33+/- 2%
	Beta	358.33	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
73 FRONT	Raw	543.50	0.00	0.00	396.60	354.10	0.00	351.00
	Raw	545.30	0.00	0.00	426.90	379.00	0.00	342.50
	Raw	540.30	0.00	0.00	397.20	365.00	0.00	333.90
	Ave	543.03+/- 0%	0.00+/- 0%	0.00+/- 0%	406.90+/- 4%	366.03+/- 3%	0.00+/- 0%	342.47+/- 2%
	Beta	200.57	0.00	0.00	64.43	23.57	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3213	0.1175	0.0000	
73 BACK	Raw	356.30	0.00	0.00	338.60	333.40*	0.00	348.50
	Raw	362.60	0.00	0.00	342.50	359.50	0.00	344.00
	Raw	357.30	0.00	0.00	339.30	367.30	0.00	341.20
	Ave	358.73+/- 1%	0.00+/- 0%	0.00+/- 0%	340.13+/- 1%	363.40+/- 2%	0.00+/- 0%	344.57+/- 1%
	Beta	14.17	0.00	0.00	0.00	18.83	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	1.3294	0.0000	
74 FRONT	Raw	380.10*	0.00	0.00	223.40	212.80	0.00	219.40
	Raw	337.10	0.00	0.00	219.60	231.80	0.00	220.60
	Raw	342.20	0.00	0.00	229.10	247.90	0.00	231.80
	Ave	339.65+/- 1%	0.00+/- 0%	0.00+/- 0%	224.03+/- 2%	230.83+/- 8%	0.00+/- 0%	223.93+/- 3%
	Beta	115.72	0.00	0.00	0.10	6.90	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0009	0.0596	0.0000	
74 BACK	Raw	918.70	0.00	0.00	270.90	268.10	0.00	228.00
	Raw	848.10	0.00	0.00	284.80	239.20*	0.00	213.70
	Raw	916.80	0.00	0.00	305.80*	255.30	0.00	229.10
	Ave	894.53+/- 4%	0.00+/- 0%	0.00+/- 0%	277.85+/- 4%	261.70+/- 3%	0.00+/- 0%	223.60+/- 4%
	Beta	670.93	0.00	0.00	54.25	38.10	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0809	0.0568	0.0000	
75 FRONT	Raw	284.90	0.00	0.00	229.90	235.30	0.00	213.80
	Raw	272.80	0.00	0.00	240.30	237.20	0.00	224.00
	Raw	280.70	0.00	0.00	225.00	235.90	0.00	225.70
	Ave	279.47+/- 2%	0.00+/- 0%	0.00+/- 0%	231.73+/- 3%	236.13+/- 0%	0.00+/- 0%	221.17+/- 3%
	Beta	58.30	0.00	0.00	10.57	14.97	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1812	0.2567	0.0000	
75 BACK	Raw	224.20	0.00	0.00	215.50	213.70	0.00	227.30
	Raw	226.10	0.00	0.00	190.00*	223.30	0.00	215.00
	Raw	229.20	0.00	0.00	218.10	231.50	0.00	226.50
	Ave	226.50+/- 1%	0.00+/- 0%	0.00+/- 0%	216.80+/- 1%	222.83+/- 4%	0.00+/- 0%	222.93+/- 3%
	Beta	3.57	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
76 FRONT	Raw	309.20	0.00	0.00	258.10	246.70	0.00	243.10
	Raw	305.20	0.00	0.00	258.60	249.20	0.00	238.90
	Raw	306.10	0.00	0.00	262.90	246.70	0.00	243.10
	Ave	306.83+/- 1%	0.00+/- 0%	0.00+/- 0%	259.87+/- 1%	247.53+/- 1%	0.00+/- 0%	241.70+/- 1%
	Beta	65.13	0.00	0.00	18.17	5.83	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2789	0.0896	0.0000	
76 BACK	Raw	242.60	0.00	0.00	219.10	236.70	0.00	241.80
	Raw	254.20	0.00	0.00	218.80	248.00	0.00	244.90
	Raw	273.80*	0.00	0.00	217.20	239.50	0.00	248.20
	Ave	248.40+/- 3%	0.00+/- 0%	0.00+/- 0%	218.37+/- 0%	241.40+/- 2%	0.00+/- 0%	244.97+/- 1%
	Beta	3.43	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
77 FRONT	Raw	376.20	0.00	0.00	348.90	351.30	0.00	338.90
	Raw	391.80	0.00	0.00	354.90	318.20*	0.00	341.20
	Raw	418.00*	0.00	0.00	355.90	348.20	0.00	351.80
	Ave	384.00+/- 3%	0.00+/- 0%	0.00+/- 0%	353.23+/- 1%	349.75+/- 1%	0.00+/- 0%	343.97+/- 2%
	Beta	40.03	0.00	0.00	9.27	5.78	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2315	0.1445	0.0000	
77 BACK	Raw	348.60*	0.00	0.00	346.40	347.00	0.00	316.20
	Raw	413.80	0.00	0.00	372.90	334.70	0.00	304.50
	Raw	398.40	0.00	0.00	343.20	330.40	0.00	307.30
	Ave	406.10+/- 3%	0.00+/- 0%	0.00+/- 0%	354.17+/- 5%	337.37+/- 3%	0.00+/- 0%	309.33+/- 2%
	Beta	96.77	0.00	0.00	44.83	28.03	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4633	0.2897	0.0000	
78 FRONT	Raw	522.90	0.00	0.00	437.70	407.80	0.00	394.10
	Raw	582.80*	0.00	0.00	449.90	432.40	0.00	397.80
	Raw	523.30	0.00	0.00	462.70	403.10	0.00	420.70
	Ave	523.10+/- 0%	0.00+/- 0%	0.00+/- 0%	450.10+/- 3%	414.43+/- 4%	0.00+/- 0%	404.20+/- 4%
	Beta	118.90	0.00	0.00	45.90	10.23	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3860	0.0861	0.0000	
78 BACK	Raw	1296.00	0.00	0.00	456.80	532.80	0.00	434.60
	Raw	1377.00	0.00	0.00	479.50	504.50	0.00	424.70
	Raw	1494.00	0.00	0.00	489.00	524.10	0.00	444.90
	Ave	1389.00+/- 7%	0.00+/- 0%	0.00+/- 0%	475.10+/- 3%	520.47+/- 3%	0.00+/- 0%	434.73+/- 2%
	Beta	954.27	0.00	0.00	40.37	85.73	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0423	0.0898	0.0000	

(* indicates a rejected flier)

TMI Post-Cross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
80 FRONT	Raw	194.40	0.00	0.00	174.80	172.90	0.00	148.20*
	Raw	202.10	0.00	0.00	164.70	171.10	0.00	164.00
	Raw	204.10	0.00	0.00	166.30	164.50	0.00	165.80
	Ave	200.20+/- 3%	0.00+/- 0%	0.00+/- 0%	168.60+/- 3%	169.50+/- 3%	0.00+/- 0%	164.90+/- 1%
	Beta	35.30	0.00	0.00	3.70	4.60	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1048	0.1303	0.0000	
80 BACK	Raw	175.00	0.00	0.00	160.50	158.90	0.00	165.50
	Raw	177.00	0.00	0.00	148.20	168.10	0.00	156.50
	Raw	176.70	0.00	0.00	157.10	153.50	0.00	158.90
	Ave	176.23+/- 1%	0.00+/- 0%	0.00+/- 0%	155.27+/- 4%	160.17+/- 5%	0.00+/- 0%	160.30+/- 3%
	Beta	15.93	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
98 FRONT	Raw	1.65	0.00	0.00	1.54*	1.49	0.00	1.54
	Raw	1.67	0.00	0.00	1.39	1.50	0.00	1.53
	Raw	1.76	0.00	0.00	1.44	1.47	0.00	1.53
	Ave	1.69+/- 3%	0.00+/- 0%	0.00+/- 0%	1.41+/- 2%	1.49+/- 1%	0.00+/- 0%	1.53+/- 1%
	Beta	0.16	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
98 BACK	Raw	1.75	0.00	0.00	1.46	1.53	0.00	1.56
	Raw	1.79	0.00	0.00	1.59	1.50	0.00	1.60
	Raw	1.74	0.00	0.00	1.51	1.58	0.00	1.50
	Ave	1.76+/- 2%	0.00+/- 0%	0.00+/- 0%	1.52+/- 4%	1.53+/- 3%	0.00+/- 0%	1.55+/- 3%
	Beta	0.21	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
99 FRONT	Raw	2.84	0.00	0.00	2.38	2.42	0.00	2.46
	Raw	2.88	0.00	0.00	2.40	2.33	0.00	2.39
	Raw	2.87	0.00	0.00	2.50	2.44	0.00	2.35
	Ave	2.86+/- 1%	0.00+/- 0%	0.00+/- 0%	2.43+/- 3%	2.39+/- 2%	0.00+/- 0%	2.40+/- 2%
	Beta	0.46	0.00	0.00	0.03	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0552	0.0000	0.0000	
99 BACK	Raw	3.04*	0.00	0.00	2.48	2.58	0.00	2.36
	Raw	3.37	0.00	0.00	2.49	2.58	0.00	2.44
	Raw	3.27	0.00	0.00	2.50	2.53	0.00	2.37
	Ave	3.32+/- 2%	0.00+/- 0%	0.00+/- 0%	2.49+/- 0%	2.56+/- 1%	0.00+/- 0%	2.39+/- 2%
	Beta	0.93	0.00	0.00	0.10	0.17	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1032	0.1863	0.0000	

(* indicates a rejected flier)

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

*** RESULTS ***

CALCULATED DOSES

Dosimeter	Calibration Factors						Mylar Chip	Calculated Beta		Calculated Gamma	
	.005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Reading (nc)	Dose (rad)	Error (rad)	Dose (rad)	Error (rad)
1 FRONT	0.22	0.22	0.00	0.00	0.00	0.22	46.60	10.16	4.64	135.13	13.09
1 BACK	0.22	0.22	0.00	0.00	0.00	0.22	23.57	5.14	3.65	135.65	12.79
2 FRONT	0.91	0.86	0.00	0.29	0.22	0.57	346.27	197.12	128.21	152.31	15.09
2 BACK	0.97	0.83	0.26	0.22	0.22	0.50	211.62	105.42	79.86	160.79	16.02
3 FRONT	0.93	0.92	0.00	0.00	0.00	0.92	4721.33	4354.33	892.77	250.35	23.35
3 BACK	0.99	0.95	0.22	0.22	0.22	0.52	45.83	23.79	24.63	225.84	21.24
4 FRONT	0.66	0.56	0.31	0.36	0.22	0.42	220.00	92.57	43.74	236.16	23.21
4 BACK	0.99	0.95	0.00	0.00	0.00	0.97	0.00	0.00	0.00	234.46	22.63
5 FRONT	0.99	0.95	0.00	0.00	0.00	0.97	0.00	0.00	0.00	1955.25	186.00
5 BACK	0.22	0.24	0.22	0.22	0.22	0.22	2094.00	467.23	130.04	1846.07	177.11
6 FRONT	0.47	0.90	0.00	0.00	0.22	0.53	199.17	105.74	71.79	222.10	21.26
6 BACK	0.99	0.91	0.00	0.00	0.22	0.71	247.50	175.05	157.00	232.12	21.59
7 FRONT	0.99	0.95	0.22	0.22	0.22	0.52	296.00	153.65	125.58	357.63	34.55
7 BACK	0.87	0.87	0.00	0.00	0.31	0.68	4327.67	2959.21	1393.99	349.62	36.09
8 FRONT	0.71	0.26	0.00	0.00	0.00	0.49	152.03	74.28	48.57	103.70	9.70
8 BACK	0.43	0.73	0.00	0.00	0.00	0.58	52.10	30.13	20.76	100.15	10.10
11 FRONT	0.99	0.95	0.00	0.00	0.00	0.97	0.00	0.00	0.00	365.10	37.54
11 BACK	0.99	0.95	0.26	0.22	0.22	0.53	303.00	159.82	128.23	213.75	21.62
12 FRONT	0.22	0.31	0.00	0.22	0.22	0.24	46.33	11.13	3.04	36.48	3.57
12 BACK	0.22	0.22	0.00	0.00	0.22	0.22	10.28	2.24	1.61	33.95	3.30
13 FRONT	0.36	0.22	0.37	0.00	0.28	0.31	49.20	15.08	4.65	40.29	3.93
13 BACK	0.22	0.22	0.00	0.00	0.00	0.22	15.90	3.47	2.59	38.61	3.88
14 FRONT	0.72	0.69	0.00	0.00	0.00	0.71	151.85	107.34	9.09	43.99	4.25
14 BACK	0.54	0.46	0.00	0.00	0.22	0.40	35.67	14.42	7.49	39.56	3.91
15 FRONT	0.22	0.31	0.22	0.00	0.00	0.25	13.65	3.41	1.31	22.04	2.18
15 BACK	0.99	0.95	0.00	0.00	0.00	0.97	18.17	17.63	4.18	20.99	2.02
17 FRONT	0.77	0.70	0.34	0.00	0.22	0.51	1.48	0.75	0.40	0.52	0.05
17 BACK	0.61	0.63	0.00	0.00	0.00	0.62	1.50	0.93	0.07	0.52	0.05
18 FRONT	0.62	0.73	0.00	0.00	0.00	0.68	100.70	68.19	7.95	32.69	3.09
18 BACK	0.84	0.30	0.00	0.22	0.22	0.39	58.70	23.14	17.88	27.73	2.58
19 FRONT	0.22	0.22	0.00	0.00	0.00	0.22	25.98	5.66	1.02	30.41	2.97
19 BACK	0.99	0.95	0.00	0.00	0.00	0.97	0.00	0.00	0.00	32.25	3.00

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

Dosimeter	*** RESULTS *** Calibration Factors						CALCULATED DOSES				
	.005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Mylar Chip Reading (nc)	Calculated Beta Dose (rad)	Calculated Beta Error (rad)	Calculated Gamma Dose (rad)	Calculated Gamma Error (rad)
21 FRONT	0.99	0.95	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.21	0.02
21 BACK	0.71	0.22	0.00	0.22	0.22	0.34	0.11	0.04	0.03	0.19	0.02
33 FRONT	0.00	0.00	0.57	0.59	0.00	0.58	132.90	76.93	4.47	41.60	3.89
33 BACK	0.00	0.00	0.22	0.48	0.00	0.35	38.93	13.60	7.75	34.89	3.25
58 FRONT	0.00	0.00	0.46	0.22	0.00	0.34	49.13	16.56	25.16	186.66	17.81
58 BACK	0.00	0.00	0.55	0.50	0.00	0.53	172.20	90.55	17.96	182.27	17.29
59 FRONT	0.00	0.00	0.60	0.59	0.00	0.60	0.08	0.05	0.03	0.20	0.02
59 BACK	0.00	0.00	0.41	0.59	0.00	0.50	0.06	0.03	0.05	0.19	0.03
61 FRONT	0.00	0.00	0.60	0.59	0.00	0.60	0.00	0.00	0.00	535.32	51.45
61 BACK	0.00	0.00	0.22	0.59	0.00	0.40	320.00	129.04	89.25	478.83	46.42
63 FRONT	0.00	0.00	0.54	0.55	0.00	0.54	250.03	135.48	14.33	79.23	8.20
63 BACK	0.00	0.00	0.43	0.57	0.00	0.50	422.40	210.36	44.51	73.33	7.49
64 FRONT	0.00	0.00	0.22	0.29	0.00	0.25	117.90	30.05	10.50	130.27	12.97
64 BACK	0.00	0.00	0.60	0.59	0.00	0.60	18.73	11.16	18.90	128.94	13.59
65 FRONT	0.00	0.00	0.51	0.52	0.00	0.51	418.30	214.26	21.81	175.19	17.79
65 BACK	0.00	0.00	0.60	0.59	0.00	0.60	259.20	154.39	21.02	183.76	17.65
66 FRONT	0.00	0.00	0.35	0.59	0.00	0.47	104.53	49.24	22.60	183.98	17.67
66 BACK	0.00	0.00	0.60	0.51	0.00	0.56	633.57	353.37	45.03	168.00	15.85
67 FRONT	0.00	0.00	0.52	0.59	0.00	0.55	80.77	44.66	5.40	42.25	3.99
67 BACK	0.00	0.00	0.48	0.59	0.00	0.53	54.35	29.05	6.26	41.00	3.93
68 FRONT	0.00	0.00	0.60	0.55	0.00	0.58	68.37	39.57	8.87	60.94	5.71
68 BACK	0.00	0.00	0.53	0.55	0.00	0.54	394.93	211.89	6.38	56.97	5.35
70 FRONT	0.00	0.00	0.60	0.59	0.00	0.60	114.40	68.14	10.53	109.49	10.22
70 BACK	0.00	0.00	0.60	0.59	0.00	0.60	1810.37	1078.34	632.92	138.92	14.38
71 FRONT	0.00	0.00	0.53	0.39	0.00	0.46	180.17	83.06	22.33	132.39	12.98
71 BACK	0.00	0.00	0.54	0.53	0.00	0.54	3622.67	1946.60	86.34	149.45	13.99
72 FRONT	0.00	0.00	0.22	0.22	0.00	0.22	218.00	47.52	16.98	345.81	32.25
72 BACK	0.00	0.00	0.60	0.59	0.00	0.60	358.33	213.44	35.17	368.56	35.08
73 FRONT	0.00	0.00	0.36	0.46	0.00	0.41	200.57	82.38	13.79	69.76	6.72
73 BACK	0.00	0.00	0.60	0.22	0.00	0.41	14.17	5.81	4.37	70.19	6.57
74 FRONT	0.00	0.00	0.60	0.52	0.00	0.56	115.72	65.05	7.86	45.62	4.47
74 BACK	0.00	0.00	0.54	0.53	0.00	0.53	670.93	358.24	23.47	45.55	4.58
75 FRONT	0.00	0.00	0.47	0.30	0.00	0.39	58.30	22.46	7.64	45.05	4.39
75 BACK	0.00	0.00	0.60	0.59	0.00	0.60	3.57	2.12	4.37	45.41	4.45

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

Dosimeter	*** RESULTS *** Calibration Factors						CALCULATED DOSES				
	.005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Mylar Chip Reading (nc)	Calculated Beta Dose (rad)	Calculated Beta Error (rad)	Calculated Gamma Dose (rad)	Calculated Gamma Error (rad)
76 FRONT	0.00	0.00	0.40	0.49	0.00	0.44	65.13	28.79	4.53	49.23	4.61
76 BACK	0.00	0.00	0.60	0.59	0.00	0.60	3.43	2.05	5.24	49.90	4.69
77 FRONT	0.00	0.00	0.43	0.43	0.00	0.43	40.03	17.18	5.58	70.07	6.67
77 BACK	0.00	0.00	0.26	0.27	0.00	0.26	96.77	25.35	3.31	63.01	5.99
78 FRONT	0.00	0.00	0.32	0.49	0.00	0.40	118.90	48.05	15.98	82.34	8.20
78 BACK	0.00	0.00	0.57	0.49	0.00	0.53	954.27	505.63	77.09	88.56	8.49
80 FRONT	0.00	0.00	0.52	0.44	0.00	0.48	35.30	17.09	3.27	33.59	3.13
80 BACK	0.00	0.00	0.60	0.59	0.00	0.60	15.93	9.49	2.85	32.65	3.18
98 FRONT	0.00	0.00	0.60	0.59	0.00	0.60	0.16	0.10	0.03	0.31	0.03
98 BACK	0.00	0.00	0.60	0.59	0.00	0.60	0.21	0.12	0.04	0.32	0.03
99 FRONT	0.00	0.00	0.56	0.59	0.00	0.58	0.46	0.26	0.04	0.49	0.05
99 BACK	0.00	0.00	0.53	0.38	0.00	0.45	0.93	0.42	0.10	0.49	0.05

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
1 FRONT	10.16	135.13	668.0	1.52E-02	6.95E-03	2.02E-01	1.96E-02
1 BACK	5.14	135.65	668.0	7.69E-03	5.46E-03	2.03E-01	1.91E-02
2 FRONT	197.12	152.31	668.0	2.95E-01	1.92E-01	2.28E-01	2.26E-02
2 BACK	105.42	160.79	668.0	1.58E-01	1.20E-01	2.41E-01	2.40E-02
3 FRONT	4354.33	250.35	668.0	6.52E+00	1.34E+00	3.75E-01	3.49E-02
3 BACK	23.79	225.84	668.0	3.56E-02	3.69E-02	3.38E-01	3.18E-02
4 FRONT	92.57	236.16	668.0	1.39E-01	6.55E-02	3.54E-01	3.48E-02
4 BACK	0.00	234.46	668.0	0.00E+00	0.00E+00	3.51E-01	3.39E-02
5 FRONT	0.00	1955.25	668.0	0.00E+00	0.00E+00	2.93E+00	2.78E-01
5 BACK	467.23	1846.07	668.0	6.99E-01	1.95E-01	2.76E+00	2.65E-01
6 FRONT	105.74	222.10	668.0	1.58E-01	1.07E-01	3.32E-01	3.18E-02
6 BACK	175.05	232.12	668.0	2.62E-01	2.35E-01	3.47E-01	3.23E-02
7 FRONT	153.65	357.63	668.0	2.30E-01	1.88E-01	5.35E-01	5.17E-02
7 BACK	2959.21	349.62	668.0	4.43E+00	2.09E+00	5.23E-01	5.40E-02
8 FRONT	74.28	103.70	668.0	1.11E-01	7.27E-02	1.55E-01	1.45E-02
8 BACK	30.13	100.15	668.0	4.51E-02	3.11E-02	1.50E-01	1.51E-02
11 FRONT	0.00	365.10	645.5	0.00E+00	0.00E+00	5.66E-01	5.82E-02
11 BACK	159.82	213.75	645.5	2.48E-01	1.99E-01	3.31E-01	3.35E-02
12 FRONT	11.13	36.48	645.5	1.72E-02	4.71E-03	5.65E-02	5.54E-03
12 BACK	2.24	33.95	645.5	3.47E-03	2.49E-03	5.26E-02	5.11E-03
13 FRONT	15.08	40.29	645.5	2.34E-02	7.21E-03	6.24E-02	6.09E-03
13 BACK	3.47	38.61	645.5	5.37E-03	4.01E-03	5.98E-02	6.00E-03
14 FRONT	107.34	43.99	645.5	1.66E-01	1.41E-02	6.81E-02	6.58E-03
14 BACK	14.42	39.56	645.5	2.23E-02	1.16E-02	6.13E-02	6.06E-03
15 FRONT	3.41	22.04	645.5	5.28E-03	2.03E-03	3.41E-02	3.38E-03
15 BACK	17.63	20.99	645.5	2.73E-02	6.47E-03	3.25E-02	3.13E-03
17 FRONT	0.75	0.52	1.0	7.47E-01	3.98E-01	5.24E-01	5.16E-02
17 BACK	0.93	0.52	1.0	9.32E-01	6.57E-02	5.24E-01	4.99E-02
18 FRONT	68.19	32.69	645.5	1.06E-01	1.23E-02	5.06E-02	4.79E-03
18 BACK	23.14	27.73	645.5	3.58E-02	2.77E-02	4.30E-02	4.00E-03
19 FRONT	5.66	30.41	645.5	8.78E-03	1.58E-03	4.71E-02	4.59E-03
19 BACK	0.00	32.25	645.5	0.00E+00	0.00E+00	5.00E-02	4.65E-03

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

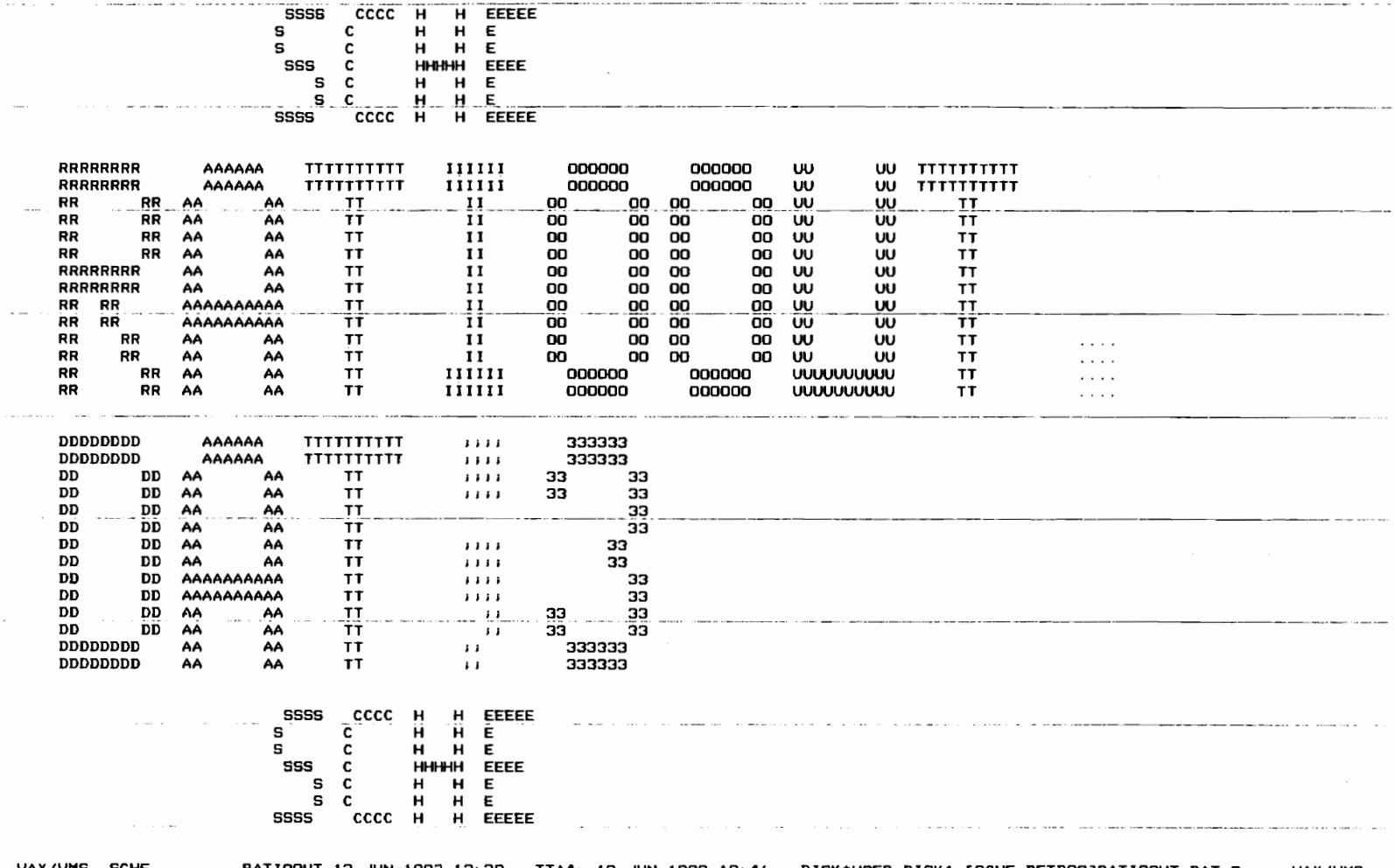
*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
21 FRONT	0.00	0.21	1.0	0.00E+00	0.00E+00	2.12E-01	1.97E-02
21 BACK	0.04	0.19	1.0	3.91E-02	2.92E-02	1.87E-01	1.75E-02
33 FRONT	76.93	41.60	1.0	7.69E+01	4.47E+00	4.16E+01	3.89E+00
33 BACK	13.60	34.89	1.0	1.36E+01	7.75E+00	3.49E+01	3.25E+00
58 FRONT	16.56	186.66	668.0	2.48E-02	3.77E-02	2.79E-01	2.67E-02
58 BACK	90.55	182.27	668.0	1.36E-01	2.69E-02	2.73E-01	2.59E-02
59 FRONT	0.05	0.20	1.0	4.84E-02	2.82E-02	1.98E-01	2.03E-02
59 BACK	0.03	0.19	1.0	2.87E-02	4.67E-02	1.91E-01	2.56E-02
61 FRONT	0.00	535.32	668.0	0.00E+00	0.00E+00	8.01E-01	7.70E-02
61 BACK	129.04	478.83	668.0	1.93E-01	1.34E-01	7.17E-01	6.95E-02
63 FRONT	135.48	79.23	668.0	2.03E-01	2.15E-02	1.19E-01	1.23E-02
63 BACK	210.36	73.33	668.0	3.15E-01	6.66E-02	1.10E-01	1.12E-02
64 FRONT	30.05	130.27	668.0	4.50E-02	1.57E-02	1.95E-01	1.94E-02
64 BACK	11.16	128.94	668.0	1.67E-02	2.83E-02	1.93E-01	2.03E-02
65 FRONT	214.26	175.19	668.0	3.21E-01	3.26E-02	2.62E-01	2.66E-02
65 BACK	154.39	183.76	668.0	2.31E-01	3.15E-02	2.75E-01	2.64E-02
66 FRONT	49.24	183.98	668.0	7.37E-02	3.38E-02	2.75E-01	2.65E-02
66 BACK	353.37	168.00	668.0	5.29E-01	6.74E-02	2.52E-01	2.37E-02
67 FRONT	44.66	42.25	645.5	6.92E-02	8.36E-03	6.55E-02	6.18E-03
67 BACK	29.05	41.00	645.5	4.50E-02	9.70E-03	6.35E-02	6.09E-03
68 FRONT	39.57	60.94	645.5	6.13E-02	1.37E-02	9.44E-02	8.84E-03
68 BACK	211.89	56.97	645.5	3.28E-01	9.88E-03	8.83E-02	8.29E-03
70 FRONT	68.14	109.49	645.5	1.06E-01	1.63E-02	1.70E-01	1.58E-02
70 BACK	1078.34	138.92	645.5	1.67E+00	9.81E-01	2.15E-01	2.23E-02
71 FRONT	83.06	132.39	645.5	1.29E-01	3.46E-02	2.05E-01	2.01E-02
71 BACK	1946.60	149.45	645.5	3.02E+00	1.34E-01	2.32E-01	2.17E-02
72 FRONT	47.52	345.81	645.5	7.36E-02	2.63E-02	5.36E-01	5.00E-02
72 BACK	213.44	368.56	645.5	3.31E-01	5.45E-02	5.71E-01	5.43E-02
73 FRONT	82.38	69.76	645.5	1.28E-01	2.14E-02	1.08E-01	1.04E-02
73 BACK	5.81	70.19	645.5	9.01E-03	6.76E-03	1.09E-01	1.02E-02
74 FRONT	65.05	45.62	645.5	1.01E-01	1.22E-02	7.07E-02	6.92E-03
74 BACK	358.24	45.55	645.5	5.55E-01	3.64E-02	7.06E-02	7.10E-03
75 FRONT	22.46	45.05	645.5	3.48E-02	1.18E-02	6.98E-02	6.80E-03
75 BACK	2.12	45.41	645.5	3.29E-03	6.76E-03	7.04E-02	6.89E-03

TMI Post-Gross Decontamination TLD's (305', 347' & 367') -- DCH-5-82

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Error (rad/hr)
76 FRONT	28.79	49.23	645.5	4.46E-02	7.01E-03	7.63E-02	7.13E-03
76 BACK	2.05	49.90	645.5	3.17E-03	8.12E-03	7.73E-02	7.26E-03
77 FRONT	17.18	70.07	645.5	2.66E-02	8.64E-03	1.09E-01	1.03E-02
77 BACK	25.35	63.01	645.5	3.93E-02	5.13E-03	9.76E-02	9.28E-03
78 FRONT	48.05	82.34	645.5	7.44E-02	2.47E-02	1.28E-01	1.27E-02
78 BACK	505.63	88.56	645.5	7.83E-01	1.19E-01	1.37E-01	1.32E-02
80 FRONT	17.09	33.59	645.5	2.65E-02	5.06E-03	5.20E-02	4.86E-03
80 BACK	9.49	32.65	645.5	1.47E-02	4.42E-03	5.06E-02	4.93E-03
98 FRONT	0.10	0.31	1.0	9.53E-02	3.46E-02	3.13E-01	2.91E-02
98 BACK	0.12	0.32	1.0	1.25E-01	3.51E-02	3.16E-01	3.13E-02
99 FRONT	0.26	0.49	1.0	2.64E-01	3.55E-02	4.89E-01	4.70E-02
99 BACK	0.42	0.49	1.0	4.22E-01	1.02E-01	4.87E-01	4.63E-02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S C H H E
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SSS C HHHHH EEEE
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RR RR AA AA TT II OO OO UU UU TT
DDDDDDDD AAAAAA TTTTTTTTTT ;;;; 333333
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SSSS CCCC H H EEEEE
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Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
81 FRONT	Raw	631.70	0.00	0.00	319.00	312.40	0.00	244.20
	Raw	634.00	0.00	0.00	338.40	298.90	0.00	253.00
	Raw	688.00	0.00	0.00	326.20	281.00*	0.00	271.10*
	Ave	651.23+/- 5%	0.00+/- 0%	0.00+/- 0%	327.87+/- 3%	305.65+/- 3%	0.00+/- 0%	248.60+/- 3%
	Beta	402.63	0.00	0.00	79.27	57.05	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1969	0.1417	0.0000	
81 BACK	Raw	824.40	0.00	0.00	375.50	303.50	0.00	245.40
	Raw	822.00	0.00	0.00	369.50	270.50*	0.00	228.30
	Raw	744.10*	0.00	0.00	367.30	302.50	0.00	215.70
	Ave	823.20+/- 0%	0.00+/- 0%	0.00+/- 0%	370.77+/- 1%	303.00+/- 0%	0.00+/- 0%	229.80+/- 6%
	Beta	593.40	0.00	0.00	140.97	73.20	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2376	0.1234	0.0000	
82 FRONT	Raw	537.00	0.00	0.00	263.90	253.30	0.00	231.80
	Raw	553.00	0.00	0.00	287.40	216.10	0.00	247.70
	Raw	589.50	0.00	0.00	273.20	234.50	0.00	218.70
	Ave	559.83+/- 5%	0.00+/- 0%	0.00+/- 0%	274.83+/- 4%	234.63+/- 8%	0.00+/- 0%	232.73+/- 6%
	Beta	327.10	0.00	0.00	42.10	1.90	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1287	0.0058	0.0000	
82 BACK	Raw	457.90	0.00	0.00	275.30	234.30	0.00	225.00
	Raw	461.10	0.00	0.00	289.30	246.90	0.00	209.20
	Raw	475.40	0.00	0.00	261.30*	254.20	0.00	220.50
	Ave	464.80+/- 2%	0.00+/- 0%	0.00+/- 0%	282.30+/- 4%	245.13+/- 4%	0.00+/- 0%	218.23+/- 4%
	Beta	246.57	0.00	0.00	64.07	26.90	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2598	0.1091	0.0000	
83 FRONT	Raw	0.98	0.00	0.00	1.06*	0.94	0.00	0.87
	Raw	0.98	0.00	0.00	0.88*	0.96	0.00	0.85
	Raw	0.95	0.00	0.00	0.92*	0.86*	0.00	0.90
	Ave	0.97+/- 2%	0.00+/- 0%	0.00+/- 0%	0.00+/-10%	0.95+/- 1%	0.00+/- 0%	0.87+/- 3%
	Beta	0.09	0.00	0.00	0.00	0.08	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.8406	0.0000	
83 BACK	Raw	0.94	0.00	0.00	0.89	0.94	0.00	0.82
	Raw	0.94	0.00	0.00	0.93	0.92	0.00	0.92*
	Raw	0.87	0.00	0.00	0.95	0.95	0.00	0.85
	Ave	0.92+/- 4%	0.00+/- 0%	0.00+/- 0%	0.92+/- 4%	0.94+/- 2%	0.00+/- 0%	0.84+/- 2%
	Beta	0.08	0.00	0.00	0.09	0.10	0.00	0.00
	Ratio	1.00	0.0000	0.0000	1.1000	1.3000	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
84 FRONT	Raw	50.02*	0.00	0.00	50.88	45.74	0.00	47.10
	Raw	53.24	0.00	0.00	47.55	42.38	0.00	43.50
	Raw	55.88	0.00	0.00	46.59	46.34	0.00	43.12
	Ave	54.56+/- 3%	0.00+/- 0%	0.00+/- 0%	48.34+/- 5%	44.82+/- 5%	0.00+/- 0%	44.57+/- 5%
	Beta	9.99	0.00	0.00	3.77	0.25	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3772	0.0247	0.0000	
84 BACK	Raw	71.23	0.00	0.00	53.76	47.41	0.00	45.70
	Raw	64.84*	0.00	0.00	51.90	46.99	0.00	44.18
	Raw	70.96	0.00	0.00	58.14*	43.04*	0.00	49.14*
	Ave	71.10+/- 0%	0.00+/- 0%	0.00+/- 0%	52.83+/- 2%	47.20+/- 1%	0.00+/- 0%	44.94+/- 2%
	Beta	26.16	0.00	0.00	7.89	2.26	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3017	0.0864	0.0000	
85 FRONT	Raw	16.99	0.00	0.00	16.35	14.76	0.00	17.12
	Raw	16.94	0.00	0.00	17.28	15.06	0.00	16.66
	Raw	18.19	0.00	0.00	16.06	15.46	0.00	16.81
	Ave	17.37+/- 4%	0.00+/- 0%	0.00+/- 0%	16.56+/- 4%	15.09+/- 2%	0.00+/- 0%	16.86+/- 1%
	Beta	0.51	0.00	0.00	0.00	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	
85 BACK	Raw	15.73	0.00	0.00	18.82	17.92	0.00	16.39
	Raw	16.92	0.00	0.00	17.68	17.38	0.00	15.94
	Raw	16.89	0.00	0.00	18.36	18.06	0.00	15.52
	Ave	16.51+/- 4%	0.00+/- 0%	0.00+/- 0%	18.29+/- 3%	17.79+/- 2%	0.00+/- 0%	15.95+/- 3%
	Beta	0.56	0.00	0.00	2.34	1.84	0.00	0.00
	Ratio	1.00	0.0000	0.0000	4.1479	3.2603	0.0000	
86 FRONT	Raw	1062.00	0.00	0.00	795.60	763.70	0.00	753.50
	Raw	1141.00	0.00	0.00	774.70	774.00	0.00	736.10
	Raw	1002.00	0.00	0.00	787.90	775.20	0.00	750.80
	Ave	1068.33+/- 7%	0.00+/- 0%	0.00+/- 0%	786.07+/- 1%	770.97+/- 1%	0.00+/- 0%	746.80+/- 1%
	Beta	321.53	0.00	0.00	39.27	24.17	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1221	0.0752	0.0000	
86 BACK	Raw	1029.00	0.00	0.00	855.30	806.30	0.00	732.50
	Raw	975.10	0.00	0.00	800.30	834.70	0.00	769.00
	Raw	921.30	0.00	0.00	853.90	790.50	0.00	686.50*
	Ave	975.13+/- 6%	0.00+/- 0%	0.00+/- 0%	836.50+/- 4%	810.50+/- 3%	0.00+/- 0%	750.75+/- 3%
	Beta	224.38	0.00	0.00	85.75	59.75	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3822	0.2663	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
87 FRONT	Raw	594.90	0.00	0.00	559.20	521.60	0.00	544.10
	Raw	604.40	0.00	0.00	529.40	549.80	0.00	539.30
	Raw	563.30	0.00	0.00	547.00	535.30	0.00	519.90
	Ave	587.53+/- 4%	0.00+/- 0%	0.00+/- 0%	545.20+/- 3%	535.57+/- 3%	0.00+/- 0%	534.43+/- 2%
	Beta	53.10	0.00	0.00	10.77	1.13	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2028	0.0213	0.0000	
87 BACK	Raw	559.80	0.00	0.00	535.80	513.70	0.00	515.50
	Raw	532.00	0.00	0.00	576.60	544.00	0.00	503.10
	Raw	564.20	0.00	0.00	534.40	545.60	0.00	525.80
	Ave	552.00+/- 3%	0.00+/- 0%	0.00+/- 0%	548.93+/- 4%	534.43+/- 3%	0.00+/- 0%	514.80+/- 2%
	Beta	37.20	0.00	0.00	34.13	19.63	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.9176	0.5278	0.0000	
88 FRONT	Raw	292.20	0.00	0.00	255.10	266.40	0.00	254.40
	Raw	296.60	0.00	0.00	250.00	267.10	0.00	253.70
	Raw	292.50	0.00	0.00	266.30	290.20	0.00	247.50
	Ave	293.77+/- 1%	0.00+/- 0%	0.00+/- 0%	257.13+/- 3%	274.57+/- 5%	0.00+/- 0%	251.87+/- 2%
	Beta	41.90	0.00	0.00	5.27	22.70	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1257	0.5418	0.0000	
88 BACK	Raw	262.00	0.00	0.00	252.40	262.80	0.00	254.50
	Raw	275.50	0.00	0.00	275.00	252.40	0.00	252.00
	Raw	276.80	0.00	0.00	255.50	267.00	0.00	253.70
	Ave	271.43+/- 3%	0.00+/- 0%	0.00+/- 0%	260.97+/- 5%	260.73+/- 3%	0.00+/- 0%	253.40+/- 1%
	Beta	18.03	0.00	0.00	7.57	7.33	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4196	0.4067	0.0000	
89 FRONT	Raw	112.90	0.00	0.00	103.80	108.10	0.00	108.20
	Raw	112.00	0.00	0.00	104.40	102.40	0.00	110.60
	Raw	111.90	0.00	0.00	108.50	111.50	0.00	101.10
	Ave	112.27+/- 0%	0.00+/- 0%	0.00+/- 0%	105.57+/- 2%	107.33+/- 4%	0.00+/- 0%	106.63+/- 5%
	Beta	5.63	0.00	0.00	0.00	0.70	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.1243	0.0000	
89 BACK	Raw	113.50	0.00	0.00	102.10	103.80	0.00	99.45
	Raw	106.20	0.00	0.00	107.90	99.72	0.00	98.90
	Raw	105.30	0.00	0.00	95.43	100.00	0.00	104.00
	Ave	108.33+/- 4%	0.00+/- 0%	0.00+/- 0%	101.81+/- 6%	101.17+/- 2%	0.00+/- 0%	100.78+/- 3%
	Beta	7.55	0.00	0.00	1.03	0.39	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.1360	0.0517	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
90 FRONT	Raw	373.80	0.00	0.00	263.50	220.40	0.00	201.50
	Raw	375.30	0.00	0.00	260.30	211.80	0.00	201.10
	Raw	370.40	0.00	0.00	262.80	228.80	0.00	198.70
	Ave	373.17+/- 1%	0.00+/- 0%	0.00+/- 0%	262.20+/- 1%	220.33+/- 4%	0.00+/- 0%	200.43+/- 1%
	Beta	172.73	0.00	0.00	61.77	19.90	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.3576	0.1152	0.0000	
90 BACK	Raw	1030.00	0.00	0.00	482.30*	299.90	0.00	219.40
	Raw	1005.00	0.00	0.00	381.90*	244.40*	0.00	231.80
	Raw	951.40	0.00	0.00	455.00*	294.50	0.00	236.90
	Ave	995.47+/- 4%	0.00+/- 0%	0.00+/- 0%	0.00+/-12%	297.20+/- 1%	0.00+/- 0%	229.37+/- 4%
	Beta	766.10	0.00	0.00	0.00	67.83	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0885	0.0000	
91 FRONT	Raw	3330.00	0.00	0.00	932.00	751.40	0.00	288.00
	Raw	3265.00	0.00	0.00	950.60	702.90	0.00	261.60*
	Raw	3327.00	0.00	0.00	941.30	684.30	0.00	297.80
	Ave	3307.33+/- 1%	0.00+/- 0%	0.00+/- 0%	941.30+/- 1%	712.87+/- 5%	0.00+/- 0%	292.90+/- 2%
	Beta	3014.43	0.00	0.00	648.40	419.97	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2151	0.1393	0.0000	
91 BACK	Raw	369.20*	0.00	0.00	299.20	277.60	0.00	245.10*
	Raw	412.40	0.00	0.00	313.80	257.40	0.00	272.60
	Raw	397.10	0.00	0.00	286.20	261.70	0.00	267.80
	Ave	404.75+/- 3%	0.00+/- 0%	0.00+/- 0%	299.73+/- 5%	265.57+/- 4%	0.00+/- 0%	270.20+/- 1%
	Beta	134.55	0.00	0.00	29.53	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2195	0.0000	0.0000	
92 FRONT	Raw	151.20	0.00	0.00	132.70	127.20	0.00	126.70
	Raw	152.60	0.00	0.00	128.60	126.10	0.00	126.60
	Raw	152.10	0.00	0.00	131.30	127.70	0.00	132.40
	Ave	151.97+/- 0%	0.00+/- 0%	0.00+/- 0%	130.87+/- 2%	127.00+/- 1%	0.00+/- 0%	128.57+/- 3%
	Beta	23.40	0.00	0.00	2.30	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0983	0.0000	0.0000	
92 BACK	Raw	155.20	0.00	0.00	137.30	119.10	0.00	119.90
	Raw	142.70	0.00	0.00	127.90	131.20	0.00	121.60
	Raw	153.20	0.00	0.00	137.90	126.20	0.00	139.80*
	Ave	150.37+/- 4%	0.00+/- 0%	0.00+/- 0%	134.37+/- 4%	125.50+/- 5%	0.00+/- 0%	120.75+/- 1%
	Beta	29.62	0.00	0.00	13.62	4.75	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4598	0.1604	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
96 FRONT	Raw	53.59	0.00	0.00	48.43	45.79	0.00	42.23
	Raw	55.91	0.00	0.00	46.67	42.77	0.00	40.80
	Raw	51.50	0.00	0.00	47.25	45.31	0.00	40.71
	Ave	53.67+/- 4%	0.00+/- 0%	0.00+/- 0%	47.45+/- 2%	44.62+/- 4%	0.00+/- 0%	41.25+/- 2%
	Beta	12.42	0.00	0.00	6.20	3.38	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4995	0.2719	0.0000	
96 BACK	Raw	51.13	0.00	0.00	43.55	39.66	0.00	34.05*
	Raw	51.09	0.00	0.00	44.64	39.53	0.00	42.33
	Raw	52.01	0.00	0.00	44.94	41.39	0.00	40.40
	Ave	51.41+/- 1%	0.00+/- 0%	0.00+/- 0%	44.38+/- 2%	40.19+/- 3%	0.00+/- 0%	41.37+/- 3%
	Beta	10.04	0.00	0.00	3.01	0.00	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2998	0.0000	0.0000	
97 FRONT	Raw	20.55	0.00	0.00	19.91	18.87	0.00	18.00
	Raw	20.37	0.00	0.00	18.94	18.52	0.00	18.34
	Raw	19.89	0.00	0.00	18.71	17.60	0.00	18.02
	Ave	20.27+/- 2%	0.00+/- 0%	0.00+/- 0%	19.19+/- 3%	18.33+/- 4%	0.00+/- 0%	18.12+/- 1%
	Beta	2.15	0.00	0.00	1.07	0.21	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.4961	0.0977	0.0000	
97 BACK	Raw	18.74	0.00	0.00	18.15	19.67	0.00	19.25
	Raw	18.32	0.00	0.00	18.08	19.75	0.00	18.35
	Raw	16.64*	0.00	0.00	18.38	18.75	0.00	18.45
	Ave	18.53+/- 2%	0.00+/- 0%	0.00+/- 0%	18.20+/- 1%	19.39+/- 3%	0.00+/- 0%	18.68+/- 3%
	Beta	0.00	0.00	0.00	0.00	0.71	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0000	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

SUMMARY OF DOSIMETER READINGS

Dosimeter		MYLAR #1 (nc)	.005" #2 (nc)	.010" #3 (nc)	.020" #4 (nc)	.032" #5 (nc)	.064" #6 (nc)	.125" #7 (nc)
93 FRONT	Raw	92.12	0.00	0.00	96.34	92.24	0.00	84.32
	Raw	94.96	0.00	0.00	92.76	87.96	0.00	92.92
	Raw	93.34	0.00	0.00	93.77	92.32	0.00	88.72
	Ave	93.47+/- 2%	0.00+/- 0%	0.00+/- 0%	94.29+/- 2%	90.84+/- 3%	0.00+/- 0%	88.65+/- 5%
	Beta	4.82	0.00	0.00	5.64	2.19	0.00	0.00
	Ratio	1.00	0.0000	0.0000	1.1694	0.4537	0.0000	
93 BACK	Raw	91.78	0.00	0.00	86.92	81.70	0.00	82.74
	Raw	89.95	0.00	0.00	89.44	85.26	0.00	81.21
	Raw	87.64	0.00	0.00	89.84	85.14	0.00	81.12
	Ave	89.79+/- 2%	0.00+/- 0%	0.00+/- 0%	88.73+/- 2%	84.03+/- 2%	0.00+/- 0%	81.69+/- 1%
	Beta	8.10	0.00	0.00	7.04	2.34	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.8695	0.2893	0.0000	
94 FRONT	Raw	907.70	0.00	0.00	424.50	338.80	0.00	269.90
	Raw	936.20	0.00	0.00	424.00	338.60	0.00	276.20
	Raw	955.20	0.00	0.00	408.20	324.80	0.00	237.00*
	Ave	933.03+/- 3%	0.00+/- 0%	0.00+/- 0%	418.90+/- 2%	334.07+/- 2%	0.00+/- 0%	273.05+/- 2%
	Beta	659.98	0.00	0.00	145.85	61.02	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2210	0.0925	0.0000	
94 BACK	Raw	393.20	0.00	0.00	265.00	226.40	0.00	224.90
	Raw	397.90	0.00	0.00	267.00	234.60	0.00	226.00
	Raw	385.30	0.00	0.00	227.00*	226.10	0.00	211.00
	Ave	392.13+/- 2%	0.00+/- 0%	0.00+/- 0%	266.00+/- 1%	229.03+/- 2%	0.00+/- 0%	220.63+/- 4%
	Beta	171.50	0.00	0.00	45.37	8.40	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2645	0.0490	0.0000	
95 FRONT	Raw	475.90	0.00	0.00	260.00*	195.40	0.00	157.10*
	Raw	463.90	0.00	0.00	225.20	188.90	0.00	136.70
	Raw	465.00	0.00	0.00	216.70	200.10	0.00	132.50
	Ave	468.27+/- 1%	0.00+/- 0%	0.00+/- 0%	220.95+/- 3%	194.80+/- 3%	0.00+/- 0%	134.60+/- 2%
	Beta	333.67	0.00	0.00	86.35	60.20	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.2588	0.1804	0.0000	
95 BACK	Raw	298.60	0.00	0.00	145.10*	127.50	0.00	116.70
	Raw	306.50	0.00	0.00	170.90*	128.50	0.00	120.60
	Raw	308.30	0.00	0.00	160.00*	137.40	0.00	119.00
	Ave	304.47+/- 2%	0.00+/- 0%	0.00+/- 0%	0.00+/- 8%	131.13+/- 4%	0.00+/- 0%	118.77+/- 2%
	Beta	185.70	0.00	0.00	0.00	12.37	0.00	0.00
	Ratio	1.00	0.0000	0.0000	0.0000	0.0666	0.0000	

(* indicates a rejected flier)

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

Dosimeter	*** RESULTS *** Calibration Factors .005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	CALCULATED DOSES Mylar Chip Reading (nc)	Calculated Beta Dose (rad)	Error (rad)	Calculated Gamma Dose (rad)	Error (rad)
81 FRONT	0.00	0.00	0.46	0.43	0.00	0.44	402.63	178.57	16.16	50.64	4.88
81 BACK	0.00	0.00	0.43	0.45	0.00	0.44	593.40	260.25	12.37	46.81	5.31
82 FRONT	0.00	0.00	0.51	0.58	0.00	0.54	327.10	178.12	24.04	47.41	5.31
82 BACK	0.00	0.00	0.41	0.47	0.00	0.44	246.57	108.06	11.38	44.45	4.45
83 FRONT	0.00	0.00	0.60	0.22	0.00	0.41	0.09	0.04	0.03	0.18	0.02
83 BACK	0.00	0.00	0.22	0.22	0.00	0.22	0.08	0.02	0.01	0.17	0.02
84 FRONT	0.00	0.00	0.32	0.56	0.00	0.44	9.99	4.41	2.11	9.08	0.96
84 BACK	0.00	0.00	0.38	0.49	0.00	0.44	26.16	11.39	2.16	9.15	0.88
85 FRONT	0.00	0.00	0.60	0.59	0.00	0.60	0.51	0.30	0.44	3.44	0.32
85 BACK	0.00	0.00	0.22	0.22	0.00	0.22	0.56	0.12	0.18	3.25	0.31
86 FRONT	0.00	0.00	0.51	0.50	0.00	0.51	321.53	163.45	35.80	152.12	14.28
86 BACK	0.00	0.00	0.32	0.29	0.00	0.31	224.38	68.48	18.71	152.93	15.16
87 FRONT	0.00	0.00	0.45	0.56	0.00	0.51	53.10	26.99	13.42	108.86	10.46
87 BACK	0.00	0.00	0.22	0.22	0.00	0.22	37.20	8.11	4.54	104.86	10.02
88 FRONT	0.00	0.00	0.51	0.22	0.00	0.36	41.90	15.24	8.79	51.31	4.83
88 BACK	0.00	0.00	0.29	0.22	0.00	0.25	18.03	4.59	2.30	51.62	4.81
89 FRONT	0.00	0.00	0.60	0.45	0.00	0.53	5.63	2.97	2.69	21.72	2.26
89 BACK	0.00	0.00	0.50	0.53	0.00	0.52	7.55	3.90	2.74	20.53	1.99
90 FRONT	0.00	0.00	0.34	0.46	0.00	0.40	172.73	68.83	15.11	40.83	3.81
90 BACK	0.00	0.00	0.60	0.49	0.00	0.55	766.10	418.54	65.19	46.72	4.72
91 FRONT	0.00	0.00	0.44	0.43	0.00	0.44	3014.43	1320.44	26.10	59.66	5.73
91 BACK	0.00	0.00	0.44	0.59	0.00	0.51	134.55	69.16	15.32	55.04	5.17
92 FRONT	0.00	0.00	0.53	0.59	0.00	0.56	23.40	13.08	2.13	26.19	2.53
92 BACK	0.00	0.00	0.26	0.41	0.00	0.34	29.62	9.93	3.87	24.60	2.30
93 FRONT	0.00	0.00	0.22	0.22	0.00	0.22	4.82	1.05	0.99	18.06	1.89
93 BACK	0.00	0.00	0.22	0.27	0.00	0.24	8.10	1.96	0.61	16.64	1.56
94 FRONT	0.00	0.00	0.44	0.49	0.00	0.46	659.98	304.89	24.67	55.62	5.25
94 BACK	0.00	0.00	0.41	0.53	0.00	0.47	171.50	80.60	16.28	44.94	4.51
95 FRONT	0.00	0.00	0.41	0.39	0.00	0.40	333.67	133.10	6.12	27.42	2.62
95 BACK	0.00	0.00	0.60	0.51	0.00	0.56	185.70	103.72	12.02	24.19	2.29
96 FRONT	0.00	0.00	0.23	0.29	0.00	0.26	12.42	3.21	0.78	8.40	0.80
96 BACK	0.00	0.00	0.38	0.59	0.00	0.48	10.04	4.86	1.64	8.43	0.83

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

*** RESULTS ***

Dosimeter	Calibration Factors						CALCULATED DOSES				
	.005" (rad/nc)	.010" (rad/nc)	.020" (rad/nc)	.032" (rad/nc)	.064" (rad/nc)	Ave. (rad/nc)	Mylar Chip Reading (nc)	Calculated Beta Dose (rad)	Calculated Beta Error (rad)	Calculated Gamma Dose (rad)	Calculated Gamma Error (rad)
97 FRONT	0.00	0.00	0.23	0.48	0.00	0.36	2.15	0.77	0.40	3.69	0.35
97 BACK	0.00	0.00	0.60	0.59	0.00	0.60	0.00	0.00	0.00	3.81	0.37

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
81 FRONT	178.57	50.64	3.1	5.72E+01	5.18E+00	1.62E+01	1.56E+00
81 BACK	260.25	46.81	3.1	8.34E+01	3.96E+00	1.50E+01	1.70E+00
82 FRONT	178.12	47.41	3.1	5.71E+01	7.70E+00	1.52E+01	1.70E+00
82 BACK	108.06	44.45	3.1	3.46E+01	3.65E+00	1.42E+01	1.43E+00
83 FRONT	0.04	0.18	1.0	3.78E-02	2.83E-02	1.78E-01	1.75E-02
83 BACK	0.02	0.17	1.0	1.74E-02	9.10E-03	1.70E-01	1.62E-02
84 FRONT	4.41	9.08	3.1	1.41E+00	6.77E-01	2.91E+00	3.06E-01
84 BACK	11.39	9.15	3.1	3.65E+00	6.92E-01	2.93E+00	2.82E-01
85 FRONT	0.30	3.44	3.1	9.74E-02	1.42E-01	1.10E+00	1.04E-01
85 BACK	0.12	3.25	3.1	3.94E-02	5.63E-02	1.04E+00	1.01E-01
86 FRONT	163.45	152.12	2.3	7.02E+01	1.54E+01	6.53E+01	6.13E+00
86 BACK	68.48	152.93	2.3	2.94E+01	8.03E+00	6.56E+01	6.51E+00
87 FRONT	26.99	108.86	2.3	1.16E+01	5.76E+00	4.67E+01	4.49E+00
87 BACK	8.11	104.86	2.3	3.48E+00	1.95E+00	4.50E+01	4.30E+00
88 FRONT	15.24	51.31	2.3	6.54E+00	3.77E+00	2.20E+01	2.07E+00
88 BACK	4.59	51.62	2.3	1.97E+00	9.89E-01	2.22E+01	2.06E+00
89 FRONT	2.97	21.72	2.3	1.27E+00	1.15E+00	9.32E+00	9.69E-01
89 BACK	3.90	20.53	2.3	1.67E+00	1.18E+00	8.81E+00	8.55E-01
90 FRONT	68.83	40.83	3.1	2.23E+01	4.90E+00	1.33E+01	1.24E+00
90 BACK	418.54	46.72	3.1	1.36E+02	2.12E+01	1.52E+01	1.53E+00
91 FRONT	1320.44	59.66	3.1	4.29E+02	8.47E+00	1.94E+01	1.86E+00
91 BACK	69.16	55.04	3.1	2.25E+01	4.98E+00	1.79E+01	1.68E+00
92 FRONT	13.08	26.19	3.1	4.25E+00	6.92E-01	8.50E+00	8.21E-01
92 BACK	9.93	24.60	3.1	3.22E+00	1.26E+00	7.99E+00	7.47E-01
93 FRONT	1.05	18.06	3.1	3.41E-01	3.21E-01	5.86E+00	6.15E-01
93 BACK	1.96	16.64	3.1	6.37E-01	1.99E-01	5.40E+00	5.06E-01
94 FRONT	304.89	55.62	3.1	9.90E+01	8.01E+00	1.81E+01	1.71E+00
94 BACK	80.60	44.94	3.1	2.62E+01	5.28E+00	1.46E+01	1.47E+00
95 FRONT	133.10	27.42	3.1	4.32E+01	1.99E+00	8.90E+00	8.51E-01
95 BACK	103.72	24.19	3.1	3.37E+01	3.90E+00	7.85E+00	7.42E-01
96 FRONT	3.21	8.40	3.1	1.04E+00	2.52E-01	2.73E+00	2.60E-01
96 BACK	4.86	8.43	3.1	1.58E+00	5.33E-01	2.74E+00	2.70E-01

Pre-Flushing of the Reactor Building Basement, TLD Measurements -- DCH-6-82

*** SUMMARY OF DOSES AND DOSE RATES ***

Dosimeter	Beta Dose (rad)	Gamma Dose (rad)	Exposure Time (hr)	Beta Dose Rate (rad/hr)	Beta Dose Rate Error (rad/hr)	Gamma Dose Rate (rad/hr)	Gamma Dose Rate Error (rad/hr)
97 FRONT	0.77	3.69	3.1	2.49E-01	1.30E-01	1.20E+00	1.12E-01
97 BACK	0.00	3.81	3.1	0.00E+00	0.00E+00	1.24E+00	1.19E-01

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