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SCIENTECH-NUS File - 5494-004
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SCIENTECH NUS
ENGINEERING CALCULATION

CLIENT/PROJECT CP&L - BNP CALC. NO. CP&L-CED-M-01 REV. 3

TITLE MAIN STEAM LINE BREAK ANALYSIS
CONTROL ROOM DOSE ANALYSIS TO SUPPORT POWER UPRATE

AUTHOR/DATE	VERIFIED BY/DATE	APPROVED BY/DATE
C. Snyder 3/25/97	Harry A. Wagaye 3/26/97	3/24/97

Purpose

The purpose of this calculation is to reanalyze the Brunswick Nuclear Plant (BNP) control room (CR) radiological thyroid dose following a main steam line break (MSLB). This analysis was performed to replace the existing "hand" calculations performed in light of the power uprate effort. The radiological consequences of the MSLB scenario will be assessed using the SCIENTECH-NUS "AXIDENT" computer code to calculate the CR operator thyroid dose following a design basis MSLB accident. The whole body and Beta dose contributions from the iodides and noble gases are also calculated by the AXIDENT code, however, these values are not presented since they are negligible compared to the regulatory limits. This calculation will be the calculation of record for the Control Room dose after a MSLB, reflecting BNP's power uprate.

Revision 2 assessed the impact on operability with the CR filter unit in a degraded condition.

Revision 3 was prepared to utilize the latest reactor coolant release rates as calculated by GE and to perform the analysis using a uniform cloud and gaussian puff release. The degraded charcoal efficiencies used in Rev. 2 were not used in Rev. 3. (Due to the extent of revisions in Rev. 3 change bars were not included).

Summary

The results of the various cases are contained throughout section 5.0.

SUPERSEDED BY REV. _____ SUPPLEMENTED BY CALC NO.: ___	QUALITY CLASS ■ SAFETY-RELATED □ NON-SR □ OTHER ___	DISTRIBUTION ■ PROJECT ■ DCC □ OTHER	VERIFICATION METHOD ■ REVIEW □ ALT. ANALYSIS

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1.0 OBJECTIVE

The purpose of this calculation is to reanalyze the Brunswick Nuclear Plant (BNP) control room (CR) radiological thyroid dose following a main steam line break (MSLB). This analysis was performed to replace the existing "hand" calculations performed in light of the power uprate effort. The radiological consequences of the MSLB scenario will be assessed using the SCIENTECH-NUS "AXIDENT" computer code to calculate the CR operator thyroid dose following a design basis MSLB accident. The whole body and Beta dose contributions from the iodides and noble gases are also calculated by the AXIDENT code, however, these values are not presented since they are negligible compared to the regulatory limits. This calculation will be the calculation of record for the Control Room dose after a MSLB, reflecting BNP's power uprate.

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2.0 METHOD OF ANALYSIS

General

The consequences of a design basis MSLB accident to the Control Room operators will be assessed using the SCIENTECH- NUS "AXIDENT" computer code which is a transient control room and off-site dose analysis code. The program will be executed on a Dell Optiplex GXMT 5133 computer running a Windows95 operating system as currently assigned to Carl Snyder (Matrix Leasing - 210158)

Source Term Model/Release Path Model

The general accident analysis assumptions and methodology will be based on the guidance provided in the Standard Review Plan and Regulatory Guides. This methodology replaces the scenario described in the existing UE&C Control Room MSLB dose calculation which was subsequently revised by CP&L (See Reference 3.1). The new methodology is based on the general guidance provided in SRP 15.6.4, SRP 2.3.4, and Reg Guide 1.5 (Safety Guide 5) (References 3.8, 3.9, and 3.10). The methodology and inputs are as follows:

- The calculated radiological consequences of a MSLB accident is conservatively assessed by assuming that the Reactor Coolant released during the line break forms a cloud that migrates towards the CR at a rate of 1 meter per second (the wind speed of 1 meter per second is the

general regulatory assumption used in design basis accident analyses, see for example Safety Guide 5). This approach conservatively neglects any holdup affect as a result of the presence of the Turbine Building enclosure and conservatively neglects the removal affect provided by the Turbine Building Exhaust filter units ("white elephants"). This approach also neglects the buoyancy of the steam cloud and conservatively assumes that the cloud stays at ground level and that the centerline of the cloud passes by the CR intake. The size of the cloud was determined in CP&L calculation 0VA-0107 (Reference 3.10, Information provided via telephone communication between D. Studley and P. Dorosko). The determination of the cloud size neglected the absorption of the air into the steam cloud which is conservative since it results in a smaller more concentrated cloud.

- It is assumed that all of the iodines in the released reactor coolant liquid are carried to the cloud. This approach is also conservative since some of the iodine will remain with the water. The regulatory guidance for similar accidents (i.e., SRP 15.6.2 - Small Lines Carrying Primary Coolant Outside Containment) allows credit for a portion of the iodines (equivalent to the flash fraction) to stay with the water. For information, the guidance from SRP 15.6.2 (Reference 3.11) is as follows:

  > "The fraction of the iodine assumed to become airborne and available for release to the atmosphere, without credit for plateout, is equal to the fraction of the coolant flashing into steam in the depressurization process. The flash fraction is determined by assuming the discharge to be a constant enthalpy process."

- As stated in SRP Section 15.6.4, two iodine concentrations are normally analyzed. These two iodine concentrations correlate to the technical specification values associated with (1) the maximum equilibrium value permitted for continued full power operations and (2) the maximum value permitted corresponding to an assumed preaccident iodine spike. For BNP these values are currently at 0.2 µCi/g I-131 Dose Equivalent and 4.0 µCi/g I-131 Dose Equivalent, respectively. For the Control Room, the analysis is being performed only at the preaccident iodine spike concentration since it results in a consequence 20 times higher than the maximum equilibrium concentration. The iodine spike is conservatively assumed to occur during Hot Standby which results in the largest liquid release. This analysis will also assess parametrically the impact of reducing the preaccident iodine spike limit. Per a conversation with T. Devore of BNP, the allowable specific activity (i.e., Technical Specification) is based on a dose equivalency of I-131 as calculated using ICRP-2.

- With regards to the analysis of the cloud dispersion and the distribution of the activity within the cloud, this analysis will determine the calculated radiological consequences of a MSLB by (1) assuming that the activity is uniformly mixed throughout the cloud and by (2) assuming that the concentration is distributed in accordance with a Gaussian distribution as is recommended in SRP 2.3.4 through reference to Reg Guide 1.78 (Reference 3.13). Once

the analysis demonstrates that the two approaches are equivalent, the subsequent parametric studies will be performed using the uniform distribution assumption. The guidance provided in SRP 2.3.4 is as follows:

> " Most accidental releases can be considered as continuous releases (i.e., on the order of several minutes or more). However, some releases such as from steam line breaks or of hazardous chemicals may be considered as instantaneous (puffs). The general Gaussian diffusion model for continuous releases is used to evaluate releases on the order of several minutes or more. For puff releases, instantaneous point source Gaussian diffusion equations are used with a correction for initial source volume."

- The iodine distribution at the time of the accident is a function of water chemistry and will be analyzed using the same distribution as provided by GE in the recent power uprate analyses (see Reference 3.1).

- The whole body and Beta dose contributions from the iodides and noble gases are calculated by the AXIDENT code, however, these values are not presented since they are negligible as compared to the 5 rem and 30 rem limit, respectively.

- For the uniform cloud approach, the analysis does not credit any atmospheric dispersion above and beyond the initial cloud dispersion by the generation of a cloud. For the Reg. Guide 1.78 Gaussian distribution approach, the analysis calculates a diffusion of the cloud as it moves from turbine building to the Control Room. The analysis was performed using a distance of 130 ft from the Turbine Building to the Control Room.

Except for the recently measured Control Room filter unit flow parameters, the Control Room parameters will be based on the LOCA dose analysis model presented in Reference 3.2. The LOCA model as opposed to the UE&C model uses a slightly higher unfiltered inleakage rate and also uses a lower filter efficiency for the organic iodides (90% as opposed to 95%). Both changes are conservative. On the other hand, the CR filter unit mode of operation will be assumed to start at approximately 5 seconds after the accident as opposed to the 10 minute delay that was used in Reference 3.1 (the reference calculation was done to support an operability assessment for which the redundancy of the CR filter system initiation was no longer available, this condition has since been resolved, based on conversation with T. Devore).

Modeling Approach for AXIDENT Code

The MSLB source term, as discussed above, is treated as a constant flow of air with a uniform radionuclide concentration being drawn into the control room as the cloud passes the CR followed by a continuous flow of clean air at the same flow rate. The simplified (i.e., uniform cloud) CR source term model simulates a cloud of radioactive air with a uniform concentration of radionuclides, generated by a MSLB, passing over the control room air intake. The AXIDENT source term model

is adjusted to provide the above constant air inflow into the CR. The containment is represented as a very large volume (100 times the fission products released and 100 times the Turbine Building volume) with a radionuclide concentration equal to that of the cloud. The volume and source was increased by this factor to ensure that the concentration in the "primary containment" volume in the model stays relatively constant during the release (i.e., the reduction of radionuclide concentration in the cloud will be negligible over the cloud passage period). The radionuclide concentration leaving the containment and entering the CR is then maintained in the AXIDENT code by specifying a X/Q of 1.0.

For the uniform cloud model, the release rate from the "primary containment" of the AXIDENT code will be calculated based in the intake flow to the CR. Since the X/Q is being set to 1.0, this means that all of the activity leaving the "Primary" (the code uses a release rate equal to the CR intake rate) will enter the CR. Therefore, the resulting model is one with a uniform cloud in the Turbine Building with a concentration the same as described in Ref. 3.1 which leaks with a flow of 4500 cfm (see Section 5.0 for source of input) directly to the CR.

For the Gaussian cloud distribution model, the X/Q as a function of time will be calculated using the equations in Reg. Guide 1.78. This Gaussian distribution will be represented by a step function of time increments on the order of 4 seconds. The code input for the X/Q will be based on the percentage of the uniform concentration as a function of time.

CR Dose Model

The CR is modeled as one volume with instantaneous air mixing, filtered air inflow, unfiltered infiltration, filtered recirculation, and CR exhaust flow. Dose mitigating factors outside of the CR, such as containment spray and filtration as well as secondary containment considerations are not considered in this MSLB simulation. The X/Q of 1.0 means that the concentration of radionuclides is not diminished as they are transferred from the containment (cloud) to the CR intake. Radioactive decay is applied only to the air in the CR. The filtration of CR air including recirculated air is modeled in the AXIDENT code. The purging of the CR after the radioactive cloud has passed is simulated by perfect mixing of all air entering the CR and release of the mixed air from the CR at the same rate the air is entering the CR. Operator exposure is based on the dose conversion factors and a constant breathing rate.

Effect of Measured Flows

An analysis will be performed using the recently measured Control Room parameters on the calculated dose from a MSLB. These flows were provided as part of the problem statement by CP&L and represent the current operating status. The original design base case flows were 3126 cfm of unfiltered infiltration, 900 cfm filtered recirculation, and 1100 cfm filtered intake. For this reanalysis, the measured conditions are for a total unfiltered flow of 3000 cfm with a filtered intake flow of 1500 cfm and a recirculation flow of 500 cfm.

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Dose Conversion Factors

The "AXIDENT" Code uses the conservative Dose Conversion Factors (DCFs) that were in effect and used for the design basis 10CFR100 type reactor siting analyses (i.e., TID 14844 and ICRP Publication 2). This analysis will use the ICRP 30 DCFs which are generally accepted by the NRC and have been used for a number of design basis accident analyses, including H. B. Robinson's CR Dose Analyses (the ICRP 30 DCFs are the default values in the NRC CR dose analysis program). The use of ICRP 2 as the method of limiting the quantity of activity in the coolant and the use of ICRP 30 as the DCF in the dose calculations does not represent a conflict because the I131 dose equivalency of the TS establishes the allowable initial iodine concentrations and is not related to the the consequence of the activity.

The various DCF's are as follows:

	"AXIDENT"(ICRP 2)	ICRP 30
I-131	1.48E+06	1.1E+06
I-132	5.35E+04	6.3E+03
I-133	4.00E+05	1.8E+05
I-134	2.50E+04	1.1E+03
I-135	1.24E+05	3.1E+04

3.0 REFERENCES

3.1 Carolina Power and Light Company, 0VA-0009, "BNP Control Room Integrated Dose Analysis for MSLB Outside Secondary Containment," Rev. 1, dated November 18, 1996.

3.2 HALLIBURTON NUS Calculation, 5T73-M-04, "Impact of Standby Gas Treatment Flows on LOCA Accident Analyses," Rev. 0, dated 4/14/93

3.3 HALLIBURTON NUS "AXIDENT, A Digital Computer Dose Calculation Model," Version 2, Mod 4, dated 2/18/92

3.4 TID- 14844, "Calculation of Distance Factors for Power and Test Reactors Sites," 1962.

3.5 ICRP Publication 2, "Report of Committee II, Permissible Dose for Internal Radiation," 1959.

3.6 Not Used

3.7 ICRP Publication 30, "Limits for Intakes of Radionuclides by Workers," 1979.

3.8 NUREG-0800, Standard Review Plan, Section 2.3.4, "Short-term Dispersion Estimates for Accidental Atmospheric Releases," Rev. 1, July 1981.

3.9 NUREG-0800, Standard Review Plan, Section 15.6.4, "Radiological Consequences of Main Steam Line Failure Outside Containment (BWR)," Rev. 2, July 1982.

3.10 CP&L Calculation, 0VA-0107, "Determination of Steam Cloud for MSLB Dose Calculation," Rev. 0

3.11 Safety Guide 5, "Assumptions used for Evaluating the Potential Radiological Consequences of a Steam Line Break Accidents for Boiling Water Reactors," 3/10/71.

3.12 NUREG-0800, Standard Review Plan, Section 15.6.2, "Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment," Rev.2 July 1981.

3.13 Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," 6/1/74.

4.0 ASSUMPTIONS AND INPUTS

4.1 Verification of AXIDENT Code and Input Files

The AXIDENT program, used to perform the dose analyses, will be executed on a Dell Optiplex GXMT 5133 computer running a Windows95 operating system as currently assigned to Carl Snyder (Matrix Leasing - 210158). Satisfactory operation of the AXIDENT code on this computer has been confirmed by revalidation of the code as documented in Reference 3.7. There have been no hardware or software changes since this revalidation and therefore the verification/baseline is still valid.

The quantity of steam and liquid released during the MSLB was provided by Mr. Pete Dorosko via a phone conversation with Mr. Dave Studley of SCIENTECH. Total reactor coolant released = 47,050 lbs. of which 9450 lbs is in the form of 98% quality steam and 37,600 lbs is in the form of liquid.

5.0 ANALYSIS

As discussed in the approach, the MSLB analysis is being performed following the approach used in the hand calculations performed in Reference 3.1 with the changes discussed previously in this calculation.

From Reference 3.2, the CR input parameters and general inputs are summarized as follows:

- Iodine Fractions
  Assumed that the distribution is the same as the LOCA analysis. There is no impact on the results due to the distribution since the efficiency is the same for all forms of iodines.

  = 4% Organic
  91% Elemental
  5% Particulate

- X/Qs = 1.0

- Occupancy Factors - Used 1.0 instead of the following factors usually used for the entire time since very little dose from later times

  0-1 day = 1.0
  1-4 days = 0.6
  4-30 days = 0.4

- Control Room Volume = 298,650 ft^3

- Control Rm Emerg. Zone Volume = 298,650 ft^3

- Unfiltered inleakage = 3000 cfm
  (Note - value used in LOCA analysis is 3126 cfm)

- Filtered Recirculation = 500 cfm
  (Note - value used in LOCA analysis is 900 cfm)

- Control Room Filtered intake flow = 1500 cfm (approx. 5 second delay)
  (Note - value used in LOCA analysis is 1100 cfm)

The above CR filter unit parameters result in a dose 4.9% higher than was calculated with the LOCA values used in Revision 2 of this calculation. Use of these "measured flows" is hence conservative.

- Control Room Filter Efficiency = 90% Elem., 90% Part., 90% Org.

The CR filter efficiency for this analysis is being reduced to 90% for all forms of iodine to allow for a future reduction in the Technical Specification limit. The use of a value below the TS limit is conservative.

- Control Room non-removal rate from Ref. 3.2 is 0.70 for all forms of iodines (see determination below).

- CR cleanup rate following isolation = 2.51E-5 sec^{-1} (all at 90%) (See Reference 3.2)

5.1 MSLB Analysis

Uniform Cloud Analysis

The total fluid released from the MSLB is 47,050 lbs. Of this total, 9450 lbs is steam and 37,600 lbs is liquid. The steam is composed of 2 percent liquid (9450 *0.02 = 189). Therefore, the total liquid release is 37,600 + 189 = 37,789 lbs (1.714E7 g). The cloud formed by the initial steam and the liquid that flashes to steam has a diameter of 108.15 ft At a wind speed of 1 m/s (3.281 ft/s), the cloud passes over the control room intake in (108.15 ft)/(3.281 ft/s) = 33 seconds. Assuming the cloud is a sphere, the volume is $(4/3)\pi r^3 = (4/3)\pi(108.15/2)^3 = 6.623E5$ ft^3 (1.875E4 m^3).

The reactor coolant has an iodine concentration of 4.0 µCi/g I-131 Dose Equivalent (DE). The iodine isotope distribution provided is based on the recent power uprate analysis (Ref. 3.1). The quantity of each isotope is based on the I-131 equivalency using ICRP 2 DCFs. First the distribution is normalized. The normalized distribution is then multiplied by the ICRP 2 DCFs to yield a "normalized" dose.

Isotope	Iodine Distribution	Normalized Distribution (Ci)	ICRP 2 DCF (rem/Ci)	Normalized Dose (rem)
I-131	3.1950	2.139E-2	1.48E6	3.166E4
I-132	31.079	2.080E-1	5.35E4	1.113E4
I-133	21.887	1.465E-1	4.00E5	5.860E4
I-134	61.280	4.102E-1	2.50E4	1.026E4
I-135	31.955	2.139E-1	1.24E5	2.652E4
			Total	1.382E5

An ICRP 2 dose is then calculated for the amount of release.

(4.0 µCi/g I-131 eq.)(1.714E7 g) = 68.56 Ci, where 1.714E7 g = 37,789 lbs

(68.56 Ci)(1.48E6 rem/Ci) = 1.0147E8 rem

The ICRP 2 dose is divided by the total "normalized" dose to provide a multiplier.

(1.0147E8 rem)/(1.382E5 rem) = 734.23

This multiplier is applied to the normalized isotope distribution to generate the ICRP 2 isotope distribution. The ICRP 2 distribution is then increased by a factor of 100 to maintain a constant concentration in the "primary" containment. The distribution is also increased by a factor of 4 to compensate for the 75% auto plateout performed by the AXIDENT code.

Isotope	Normalized Distribution (Ci)	ICRP 2 Distribution (Ci)	AXIDENT Distribution (Ci)
I-131	2.139E-2	15.705	6282
I-132	2.080E-1	152.720	61088
I-133	1.465E-1	107.565	43026
I-134	4.102E-1	301.181	120472
I-135	2.139E-1	157.052	62821

The resulting 30 day control room operator thyroid dose for the uniform cloud scenario was calculated to be 34.0 rem. (See Attachments J,N)

Gaussian Analysis

As stated previously, a Gaussian cloud distribution model was developed based on the equations in RG 1.78. The Gaussian diffusion equation is:

$$\frac{X}{Q_I}=\left(7.87(\sigma_{x,y}^2+\sigma_I^2)(\sigma_z^2+\sigma_I^2)^{\frac{1}{2}}\right)^{-1}\exp\left[-\frac{1}{2}\left(\frac{x^2}{\sigma_x^2+\sigma_I^2}+\frac{y^2}{\sigma_y^2+\sigma_I^2}+\frac{z^2}{\sigma_z^2+\sigma_I^2}\right)\right]$$

where:

X/Q_I is the unit concentration at coordinates x, y, z from the center of the puff

σ_x, σ_y, σ_z are the standard deviations of the isotope concentration in the horizontal alongwind, horizontal crosswind, and vertical crosswind directions, respectively (assume $\sigma_x = \sigma_y$)

σ_I is the inital standard deviation of the puff

$$\sigma_I = \left[\frac{Q_I}{7.87X_o}\right]^{1/3}$$

where Q_I is the puff release quantity in curies and X_o is the initial curie concentration

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x, y, z are the distances from the puff center in the horizontal alongwind, horizontal crosswind, and vertical crosswind directions, respectively

$x = D - ut$ where D is the source-receptor distance, u is the windspeed, and t is the time after release

For the BNP MSLB model:

$\sigma_x = \sigma_y = 1.6$ m and $\sigma_z = 0$ m

The standard deviation values were determined by extrapolation of the Pasquill Type F curves in Figures 1 and 2 of RG 1.78. The Pasquill Type F stability category was assumed since this represents the worst case stability category at most sites.

D = 130 ft = 39.624 m

u = 1 m/s (conservative windspeed described above)

$Q_1 = 15.705$ Ci (I-131)

The initial concentration (X_o) is based on the volume of release (6.623E5 ft^3 = 1.875E4 m^3)

$$X_o = \frac{15.705\ Ci}{1.875E4\ m^3} = 8.376E\text{-}4\ Ci/m^3$$

Therefore,

$$\sigma_I = \left[\frac{15.705}{(7.87)(8.376E\text{-}4)}\right]^{\frac{1}{3}} = 13.35m$$

$$\frac{X}{Q_1} = \left(7.87(1.6^2+13.35^2)(0^2+13.35^2)^{\frac{1}{2}}\right)^{-1} \exp\left[-\frac{1}{2}\left(\frac{39.624^2-(2)(39.624)t+t^2}{1.6^2+13.35^2} + \frac{0^2}{1.6^2+13.35^2} + \frac{0^2}{0^2+13.35^2}\right)\right]$$

$$\frac{X}{Q_1} = (5.26E\text{-}5)\exp\left[(-\frac{1}{2})(\frac{1570.06-79.25t+t^2}{180.78})\right]$$

The above equation is the Gaussian diffusion model for BNP. Since X/Q_i is independent of concentration (units are m^{-3}), the same X/Q_i's apply to each iodine isotope. Therefore solving the equation with respect to time generates a X/Q_i distribution which is applicable to all iodine isotopes. For AXIDENT code input, twenty-two time steps were used to model the above equation. This step function is plotted against the Gaussian curve and the uniform distribution applied in the previous case. As can be seen in Attachment R, the area under the uniform distribution closely approximates the area under the Gaussian distribution. This is verified by the results of the Gaussian distribution run which yielded a control room operator thyroid dose of 34.2 rem vs. the uniform distribution result of 34.0 rem. (See Attachments K,O)

Parametric Analysis

Because of the close approximation of the Gaussian distribution by the uniform distribution, the two other cases (3.0 μCi/g and 2.0 μCi/g I-131 eq. concentrations) will be modeled using the uniform distribution. For both cases the only changes required are to the iodine concentrations.

For 3.0 μCi/g I-131 equivalent an ICRP 2 dose is calculated for the amount of release.

(3.0 μCi/g I-131 eq.)(1.714E7 g) = 51.42 Ci

(51.42 Ci)(1.48E6 rem/Ci) = 7.610E7 rem

The ICRP 2 dose is divided by the total "normalized" dose to provide a multiplier.

(7.610E7 rem)/(1.382E5 rem) = 550.67

This multiplier is applied to the normalized isotope distribution to generate the ICRP 2 isotope distribution. The ICRP 2 distribution is increased by a factor of 100 to maintain a constant concentration in the cloud as it passes over the control room intake. The ICRP 2 distribution is also increased by a factor of 4 to account for the 75% auto plateout performed by the AXIDENT code.

Isotope	Normalized Distribution (Ci)	ICRP 2 Distribution (Ci)	AXIDENT Distribution (Ci)
I-131	2.139E-2	11.779	4712
I-132	2.080E-1	114.539	45816
I-133	1.465E-1	80.673	32269
I-134	4.102E-1	225.885	90354
I-135	2.139E-1	117.788	47115

The resulting 30 day control room operator thyroid dose was calculated to be 25.5 rem. (See Attachments L,P)

For 2.0 μCi/g I-131 equivalent an ICRP 2 dose is calculated for the amount of release.

(2.0 μCi/g I-131 eq.)(1.714E7 g) = 34.28 Ci

(34.28 Ci)(1.48E6 rem/Ci) = 5.0734E7 rem

The ICRP 2 dose is divided by the total "normalized" dose to provide a multiplier.

(5.0734E7 rem)/(1.382E5 rem) = 367.11

This multiplier is applied to the normalized isotope distribution to generate the ICRP 2 isotope distribution. The ICRP 2 distribution is increased by a factor of 100 to maintain a constant concentration in the cloud as it passes over the control room intake. The ICRP 2 distribution is also increased by a factor of 4 to account for the 75% auto plateout performed by the AXIDENT code.

Isotope	Normalized Distribution (Ci)	ICRP 2 Distribution (Ci)	AXIDENT Distribution (Ci)
I-131	2.139E-2	7.853	3141
I-132	2.080E-1	76.359	30544
I-133	1.465E-1	53.782	21513
I-134	4.102E-1	150.589	60235
I-135	2.139E-1	78.525	31410

The resulting 30 day control room operator thyroid dose was calculated to be 17.0 rem. (See Attachments M,Q)

5.2 Impact of Increased Measured Flows

In the previous revisions to this calculation, the affect on the CR dose was assessed using the original MSLB accident model flows (LOCA Calc.) along with recent field measured flows. This assessment was not maintained in this revision since it uses a different release path model. With the measured flows, the CR thyroid dose increased by 4.9 %. Refer to the previous revision for details.

5.3 Impact of Degraded CR Filter Unit

In Revision 2 of this calculation, an operability assessment was performed to determine the effect on the CR room operator dose that would occur with a degraded CR Filter Unit performance. The revision was requested to determine the increase in dose for the following scenarios (these scenarios were performed to support the concern that the CR filter unit does not have an electric heater):

- With the flows in the degraded condition as stated in Section 5.0 above, determine the CR thyroid dose consequence following an MSLB with no credit for any iodine removal by the CR filter unit (elemental, particulate, and organic).

- With the flows in the degraded condition as stated in Section 5.0 above, determine the CR dose consequence following an MSLB with partial credit iodine removal by the CR filter unit (90% elemental, 90% particulate, and 30% organic).

The details of the operability assessment were removed from Revision 3 since subsequent testing of the charcoal in the CR filter units demonstrated the ability to meet its design basis without the electric heater. Refer to Revision 2 for details.

6.0 Results

The calculated radiological consequences of the BNP MSLB at various pre-accident iodine spike activities are as follows:

Iodine Concentration (μCi/g I-131 eq.)	CR Operator Thyroid Dose (rem)	Analysis Model
4.0	34.0	Uniform Cloud
4.0	34.2	Gaussian Puff
3.0	25.5	Uniform Cloud
2.0	17.0	Uniform Cloud

```
AXIDENT VER 2 MOD 4
PRODUCTION DATE 02/18/92
BEGIN EXECUTION DATE:  03/19/1997
BEGIN EXECUTION TIME:  17:46:45.44



 1 MSLB 4.0uCi/g, 4500 cfm
 2 8 2 1.0 1.0
 3 -2350 2.6E6 2.9865E5 2.9865E5
 4 0.0 0.0 0.0 1.0 6.6234E7 1.0 1.0
 5 5 33.0 1.8E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 2*1.1323E-6 6*0.0
 7 8*1.0
 8 8*0.0
 9 8*4500
10 8*1.0
11 8*1.0
12 8*0.0
13 8*0.0
14 8*0.0
15 8*0.0
16 8*0.0
17 8*0.0
18 0.0 7*2.54E-5
19 0.0 7*2.54E-5
20 0.0 7*2.54E-5
21 1.0 1.0 1.0 0.700 0.700 0.700
22 1.0 1.0 1.0
23 6282 61088 43026 120472 62821 0.0 0.0 0.0
24 8*0.0
```

1

MSLB 4.0uCi/g, 4500 cfm

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	6.282E+03
I-132	6.109E+04
I-133	4.383E+04
I-134	1.205E+05
I-135	6.282E+04
XE-131M	0.000E+00
XE-133M	0.000E+00
XE-133	0.000E+00
XE-135M	0.000E+00
XE-135	0.000E+00
XE-138	0.000E+00
KR-83M	0.000E+00
KR-85M	0.000E+00
KR-85	0.000E+00
KR-87	0.000E+00
KR-88	0.000E+00

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .001 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.700
PARTICULATE	.000	.000	.000	.000	1.000	.700
ORGANIC	.000	.000	.000	.000	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	8.09E-03	1.20E-02	1.42E-06	4.16E+00	7.50E-04	3.67E-04	1.83E-03	2.10E-08	1.61E-07
I-132	1.39E+04	0.00E+00	7.87E-02	1.17E-01	1.38E-05	1.46E+00	4.72E-02	8.11E-03	6.41E-04	1.12E-06	3.56E-06
I-133	9.79E+03	0.00E+00	5.54E-02	8.23E-02	9.74E-06	7.69E+00	6.61E-03	5.39E-03	3.38E-03	2.28E-07	2.37E-06
I-134	2.74E+04	0.00E+00	1.55E-01	2.30E-01	2.72E-05	1.35E+00	7.52E-02	1.62E-02	5.91E-04	2.36E-06	7.13E-06
I-135	1.43E+04	0.00E+00	8.09E-02	1.20E-01	1.42E-05	3.48E+00	3.60E-02	5.73E-03	1.53E-03	6.65E-07	2.52E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	4.45E-04	6.60E-04	7.81E-08	2.28E-01	4.12E-05	2.01E-05	1.00E-04	1.15E-09	8.85E-09
I-132	7.63E+02	0.00E+00	4.32E-03	6.42E-03	7.59E-07	8.02E-02	2.59E-03	4.45E-04	3.52E-05	6.13E-08	1.96E-07
I-133	5.38E+02	0.00E+00	3.04E-03	4.52E-03	5.35E-07	4.23E-01	3.63E-04	2.96E-04	1.86E-04	1.25E-08	1.30E-07
I-134	1.50E+03	0.00E+00	8.52E-03	1.27E-02	1.50E-06	7.39E-02	4.13E-03	8.92E-04	3.25E-05	1.29E-07	3.92E-07
I-135	7.85E+02	0.00E+00	4.45E-03	6.60E-03	7.81E-07	1.91E-01	1.98E-03	3.15E-04	8.40E-05	3.66E-08	1.38E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	3.56E-04	5.28E-04	6.25E-08	1.83E-01	3.30E-05	1.61E-05	8.02E-05	9.24E-10	7.08E-09
I-132	6.11E+02	0.00E+00	3.46E-03	5.14E-03	6.07E-07	6.42E-02	2.07E-03	3.56E-04	2.82E-05	4.90E-08	1.57E-07
I-133	4.30E+02	0.00E+00	2.44E-03	3.62E-03	4.28E-07	3.38E-01	2.90E-04	2.37E-04	1.49E-04	1.00E-08	1.04E-07
I-134	1.20E+03	0.00E+00	6.82E-03	1.01E-02	1.20E-06	5.91E-02	3.30E-03	7.13E-04	2.60E-05	1.04E-07	3.13E-07
I-135	6.28E+02	0.00E+00	3.56E-03	5.28E-03	6.25E-07	1.53E-01	1.58E-03	2.52E-04	6.72E-05	2.93E-08	1.11E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.99E+01	1.82E-01	3.94E-02	8.75E-03	4.82E-06	1.73E-05

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .009 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	4.53E-02	7.90E-02	9.34E-06	2.33E+01	4.20E-03	2.05E-03	7.75E-02	8.92E-07	6.84E-06
I-132	1.39E+04	0.00E+00	4.40E-01	7.66E-01	9.06E-05	8.17E+00	2.64E-01	4.53E-02	2.72E-02	4.73E-05	1.51E-04
I-133	9.79E+03	0.00E+00	3.10E-01	5.41E-01	6.40E-05	4.31E+01	3.70E-02	3.02E-02	1.43E-01	9.68E-06	1.01E-04
I-134	2.72E+04	0.00E+00	8.65E-01	1.50E+00	1.78E-04	7.51E+00	4.19E-01	9.05E-02	2.50E-02	9.96E-05	3.01E-04
I-135	1.43E+04	0.00E+00	4.53E-01	7.90E-01	9.34E-05	1.95E+01	2.01E-01	3.21E-02	6.49E-02	2.82E-05	1.07E-04
PARTICULATE											
I-131	7.85E+01	0.00E+00	2.49E-03	4.34E-03	5.13E-07	1.28E+00	2.31E-04	1.13E-04	4.26E-03	4.90E-08	3.76E-07
I-132	7.61E+02	0.00E+00	2.42E-02	4.21E-02	4.98E-06	4.49E-01	1.45E-02	2.49E-03	1.49E-03	2.60E-06	8.29E-06
I-133	5.38E+02	0.00E+00	1.70E-02	2.97E-02	3.52E-06	2.37E+00	2.03E-03	1.66E-03	7.88E-03	5.32E-07	5.52E-06
I-134	1.49E+03	0.00E+00	4.75E-02	8.27E-02	9.77E-06	4.12E-01	2.30E-02	4.98E-03	1.37E-03	5.47E-06	1.66E-05
I-135	7.84E+02	0.00E+00	2.49E-02	4.34E-02	5.13E-06	1.07E+00	1.11E-02	1.76E-03	3.56E-03	1.55E-06	5.87E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	1.99E-03	3.47E-03	4.11E-07	1.02E+00	1.85E-04	9.02E-05	3.41E-03	3.92E-08	3.00E-07
I-132	6.09E+02	0.00E+00	1.93E-02	3.37E-02	3.98E-06	3.59E-01	1.16E-02	1.99E-03	1.19E-03	2.08E-06	6.63E-06
I-133	4.30E+02	0.00E+00	1.36E-02	2.38E-02	2.81E-06	1.89E+00	1.63E-03	1.33E-03	6.30E-03	4.25E-07	4.42E-06
I-134	1.20E+03	0.00E+00	3.80E-02	6.61E-02	7.82E-06	3.30E-01	1.84E-02	3.98E-03	1.10E-03	4.38E-06	1.32E-05
I-135	6.28E+02	0.00E+00	1.99E-02	3.47E-02	4.10E-06	8.57E-01	8.85E-03	1.41E-03	2.85E-03	1.24E-06	4.69E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.12E+02	1.02E+00	2.20E-01	3.71E-01	2.04E-04	7.32E-04

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	0.00E+00	4.84E-02	5.72E-06	0.00E+00	0.00E+00	0.00E+00	6.70E+00	7.72E-05	5.91E-04
I-132	1.20E+04	0.00E+00	0.00E+00	4.06E-01	4.79E-05	0.00E+00	0.00E+00	0.00E+00	2.20E+00	3.82E-03	1.22E-02
I-133	9.63E+03	0.00E+00	0.00E+00	3.27E-01	3.86E-05	0.00E+00	0.00E+00	0.00E+00	1.23E+01	8.31E-04	8.64E-03
I-134	1.84E+04	0.00E+00	0.00E+00	6.23E-01	7.37E-05	0.00E+00	0.00E+00	0.00E+00	1.81E+00	7.23E-03	2.19E-02
I-135	1.36E+04	0.00E+00	0.00E+00	4.60E-01	5.44E-05	0.00E+00	0.00E+00	0.00E+00	5.49E+00	2.39E-03	9.03E-03
PARTICULATE											
I-131	7.84E+01	0.00E+00	0.00E+00	2.66E-03	3.14E-07	0.00E+00	0.00E+00	0.00E+00	3.68E-01	4.24E-06	3.25E-05
I-132	6.57E+02	0.00E+00	0.00E+00	2.23E-02	2.63E-06	0.00E+00	0.00E+00	0.00E+00	1.21E-01	2.10E-04	6.71E-04
I-133	5.29E+02	0.00E+00	0.00E+00	1.79E-02	2.12E-06	0.00E+00	0.00E+00	0.00E+00	6.77E-01	4.57E-05	4.75E-04
I-134	1.01E+03	0.00E+00	0.00E+00	3.43E-02	4.05E-06	0.00E+00	0.00E+00	0.00E+00	9.96E-02	3.97E-04	1.20E-03
I-135	7.46E+02	0.00E+00	0.00E+00	2.53E-02	2.99E-06	0.00E+00	0.00E+00	0.00E+00	3.01E-01	1.31E-04	4.96E-04
ORGANIC											
I-131	6.27E+01	0.00E+00	0.00E+00	2.13E-03	2.52E-07	0.00E+00	0.00E+00	0.00E+00	2.95E-01	3.39E-06	2.60E-05
I-132	5.25E+02	0.00E+00	0.00E+00	1.78E-02	2.11E-06	0.00E+00	0.00E+00	0.00E+00	9.67E-02	1.68E-04	5.37E-04
I-133	4.23E+02	0.00E+00	0.00E+00	1.44E-02	1.70E-06	0.00E+00	0.00E+00	0.00E+00	5.42E-01	3.65E-05	3.80E-04
I-134	8.08E+02	0.00E+00	0.00E+00	2.74E-02	3.24E-06	0.00E+00	0.00E+00	0.00E+00	7.97E-02	3.18E-04	9.61E-04
I-135	5.97E+02	0.00E+00	0.00E+00	2.02E-02	2.39E-06	0.00E+00	0.00E+00	0.00E+00	2.41E-01	1.05E-04	3.97E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	3.13E+01	1.58E-02	5.75E-02

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

ISOTOPE	ACTIVITY (CURIES) PRIMARY	SECONDARY	RELEASE	CONTROL ROOM (CURIES)	(UCI/CM3)	SITE BOUNDARY DOSES (REM) THYROID	WH BODY	BETA	CONTROL ROOM DOSES (REM) THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.42E+03	0.00E+00	0.00E+00	1.08E-02	1.28E-06	0.00E+00	0.00E+00	0.00E+00	8.22E+00	9.47E-05	7.26E-04
I-132	7.61E+03	0.00E+00	0.00E+00	5.80E-02	6.85E-06	0.00E+00	0.00E+00	0.00E+00	2.12E+00	3.68E-03	1.18E-02
I-133	9.16E+03	0.00E+00	0.00E+00	6.98E-02	8.26E-06	0.00E+00	0.00E+00	0.00E+00	1.48E+01	9.95E-04	1.03E-02
I-134	5.54E+03	0.00E+00	0.00E+00	4.22E-02	4.99E-06	0.00E+00	0.00E+00	0.00E+00	1.20E+00	4.77E-03	1.44E-02
I-135	1.16E+04	0.00E+00	0.00E+00	8.86E-02	1.05E-05	0.00E+00	0.00E+00	0.00E+00	6.20E+00	2.70E-03	1.02E-02
PARTICULATE											
I-131	7.80E+01	0.00E+00	0.00E+00	5.94E-04	7.03E-08	0.00E+00	0.00E+00	0.00E+00	4.52E-01	5.20E-06	3.99E-05
I-132	4.18E+02	0.00E+00	0.00E+00	3.19E-03	3.77E-07	0.00E+00	0.00E+00	0.00E+00	1.16E-01	2.02E-04	6.46E-04
I-133	5.03E+02	0.00E+00	0.00E+00	3.84E-03	4.54E-07	0.00E+00	0.00E+00	0.00E+00	8.11E-01	5.47E-05	5.68E-04
I-134	3.05E+02	0.00E+00	0.00E+00	2.32E-03	2.74E-07	0.00E+00	0.00E+00	0.00E+00	6.57E-02	2.62E-04	7.93E-04
I-135	6.39E+02	0.00E+00	0.00E+00	4.87E-03	5.75E-07	0.00E+00	0.00E+00	0.00E+00	3.41E-01	1.48E-04	5.61E-04
ORGANIC											
I-131	6.24E+01	0.00E+00	0.00E+00	4.75E-04	5.62E-08	0.00E+00	0.00E+00	0.00E+00	3.61E-01	4.16E-06	3.19E-05
I-132	3.34E+02	0.00E+00	0.00E+00	2.55E-03	3.01E-07	0.00E+00	0.00E+00	0.00E+00	9.31E-02	1.62E-04	5.17E-04
I-133	4.03E+02	0.00E+00	0.00E+00	3.07E-03	3.63E-07	0.00E+00	0.00E+00	0.00E+00	6.48E-01	4.38E-05	4.55E-04
I-134	2.44E+02	0.00E+00	0.00E+00	1.86E-03	2.20E-07	0.00E+00	0.00E+00	0.00E+00	5.26E-02	2.10E-04	6.34E-04
I-135	5.11E+02	0.00E+00	0.00E+00	3.89E-03	4.60E-07	0.00E+00	0.00E+00	0.00E+00	2.72E-01	1.19E-04	4.49E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	3.57E+01	1.34E-02	5.21E-02

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.39E+03	0.00E+00	0.00E+00	2.69E-05	3.19E-09	0.00E+00	0.00E+00	0.00E+00	2.36E+00	2.72E-05	2.08E-04
I-132	1.25E+03	0.00E+00	0.00E+00	2.42E-05	2.86E-09	0.00E+00	0.00E+00	0.00E+00	3.53E-01	6.14E-04	1.96E-03
I-133	7.52E+03	0.00E+00	0.00E+00	1.46E-04	1.72E-08	0.00E+00	0.00E+00	0.00E+00	4.00E+00	2.70E-04	2.81E-03
I-134	4.58E+01	0.00E+00	0.00E+00	8.89E-07	1.05E-10	0.00E+00	0.00E+00	0.00E+00	8.69E-02	3.46E-04	1.05E-03
I-135	6.25E+03	0.00E+00	0.00E+00	1.21E-04	1.43E-08	0.00E+00	0.00E+00	0.00E+00	1.47E+00	6.42E-04	2.43E-03
PARTICULATE											
I-131	7.63E+01	0.00E+00	0.00E+00	1.48E-06	1.75E-10	0.00E+00	0.00E+00	0.00E+00	1.30E-01	1.49E-06	1.14E-05
I-132	6.85E+01	0.00E+00	0.00E+00	1.33E-06	1.57E-10	0.00E+00	0.00E+00	0.00E+00	1.94E-02	3.37E-05	1.08E-04
I-133	4.13E+02	0.00E+00	0.00E+00	8.01E-06	9.48E-10	0.00E+00	0.00E+00	0.00E+00	2.20E-01	1.48E-05	1.54E-04
I-134	2.52E+00	0.00E+00	0.00E+00	4.89E-08	5.78E-12	0.00E+00	0.00E+00	0.00E+00	4.77E-03	1.90E-05	5.76E-05
I-135	3.44E+02	0.00E+00	0.00E+00	6.67E-06	7.88E-10	0.00E+00	0.00E+00	0.00E+00	8.10E-02	3.53E-05	1.33E-04
ORGANIC											
I-131	6.10E+01	0.00E+00	0.00E+00	1.18E-06	1.40E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-01	1.19E-06	9.15E-06
I-132	5.48E+01	0.00E+00	0.00E+00	1.06E-06	1.26E-10	0.00E+00	0.00E+00	0.00E+00	1.55E-02	2.70E-05	8.61E-05
I-133	3.30E+02	0.00E+00	0.00E+00	6.41E-06	7.58E-10	0.00E+00	0.00E+00	0.00E+00	1.76E-01	1.19E-05	1.23E-04
I-134	2.01E+00	0.00E+00	0.00E+00	3.91E-08	4.62E-12	0.00E+00	0.00E+00	0.00E+00	3.82E-03	1.52E-05	4.61E-05
I-135	2.75E+02	0.00E+00	0.00E+00	5.33E-06	6.31E-10	0.00E+00	0.00E+00	0.00E+00	6.48E-02	2.82E-05	1.07E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	9.10E+00	2.09E-03	9.29E-03

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.31E+03	0.00E+00	0.00E+00	3.08E-12	3.64E-16	0.00E+00	0.00E+00	0.00E+00	5.90E-03	6.79E-08	5.20E-07
I-132	1.01E+01	0.00E+00	0.00E+00	2.36E-14	2.79E-18	0.00E+00	0.00E+00	0.00E+00	1.48E-04	2.56E-07	8.19E-07
I-133	4.43E+03	0.00E+00	0.00E+00	1.04E-11	1.23E-15	0.00E+00	0.00E+00	0.00E+00	8.38E-03	5.65E-07	5.87E-06
I-134	1.28E-04	0.00E+00	0.00E+00	3.01E-19	3.56E-23	0.00E+00	0.00E+00	0.00E+00	1.83E-06	7.30E-09	2.21E-08
I-135	1.20E+03	0.00E+00	0.00E+00	2.81E-12	3.32E-16	0.00E+00	0.00E+00	0.00E+00	2.02E-03	8.80E-07	3.33E-06
PARTICULATE											
I-131	7.20E+01	0.00E+00	0.00E+00	1.69E-13	2.00E-17	0.00E+00	0.00E+00	0.00E+00	3.24E-04	3.73E-09	2.86E-08
I-132	5.52E-01	0.00E+00	0.00E+00	1.30E-15	1.53E-19	0.00E+00	0.00E+00	0.00E+00	8.11E-06	1.41E-08	4.50E-08
I-133	2.44E+02	0.00E+00	0.00E+00	5.71E-13	6.76E-17	0.00E+00	0.00E+00	0.00E+00	4.60E-04	3.11E-08	3.23E-07
I-134	7.04E-06	0.00E+00	0.00E+00	1.65E-20	1.95E-24	0.00E+00	0.00E+00	0.00E+00	1.01E-07	4.01E-10	1.21E-09
I-135	6.58E+01	0.00E+00	0.00E+00	1.54E-13	1.83E-17	0.00E+00	0.00E+00	0.00E+00	1.11E-04	4.84E-08	1.83E-07
ORGANIC											
I-131	5.76E+01	0.00E+00	0.00E+00	1.35E-13	1.60E-17	0.00E+00	0.00E+00	0.00E+00	2.59E-04	2.98E-09	2.29E-08
I-132	4.42E-01	0.00E+00	0.00E+00	1.04E-15	1.23E-19	0.00E+00	0.00E+00	0.00E+00	6.48E-06	1.13E-08	3.60E-08
I-133	1.95E+02	0.00E+00	0.00E+00	4.57E-13	5.41E-17	0.00E+00	0.00E+00	0.00E+00	3.68E-04	2.49E-08	2.58E-07
I-134	5.63E-06	0.00E+00	0.00E+00	1.32E-20	1.56E-24	0.00E+00	0.00E+00	0.00E+00	8.04E-08	3.21E-10	9.70E-10
I-135	5.26E+01	0.00E+00	0.00E+00	1.23E-13	1.46E-17	0.00E+00	0.00E+00	0.00E+00	8.89E-05	3.87E-08	1.46E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.81E-02	1.95E-06	1.16E-05

QVA-0105, Rev 3 2024

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.01E+03	0.00E+00	0.00E+00	1.77E-43	2.09E-47	0.00E+00	0.00E+00	0.00E+00	6.73E-10	7.75E-15	5.94E-14
I-132	3.80E-09	0.00E+00	0.00E+00	6.64E-55	7.85E-59	0.00E+00	0.00E+00	0.00E+00	1.44E-13	2.50E-16	7.98E-16
I-133	4.11E+02	0.00E+00	0.00E+00	7.18E-44	8.49E-48	0.00E+00	0.00E+00	0.00E+00	5.97E-10	4.83E-14	4.19E-13
I-134	1.31E-29	0.00E+00	0.00E+00	2.29E-75	2.70E-79	0.00E+00	0.00E+00	0.00E+00	6.19E-19	2.47E-21	7.46E-21
I-135	7.04E-01	0.00E+00	0.00E+00	1.23E-46	1.45E-50	0.00E+00	0.00E+00	0.00E+00	4.68E-11	2.04E-14	7.71E-14
PARTICULATE											
I-131	5.56E+01	0.00E+00	0.00E+00	9.71E-45	1.15E-48	0.00E+00	0.00E+00	0.00E+00	3.70E-11	4.26E-16	3.26E-15
I-132	2.09E-10	0.00E+00	0.00E+00	3.65E-56	4.31E-60	0.00E+00	0.00E+00	0.00E+00	7.90E-15	1.37E-17	4.38E-17
I-133	2.26E+01	0.00E+00	0.00E+00	3.94E-45	4.66E-49	0.00E+00	0.00E+00	0.00E+00	3.28E-11	2.22E-15	2.30E-14
I-134	7.20E-31	0.00E+00	0.00E+00	1.26E-76	1.49E-80	0.00E+00	0.00E+00	0.00E+00	3.40E-20	1.36E-22	4.10E-22
I-135	3.87E-02	0.00E+00	0.00E+00	6.75E-48	7.98E-52	0.00E+00	0.00E+00	0.00E+00	2.57E-12	1.12E-15	4.24E-15
ORGANIC											
I-131	4.45E+01	0.00E+00	0.00E+00	7.76E-45	9.18E-49	0.00E+00	0.00E+00	0.00E+00	2.96E-11	3.41E-16	2.61E-15
I-132	1.67E-10	0.00E+00	0.00E+00	2.92E-56	3.45E-60	0.00E+00	0.00E+00	0.00E+00	6.32E-15	1.10E-17	3.51E-17
I-133	1.81E+01	0.00E+00	0.00E+00	3.16E-45	3.73E-49	0.00E+00	0.00E+00	0.00E+00	2.63E-11	1.77E-15	1.84E-14
I-134	5.76E-31	0.00E+00	0.00E+00	1.00E-76	1.19E-80	0.00E+00	0.00E+00	0.00E+00	2.72E-20	1.08E-22	3.28E-22
I-135	3.09E-02	0.00E+00	0.00E+00	5.40E-48	6.38E-52	0.00E+00	0.00E+00	0.00E+00	2.06E-12	8.96E-16	3.39E-15
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.45E-09	7.55E-14	6.11E-13

QM-0105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.08E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.87E-41	4.45E-46	3.41E-45
I-132	8.37E-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-54	7.03E-57	2.24E-56
I-133	4.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.12E-42	2.78E-46	2.89E-45
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-75	1.88E-77	5.67E-77
I-135	7.04E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-45	8.91E-49	3.37E-48
PARTICULATE											
I-131	5.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-42	2.44E-47	1.87E-46
I-132	4.60E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-55	3.86E-58	1.23E-57
I-133	2.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-43	1.53E-47	1.59E-46
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.58E-76	1.03E-78	3.12E-78
I-135	3.87E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-46	4.89E-50	1.85E-49
ORGANIC											
I-131	4.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-42	1.96E-47	1.50E-46
I-132	3.68E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-55	3.09E-58	9.87E-58
I-133	2.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-43	1.22E-47	1.27E-46
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-76	8.24E-79	2.49E-78
I-135	3.10E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.00E-47	3.91E-50	1.48E-49
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	4.70E-41	7.96E-46	6.93E-45

QVA-0105, Rev. 3

TOTAL DOSES 0-30 DAYS	1.31E+02	1.20E+00	2.59E-01	7.65E+01	3.15E-02	1.20E-01

MSLB 4.0uCi/g, 4500 cfm

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	5.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E-02
I-132	5.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-01
I-133	3.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-01
I-134	1.02E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E+00
I-135	5.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E-01
PARTICULATE						
I-131	2.93E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-03
I-132	2.85E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-02
I-133	2.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-02
I-134	5.61E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-02
I-135	2.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-02
ORGANIC						
I-131	2.35E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-03
I-132	2.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-02
I-133	1.61E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-02
I-134	4.49E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-02
I-135	2.35E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-02
NOBLE GASES						
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

END EXECUTION DATE: 03/19/1997
END EXECUTION TIME: 17:46:45.83

QVR. 0105, Rev. 3

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AXIDENT VER 2 MOD 4
PRODUCTION DATE 02/18/92
BEGIN EXECUTION DATE:  03/19/1997
BEGIN EXECUTION TIME:  17:57:26.09



 1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm
 2 22 2 1.0 1.0
 3 -2350 2.6E6 2.9865E5 2.9865E5
 4 0.0 0.0 0.0 1.0 6.6234E7 1.0 1.0
 5 4 8 12 16 20 24 28 32 36 40 43 47 51 55 59 63 67 71 75 79 81 2.592E6
 6 21*1.1323E-6 0.0
 7 22*1.0
 8 22*0.0
 9 22*4500
10 22*1.0
11 0.0128 0.0295 0.0621 0.1195 0.2107 0.3400 0.5022 0.6789 0.8400 0.9513
12 0.9865 0.9559 0.8487 0.6897 0.5131 0.3493 0.2177 0.1242 0.0648 0.0310
13 0.0136 0.0
14 22*0.0
15 22*0.0
16 22*0.0
17 22*0.0
18 22*0.0
19 22*0.0
20 0.0 21*2.54E-5
21 0.0 21*2.54E-5
22 0.0 21*2.54E-5
23 1.0 1.0 1.0 0.700 0.700 0.700
24 1.0 1.0 1.0
25 6282 61088 43026 120472 62821 0.0 0.0 0.0
26 8*0.0
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DVR-2105, Rev. 3

1

MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	6.282E+03
I-132	6.109E+04
I-133	4.303E+04
I-134	1.205E+05
I-135	6.282E+04
XE-131M	0.000E+00
XE-133M	0.000E+00
XE-133	0.000E+00
XE-135M	0.000E+00
XE-135	0.000E+00
XE-138	0.000E+00
KR-83M	0.000E+00
KR-85M	0.000E+00
KR-85	0.000E+00
KR-87	0.000E+00
KR-88	0.000E+00

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .001 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .13E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.700
PARTICULATE	.000	.000	.000	.000	1.000	.700
ORGANIC	.000	.000	.000	.000	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	1.23E-04	1.46E-08	3.32E+00	6.00E-04	2.93E-04	1.50E-05	1.72E-10	1.32E-09
I-132	1.39E+04	0.00E+00	6.29E-02	1.20E-03	1.42E-07	1.17E+00	3.78E-02	6.48E-03	5.26E-06	9.14E-09	2.92E-08
I-133	9.79E+03	0.00E+00	4.43E-02	8.43E-04	9.97E-08	6.15E+00	5.29E-03	4.31E-03	2.77E-05	1.87E-09	1.94E-08
I-134	2.74E+04	0.00E+00	1.24E-01	2.36E-03	2.79E-07	1.08E+00	6.01E-02	1.30E-02	4.84E-06	1.93E-08	5.84E-08
I-135	1.43E+04	0.00E+00	6.47E-02	1.23E-03	1.46E-07	2.79E+00	2.88E-02	4.59E-03	1.25E-05	5.45E-09	2.06E-08
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	6.76E-06	8.00E-10	1.83E-01	3.30E-05	1.61E-05	8.22E-07	9.46E-12	7.25E-11
I-132	7.63E+02	0.00E+00	3.46E-03	6.58E-05	7.78E-09	6.42E-02	2.07E-03	3.56E-04	2.89E-07	5.02E-10	1.60E-09
I-133	5.38E+02	0.00E+00	2.44E-03	4.63E-05	5.48E-09	3.38E-01	2.90E-04	2.37E-04	1.52E-06	1.03E-10	1.07E-09
I-134	1.50E+03	0.00E+00	6.82E-03	1.30E-04	1.53E-08	5.91E-02	3.30E-03	7.13E-04	2.66E-07	1.06E-09	3.21E-09
I-135	7.85E+02	0.00E+00	3.56E-03	6.76E-05	8.00E-09	1.53E-01	1.58E-03	2.52E-04	6.88E-07	3.00E-10	1.13E-09
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	5.41E-06	6.40E-10	1.46E-01	2.64E-05	1.29E-05	6.57E-07	7.57E-12	5.80E-11
I-132	6.11E+02	0.00E+00	2.77E-03	5.26E-05	6.22E-09	5.14E-02	1.66E-03	2.85E-04	2.31E-07	4.02E-10	1.28E-09
I-133	4.30E+02	0.00E+00	1.95E-03	3.71E-05	4.38E-09	2.70E-01	2.32E-04	1.90E-04	1.22E-06	8.21E-11	8.53E-10
I-134	1.20E+03	0.00E+00	5.45E-03	1.04E-04	1.23E-08	4.73E-02	2.64E-03	5.71E-04	2.13E-07	8.48E-10	2.57E-09
I-135	6.28E+02	0.00E+00	2.85E-03	5.41E-05	6.40E-09	1.22E-01	1.27E-03	2.02E-04	5.51E-07	2.40E-10	9.07E-10
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.46E-01	3.15E-02	7.17E-05	3.95E-08	1.42E-07

QVA-0105, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .002 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .30E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	4.07E-04	4.81E-08	3.32E+00	6.00E-04	2.93E-04	6.44E-05	7.41E-10	5.68E-09
I-132	1.39E+04	0.00E+00	6.29E-02	3.95E-03	4.67E-07	1.17E+00	3.77E-02	6.48E-03	2.26E-05	3.93E-08	1.25E-07
I-133	9.79E+03	0.00E+00	4.43E-02	2.79E-03	3.29E-07	6.15E+00	5.29E-03	4.31E-03	1.19E-04	8.04E-09	8.35E-08
I-134	2.74E+04	0.00E+00	1.24E-01	7.79E-03	9.21E-07	1.08E+00	6.01E-02	1.30E-02	2.08E-05	8.30E-08	2.51E-07
I-135	1.43E+04	0.00E+00	6.47E-02	4.07E-03	4.81E-07	2.78E+00	2.88E-02	4.58E-03	5.39E-05	2.35E-08	8.88E-08
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	2.23E-05	2.64E-09	1.83E-01	3.30E-05	1.61E-05	3.54E-06	4.07E-11	3.12E-10
I-132	7.63E+02	0.00E+00	3.46E-03	2.17E-04	2.57E-08	6.42E-02	2.07E-03	3.56E-04	1.24E-06	2.16E-09	6.90E-09
I-133	5.38E+02	0.00E+00	2.44E-03	1.53E-04	1.81E-08	3.38E-01	2.90E-04	2.37E-04	6.54E-06	4.42E-10	4.59E-09
I-134	1.50E+03	0.00E+00	6.81E-03	4.28E-04	5.06E-08	5.91E-02	3.30E-03	7.13E-04	1.14E-06	4.56E-09	1.38E-08
I-135	7.85E+02	0.00E+00	3.56E-03	2.23E-04	2.64E-08	1.53E-01	1.58E-03	2.52E-04	2.96E-06	1.29E-09	4.88E-09
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	1.79E-05	2.11E-09	1.46E-01	2.64E-05	1.29E-05	2.83E-06	3.26E-11	2.50E-10
I-132	6.10E+02	0.00E+00	2.77E-03	1.74E-04	2.05E-08	5.13E-02	1.66E-03	2.85E-04	9.94E-07	1.73E-09	5.52E-09
I-133	4.30E+02	0.00E+00	1.95E-03	1.22E-04	1.45E-08	2.70E-01	2.32E-04	1.90E-04	5.24E-06	3.53E-10	3.67E-09
I-134	1.20E+03	0.00E+00	5.45E-03	3.42E-04	4.05E-08	4.73E-02	2.64E-03	5.70E-04	9.15E-07	3.65E-09	1.10E-08
I-135	6.28E+02	0.00E+00	2.84E-03	1.79E-04	2.11E-08	1.22E-01	1.27E-03	2.02E-04	2.37E-06	1.03E-09	3.90E-09
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.46E-01	3.15E-02	3.09E-04	1.70E-07	6.09E-07

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .003 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .62E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	1.00E-03	1.19E-07	3.32E+00	6.00E-04	2.93E-04	1.71E-04	1.97E-09	1.51E-08
I-132	1.39E+04	0.00E+00	6.29E-02	9.75E-03	1.15E-06	1.17E+00	3.77E-02	6.48E-03	6.02E-05	1.05E-07	3.34E-07
I-133	9.79E+03	0.00E+00	4.43E-02	6.87E-03	8.13E-07	6.15E+00	5.29E-03	4.31E-03	3.17E-04	2.14E-08	2.22E-07
I-134	2.73E+04	0.00E+00	1.24E-01	1.92E-02	2.27E-06	1.07E+00	6.00E-02	1.30E-02	5.54E-05	2.21E-07	6.68E-07
I-135	1.43E+04	0.00E+00	6.47E-02	1.00E-02	1.19E-06	2.78E+00	2.88E-02	4.58E-03	1.43E-04	6.24E-08	2.36E-07
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	5.51E-05	6.52E-09	1.83E-01	3.30E-05	1.61E-05	9.41E-06	1.08E-10	8.30E-10
I-132	7.63E+02	0.00E+00	3.46E-03	5.36E-04	6.33E-08	6.42E-02	2.07E-03	3.56E-04	3.31E-06	5.75E-09	1.83E-08
I-133	5.38E+02	0.00E+00	2.44E-03	3.78E-04	4.46E-08	3.38E-01	2.90E-04	2.37E-04	1.74E-05	1.18E-09	1.22E-08
I-134	1.50E+03	0.00E+00	6.81E-03	1.05E-03	1.25E-07	5.90E-02	3.30E-03	7.12E-04	3.04E-06	1.21E-08	3.67E-08
I-135	7.85E+02	0.00E+00	3.56E-03	5.51E-04	6.52E-08	1.53E-01	1.58E-03	2.52E-04	7.88E-06	3.43E-09	1.30E-08
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	4.41E-05	5.22E-09	1.46E-01	2.64E-05	1.29E-05	7.53E-06	8.67E-11	6.64E-10
I-132	6.10E+02	0.00E+00	2.76E-03	4.29E-04	5.07E-08	5.13E-02	1.66E-03	2.85E-04	2.64E-06	4.60E-09	1.47E-08
I-133	4.30E+02	0.00E+00	1.95E-03	3.02E-04	3.57E-08	2.70E-01	2.32E-04	1.90E-04	1.39E-05	9.40E-10	9.77E-09
I-134	1.20E+03	0.00E+00	5.44E-03	8.44E-04	9.98E-08	4.72E-02	2.64E-03	5.70E-04	2.43E-06	9.79E-09	2.94E-08
I-135	6.28E+02	0.00E+00	2.84E-03	4.41E-04	5.21E-08	1.22E-01	1.27E-03	2.02E-04	6.31E-06	2.74E-09	1.04E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.46E-01	3.35E-02	8.21E-04	4.52E-07	1.62E-06

QVA-0015, Rev 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .004 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .12E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	2.15E-03	2.54E-07	3.32E+00	6.00E-04	2.93E-04	3.83E-04	4.41E-09	3.38E-08
I-132	1.39E+04	0.00E+00	6.29E-02	2.09E-02	2.47E-06	1.17E+00	3.77E-02	6.48E-03	1.35E-04	2.34E-07	7.47E-07
I-133	9.79E+03	0.00E+00	4.43E-02	1.47E-02	1.74E-06	6.15E+00	5.29E-03	4.31E-03	7.09E-04	4.79E-08	4.97E-07
I-134	2.73E+04	0.00E+00	1.24E-01	4.11E-02	4.86E-06	1.07E+00	6.00E-02	1.30E-02	1.24E-04	4.93E-07	1.49E-06
I-135	1.43E+04	0.00E+00	6.47E-02	2.15E-02	2.54E-06	2.78E+00	2.88E-02	4.58E-03	3.21E-04	1.40E-07	5.28E-07
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	1.18E-04	1.40E-08	1.83E-01	3.30E-05	1.61E-05	2.11E-05	2.42E-10	1.86E-09
I-132	7.63E+02	0.00E+00	3.45E-03	1.15E-03	1.36E-07	6.41E-02	2.07E-03	3.56E-04	7.39E-06	1.29E-08	4.10E-08
I-133	5.38E+02	0.00E+00	2.44E-03	8.10E-04	9.57E-08	3.38E-01	2.90E-04	2.37E-04	3.90E-05	2.63E-09	2.73E-08
I-134	1.50E+03	0.00E+00	6.80E-03	2.26E-03	2.67E-07	5.90E-02	3.30E-03	7.12E-04	6.80E-06	2.71E-09	8.20E-08
I-135	7.85E+02	0.00E+00	3.56E-03	1.18E-03	1.40E-07	1.53E-01	1.58E-03	2.52E-04	1.76E-05	7.67E-09	2.90E-08
ORGANIC											
[illegible]	6.28E+01	0.00E+00	2.85E-04	9.46E-05	1.12E-08	1.46E-01	2.64E-05	1.29E-05	1.68E-05	1.94E-10	1.49E-09
[illegible]	6.10E+02	0.00E+00	2.76E-03	9.18E-04	1.09E-07	5.13E-02	1.66E-03	2.85E-04	5.91E-06	1.03E-08	3.28E-08
I-133	4.30E+02	0.00E+00	1.95E-03	6.48E-04	7.66E-08	2.70E-01	2.32E-04	1.90E-04	3.12E-05	2.10E-09	2.19E-08
I-134	1.20E+03	0.00E+00	5.44E-03	1.81E-03	2.14E-07	4.72E-02	2.64E-03	5.69E-04	5.44E-06	2.17E-08	6.56E-08
I-135	6.28E+02	0.00E+00	2.84E-03	9.45E-04	1.12E-07	1.22E-01	1.26E-03	2.01E-04	1.41E-05	6.14E-09	2.32E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	1.84E-03	1.01E-06	3.63E-06

QVA-0105, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/gm, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .006 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .21E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	4.19E-03	4.94E-07	3.32E+00	6.80E-04	2.93E-04	7.69E-04	8.85E-09	6.78E-08
I-132	1.39E+04	0.00E+00	6.28E-02	4.05E-02	4.79E-06	1.17E+00	3.77E-02	6.48E-03	2.70E-04	4.69E-07	1.50E-06
I-133	9.79E+03	0.00E+00	4.43E-02	2.86E-02	3.38E-06	6.15E+00	5.29E-03	4.31E-03	1.42E-03	9.68E-08	9.97E-07
I-134	2.73E+04	0.00E+00	1.24E-01	7.97E-02	9.43E-06	1.07E+00	5.99E-02	1.29E-02	2.48E-04	9.89E-07	2.99E-06
I-135	1.43E+04	0.00E+00	6.47E-02	4.17E-02	4.93E-06	2.78E+00	2.88E-02	4.58E-03	6.44E-04	2.80E-07	1.06E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	2.29E-04	2.71E-08	1.83E-01	3.30E-05	1.61E-05	4.22E-05	4.86E-10	3.73E-09
I-132	7.62E+02	0.00E+00	3.45E-03	2.23E-03	2.63E-07	6.41E-02	2.07E-03	3.56E-04	1.48E-05	2.58E-08	8.23E-08
I-133	5.38E+02	0.00E+00	2.44E-03	1.57E-03	1.86E-07	3.38E-01	2.90E-04	2.37E-04	7.82E-05	5.27E-09	5.48E-08
I-134	1.50E+03	0.00E+00	6.79E-03	4.38E-03	5.18E-07	5.89E-02	3.29E-03	7.11E-04	1.36E-05	5.45E-08	1.64E-07
I-135	7.85E+02	0.00E+00	3.55E-03	2.29E-03	2.71E-07	1.53E-01	1.58E-03	2.52E-04	3.54E-05	1.54E-08	5.82E-08
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	1.84E-04	2.17E-08	1.46E-01	2.64E-05	1.29E-05	3.38E-05	3.89E-10	2.98E-09
I-132	6.10E+02	0.00E+00	2.76E-03	1.78E-03	2.11E-07	5.13E-02	1.66E-03	2.85E-04	1.19E-05	2.06E-08	6.58E-08
I-133	4.30E+02	0.00E+00	1.95E-03	1.26E-03	1.49E-07	2.70E-01	2.32E-04	1.90E-04	6.25E-05	4.22E-09	4.38E-08
I-134	1.20E+03	0.00E+00	5.43E-03	3.50E-03	4.14E-07	4.71E-02	2.63E-03	5.69E-04	1.09E-05	4.35E-08	1.31E-07
I-135	6.28E+02	0.00E+00	2.84E-03	1.83E-03	2.17E-07	1.22E-01	1.26E-03	2.01E-04	2.83E-05	1.23E-08	4.66E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	3.68E-03	2.02E-06	7.27E-06

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .007 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .34E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

ISOTOPE	ACTIVITY (CURIES) PRIMARY	SECONDARY	RELEASE	CONTROL ROOM (CURIES)	(UCI/CM3)	SITE BOUNDARY DOSES (REM) THYROID	WH BODY	BETA	CONTROL ROOM DOSES (REM) THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.44E-03	8.80E-07	3.32E+00	6.00E-04	2.93E-04	1.41E-03	1.62E-08	1.24E-07
I-132	1.39E+04	0.00E+00	6.28E-02	7.22E-02	8.54E-06	1.17E+00	3.77E-02	6.47E-03	4.95E-04	8.61E-07	2.75E-06
I-133	9.79E+03	0.00E+00	4.43E-02	5.10E-02	6.03E-06	6.15E+00	5.29E-03	4.31E-03	2.61E-03	1.76E-07	1.83E-06
I-134	2.73E+04	0.00E+00	1.24E-01	1.42E-01	1.68E-05	1.07E+00	5.99E-02	1.29E-02	4.55E-04	1.81E-06	5.49E-06
I-135	1.43E+04	0.00E+00	6.47E-02	7.44E-02	8.79E-06	2.78E+00	2.88E-02	4.58E-03	1.18E-03	5.14E-07	1.95E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.09E-04	4.83E-08	1.83E-01	3.30E-05	1.61E-05	7.75E-05	8.92E-10	6.84E-09
I-132	7.62E+02	0.00E+00	3.45E-03	3.97E-03	4.69E-07	6.41E-02	2.07E-03	3.56E-04	2.72E-05	4.73E-08	1.51E-07
I-133	5.38E+02	0.00E+00	2.44E-03	2.80E-03	3.31E-07	3.38E-01	2.90E-04	2.37E-04	1.43E-04	9.68E-09	1.01E-07
I-134	1.50E+03	0.00E+00	6.79E-03	7.80E-03	9.22E-07	5.89E-02	3.29E-03	7.10E-04	2.50E-05	9.96E-08	3.01E-07
I-135	7.85E+02	0.00E+00	3.55E-03	4.09E-03	4.83E-07	1.53E-01	1.58E-03	2.52E-04	6.49E-05	2.82E-08	1.07E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	3.27E-04	3.87E-08	1.46E-01	2.64E-05	1.29E-05	6.20E-05	7.14E-10	5.47E-09
I-132	6.10E+02	0.00E+00	2.76E-03	3.17E-03	3.75E-07	5.13E-02	1.66E-03	2.85E-04	2.18E-05	3.78E-08	1.21E-07
I-133	4.30E+02	0.00E+00	1.95E-03	2.24E-03	2.65E-07	2.70E-01	2.32E-04	1.90E-04	1.15E-04	7.75E-09	8.05E-08
I-134	1.20E+03	0.00E+00	5.43E-03	6.24E-03	7.38E-07	4.71E-02	2.63E-03	5.68E-04	2.00E-05	7.97E-08	2.41E-07
I-135	6.28E+02	0.00E+00	2.84E-03	3.27E-03	3.86E-07	1.22E-01	1.26E-03	2.01E-04	5.19E-05	2.26E-08	8.55E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	6.76E-03	3.71E-06	1.33E-05

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .008 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .50E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	1.23E-02	1.45E-06	3.32E+00	6.00E-04	2.93E-04	2.39E-03	2.75E-08	2.11E-07
I-132	1.39E+04	0.00E+00	6.28E-02	1.19E-01	1.41E-05	1.17E+00	3.77E-02	6.47E-03	8.39E-04	1.46E-06	6.66E-06
I-133	9.79E+03	0.00E+00	4.43E-02	8.40E-02	9.93E-06	6.15E+00	5.29E-03	4.31E-03	4.43E-03	2.99E-07	3.10E-06
I-134	2.72E+04	0.00E+00	1.23E-01	2.34E-01	2.76E-05	1.07E+00	5.98E-02	1.29E-02	7.71E-04	3.07E-06	9.30E-06
I-135	1.43E+04	0.00E+00	6.47E-02	1.23E-01	1.45E-05	2.78E+00	2.88E-02	4.58E-03	2.08E-03	8.72E-07	3.30E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	6.74E-04	7.97E-08	1.83E-01	3.30E-05	1.61E-05	1.31E-04	1.51E-09	1.16E-08
I-132	7.62E+02	0.00E+00	3.45E-03	6.54E-03	7.73E-07	6.41E-02	2.07E-03	3.56E-04	4.61E-05	8.02E-08	2.56E-07
I-133	5.38E+02	0.00E+00	2.44E-03	4.61E-03	5.46E-07	3.38E-01	2.90E-04	2.37E-04	2.43E-04	1.64E-08	1.71E-07
I-134	1.50E+03	0.00E+00	6.78E-03	1.28E-02	1.52E-06	5.88E-02	3.29E-03	7.10E-04	4.23E-05	1.69E-07	5.11E-07
I-135	7.85E+02	0.00E+00	3.55E-03	6.73E-03	7.96E-07	1.53E-01	1.58E-03	2.52E-04	1.10E-04	4.79E-08	1.61E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	5.39E-04	6.37E-08	1.46E-01	2.64E-05	1.29E-05	1.05E-04	1.21E-09	9.28E-09
I-132	6.09E+02	0.00E+00	2.76E-03	5.23E-03	6.18E-07	5.13E-02	1.66E-03	2.84E-04	3.69E-05	6.41E-08	2.05E-07
I-133	4.30E+02	0.00E+00	1.95E-03	3.69E-03	4.36E-07	2.70E-01	2.32E-04	1.90E-04	1.95E-04	1.31E-08	1.36E-07
I-134	1.20E+03	0.00E+00	5.42E-03	1.03E-02	1.21E-06	4.71E-02	2.63E-03	5.68E-04	3.39E-05	1.35E-07	4.09E-07
I-135	6.28E+02	0.00E+00	2.84E-03	5.39E-03	6.37E-07	1.22E-01	1.26E-03	2.01E-04	8.81E-05	3.83E-08	1.45E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	1.15E-02	6.30E-06	2.26E-05

QVP-QIPS, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .009 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .68E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	1.88E-02	2.22E-06	3.32E+00	6.00E-04	2.93E-04	3.77E-03	4.34E-08	3.33E-07
I-132	1.39E+04	0.00E+00	6.28E-02	1.82E-01	2.15E-05	1.17E+00	3.77E-02	6.47E-03	1.32E-03	2.30E-06	7.34E-06
I-133	9.79E+03	0.00E+00	4.43E-02	1.29E-01	1.52E-05	6.15E+00	5.29E-03	4.31E-03	6.98E-03	4.71E-07	4.89E-06
I-134	2.72E+04	0.00E+00	1.23E-01	3.58E-01	4.23E-05	1.07E+00	5.98E-02	1.29E-02	1.21E-03	4.84E-06	1.46E-05
I-135	1.43E+04	0.00E+00	6.47E-02	1.88E-01	2.22E-05	2.78E+00	2.88E-02	4.58E-03	3.16E-03	1.37E-06	5.20E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	1.03E-03	1.22E-07	1.83E-01	3.30E-05	1.61E-05	2.07E-04	2.38E-09	1.83E-08
I-132	7.62E+02	0.00E+00	3.45E-03	1.00E-02	1.18E-06	6.40E-02	2.07E-03	3.55E-04	7.26E-05	1.26E-07	4.83E-07
I-133	5.38E+02	0.00E+00	2.44E-03	7.06E-03	8.35E-07	3.36E-01	2.90E-04	2.37E-04	3.83E-04	2.59E-08	2.69E-07
I-134	1.50E+03	0.00E+00	6.78E-03	1.96E-02	2.32E-06	5.88E-02	3.28E-03	7.09E-04	6.67E-05	2.66E-07	8.04E-07
I-135	7.85E+02	0.00E+00	3.55E-03	1.03E-02	1.22E-06	1.53E-01	1.58E-03	2.52E-04	1.73E-04	7.55E-08	2.86E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	8.25E-04	9.76E-08	1.46E-01	2.64E-05	1.29E-05	1.66E-04	1.91E-09	1.46E-08
I-132	6.09E+02	0.00E+00	2.76E-03	8.01E-03	9.47E-07	5.12E-02	1.66E-03	2.84E-04	5.81E-05	1.01E-07	3.23E-07
I-133	4.30E+02	0.00E+00	1.95E-03	5.65E-03	6.68E-07	2.70E-01	2.32E-04	1.90E-04	3.07E-04	2.07E-08	2.15E-07
I-134	1.20E+03	0.00E+00	5.42E-03	1.57E-02	1.86E-06	4.70E-02	2.63E-03	5.67E-04	5.33E-05	2.13E-07	6.43E-07
I-135	6.28E+02	0.00E+00	2.84E-03	8.25E-03	9.75E-07	1.22E-01	1.26E-03	2.01E-04	1.39E-04	6.04E-08	2.28E-07
NOBLE GASES											
XE-133A	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	1.81E-02	9.92E-06	3.56E-05

ØVA-ØIØS, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .010 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .84E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	2.68E-02	3.17E-06	3.32E+00	6.00E-04	2.93E-04	5.54E-03	6.38E-08	4.89E-07
I-132	1.39E+04	0.00E+00	6.28E-02	2.60E-01	3.08E-05	1.17E+00	3.77E-02	6.47E-03	1.94E-03	3.38E-06	1.08E-05
I-133	9.78E+03	0.00E+00	4.43E-02	1.84E-01	2.17E-05	6.15E+00	5.28E-03	4.31E-03	1.03E-02	6.92E-07	7.19E-06
I-134	2.72E+04	0.00E+00	1.23E-01	5.11E-01	6.04E-05	1.07E+00	5.97E-02	1.29E-02	1.78E-03	7.10E-06	2.15E-05
I-135	1.43E+04	0.00E+00	6.47E-02	2.68E-01	3.17E-05	2.78E+00	2.88E-02	4.58E-03	4.64E-03	2.02E-06	7.63E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	1.47E-03	1.74E-07	1.83E-01	3.30E-05	1.61E-05	3.04E-04	3.50E-09	2.69E-08
I-132	7.61E+02	0.00E+00	3.45E-03	1.43E-02	1.69E-06	6.40E-02	2.07E-03	3.55E-04	1.07E-04	1.86E-07	5.92E-07
I-133	5.38E+02	0.00E+00	2.44E-03	1.01E-02	1.19E-06	3.38E-01	2.90E-04	2.37E-04	5.63E-04	3.80E-08	3.95E-07
I-134	1.49E+03	0.00E+00	6.77E-03	2.81E-02	3.32E-06	5.87E-02	3.28E-03	7.08E-04	9.79E-05	3.90E-07	1.18E-06
I-135	7.84E+02	0.00E+00	3.55E-03	1.47E-02	1.74E-06	1.53E-01	1.58E-03	2.52E-04	2.55E-04	1.11E-07	4.19E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	1.18E-03	1.39E-07	1.46E-01	2.64E-05	1.29E-05	2.44E-04	2.80E-09	2.15E-08
I-132	6.09E+02	0.00E+00	2.76E-03	1.14E-02	1.35E-06	5.12E-02	1.66E-03	2.84E-04	8.54E-05	1.48E-07	4.74E-07
I-133	4.30E+02	0.00E+00	1.95E-03	8.08E-03	9.55E-07	2.70E-01	2.32E-04	1.90E-04	4.51E-04	3.04E-08	3.16E-07
I-134	1.20E+03	0.00E+00	5.42E-03	2.24E-02	2.65E-06	4.70E-02	2.63E-03	5.67E-04	7.83E-05	3.12E-07	9.44E-07
I-135	6.28E+02	0.00E+00	2.84E-03	1.18E-02	1.39E-06	1.22E-01	1.26E-03	2.01E-04	2.04E-04	8.87E-08	3.36E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	2.65E-02	1.48E-05	5.23E-05

QVA-0105, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .011 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .95E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	3.60E-02	4.25E-06	3.32E+00	6.80E-04	2.93E-04	7.63E-03	8.78E-08	6.73E-07
I-132	1.39E+04	0.00E+00	6.27E-02	3.48E-01	4.12E-05	1.16E+00	3.76E-02	6.46E-03	2.67E-03	4.65E-06	1.48E-05
I-133	9.78E+03	0.00E+00	4.43E-02	2.46E-01	2.91E-05	6.15E+00	5.28E-03	4.31E-03	1.41E-02	9.52E-07	9.89E-06
I-134	2.72E+04	0.00E+00	1.23E-01	6.83E-01	8.08E-05	1.07E+00	5.97E-02	1.29E-02	2.45E-03	9.77E-06	2.96E-05
I-135	1.43E+04	0.00E+00	6.47E-02	3.59E-01	4.25E-05	2.78E+00	2.88E-02	4.58E-03	6.38E-03	2.78E-06	1.05E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	1.98E-03	2.34E-07	1.83E-01	3.30E-05	1.61E-05	4.19E-04	4.82E-09	3.70E-08
I-132	7.61E+02	0.00E+00	3.45E-03	1.91E-02	2.26E-06	6.40E-02	2.07E-03	3.55E-04	1.47E-04	2.55E-07	8.15E-07
I-133	5.38E+02	0.00E+00	2.43E-03	1.35E-02	1.60E-06	3.38E-01	2.90E-04	2.37E-04	7.75E-04	5.23E-08	5.44E-07
I-134	1.49E+03	0.00E+00	6.76E-03	3.76E-02	4.44E-06	5.87E-02	3.28E-03	7.08E-04	1.35E-04	5.37E-07	1.62E-06
I-135	7.84E+02	0.00E+00	3.55E-03	1.97E-02	2.33E-06	1.53E-01	1.58E-03	2.52E-04	3.51E-04	1.53E-07	5.77E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.85E-04	1.58E-03	1.87E-07	1.46E-01	2.64E-05	1.29E-05	3.35E-04	3.86E-09	2.96E-08
I-132	6.09E+02	0.00E+00	2.76E-03	1.53E-02	1.81E-06	5.12E-02	1.65E-03	2.84E-04	1.17E-04	2.04E-07	6.52E-07
I-133	4.30E+02	0.00E+00	1.95E-03	1.08E-02	1.28E-06	2.70E-01	2.32E-04	1.90E-04	6.20E-04	4.19E-08	4.35E-07
I-134	1.19E+03	0.00E+00	5.41E-03	3.00E-02	3.55E-06	4.69E-02	2.62E-03	5.66E-04	1.08E-04	4.29E-07	1.30E-06
I-135	6.27E+02	0.00E+00	2.84E-03	1.58E-02	1.87E-06	1.22E-01	1.26E-03	2.01E-04	2.81E-04	1.22E-07	4.62E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.14E-02	3.65E-02	2.00E-05	7.19E-05

QVN-0105, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .012 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .99E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	4.85E-03	4.30E-02	5.09E-06	2.49E+00	4.50E-04	2.20E-04	7.20E-03	8.28E-08	6.35E-07
I-132	1.38E+04	0.00E+00	4.70E-02	4.17E-01	4.93E-05	8.73E-01	2.82E-02	4.85E-03	2.52E-03	4.38E-06	1.40E-05
I-133	9.78E+03	0.00E+00	3.32E-02	2.95E-01	3.48E-05	4.61E+00	3.96E-03	3.23E-03	1.33E-02	8.98E-07	9.33E-06
I-134	2.71E+04	0.00E+00	9.22E-02	8.18E-01	9.67E-05	8.00E-01	4.47E-02	9.65E-03	2.31E-03	9.21E-06	2.79E-05
I-135	1.43E+04	0.00E+00	4.85E-02	4.30E-01	5.08E-05	2.09E+00	2.16E-02	3.43E-03	6.02E-03	2.62E-06	9.91E-06
PARTICULATE											
I-131	7.85E+01	0.00E+00	2.67E-04	2.36E-03	2.80E-07	1.37E-01	2.47E-05	1.21E-05	3.95E-04	4.55E-09	3.49E-08
I-132	7.61E+02	0.00E+00	2.58E-03	2.29E-02	2.71E-06	4.80E-02	1.55E-03	2.66E-04	1.39E-04	2.41E-07	7.69E-07
I-133	5.38E+02	0.00E+00	1.83E-03	1.62E-02	1.91E-06	2.53E-01	2.18E-04	1.78E-04	7.32E-04	4.94E-08	5.13E-07
I-134	1.49E+03	0.00E+00	5.07E-03	4.49E-02	5.31E-06	4.40E-02	2.46E-03	5.30E-04	1.27E-04	5.06E-07	1.53E-06
I-135	7.84E+02	0.00E+00	2.66E-03	2.36E-02	2.79E-06	1.15E-01	1.18E-03	1.89E-04	3.31E-04	1.44E-07	5.45E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.13E-04	1.89E-03	2.24E-07	1.10E-01	1.98E-05	9.67E-06	3.16E-04	3.64E-09	2.79E-08
I-132	6.09E+02	0.00E+00	2.07E-03	1.83E-02	2.17E-06	3.84E-02	1.24E-03	2.13E-04	1.11E-04	1.93E-07	6.15E-07
I-133	4.30E+02	0.00E+00	1.46E-03	1.30E-02	1.53E-06	2.03E-01	1.74E-04	1.42E-04	5.85E-04	3.95E-08	4.10E-07
I-134	1.19E+03	0.00E+00	4.05E-03	3.59E-02	4.25E-06	3.52E-02	1.97E-03	4.24E-04	1.02E-04	4.05E-07	1.22E-06
I-135	6.27E+02	0.00E+00	2.13E-03	1.89E-02	2.23E-06	9.17E-02	9.48E-04	1.51E-04	2.65E-04	1.15E-07	4.36E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.19E+01	1.09E-01	2.35E-02	3.45E-02	1.89E-05	6.78E-05

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .96E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	5.22E-02	6.17E-06	3.32E+00	6.00E-04	2.93E-04	1.16E-02	1.33E-07	1.02E-06
I-132	1.38E+04	0.00E+00	6.27E-02	5.05E-01	5.98E-05	1.16E+00	3.76E-02	6.46E-03	4.05E-03	7.04E-06	2.25E-05
I-133	9.78E+03	0.00E+00	4.43E-02	3.57E-01	4.22E-05	6.15E+00	5.28E-03	4.31E-03	2.14E-02	1.44E-06	1.50E-05
I-134	2.71E+04	0.00E+00	1.23E-01	9.90E-01	1.17E-04	1.07E+00	5.96E-02	1.29E-02	3.71E-03	1.48E-05	4.47E-05
I-135	1.43E+04	0.00E+00	6.46E-02	5.21E-01	6.16E-05	2.78E+00	2.88E-02	4.58E-03	9.68E-03	4.21E-06	1.59E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	2.87E-03	3.39E-07	1.83E-01	3.30E-05	1.61E-05	6.35E-04	7.31E-09	5.61E-08
I-132	7.61E+02	0.00E+00	3.45E-03	2.78E-02	3.28E-06	6.40E-02	2.07E-03	3.55E-04	2.23E-04	3.87E-07	1.24E-06
I-133	5.38E+02	0.00E+00	2.43E-03	1.96E-02	2.32E-06	3.38E-01	2.90E-04	2.37E-04	1.18E-03	7.93E-08	8.24E-07
I-134	1.49E+03	0.00E+00	6.75E-03	5.44E-02	6.43E-06	5.86E-02	3.27E-03	7.07E-04	2.04E-04	8.13E-07	2.46E-06
I-135	7.84E+02	0.00E+00	3.55E-03	2.86E-02	3.39E-06	1.53E-01	1.58E-03	2.52E-04	5.32E-04	2.31E-07	8.75E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	2.29E-03	2.71E-07	1.46E-01	2.64E-05	1.29E-05	5.08E-04	5.85E-09	4.49E-08
I-132	6.08E+02	0.00E+00	2.76E-03	2.22E-02	2.63E-06	5.12E-02	1.65E-03	2.84E-04	1.78E-04	3.10E-07	9.88E-07
I-133	4.30E+02	0.00E+00	1.95E-03	1.57E-02	1.86E-06	2.70E-01	2.32E-04	1.90E-04	9.41E-04	6.35E-08	6.59E-07
I-134	1.19E+03	0.00E+00	5.40E-03	4.35E-02	5.15E-06	4.69E-02	2.62E-03	5.65E-04	1.63E-04	6.50E-07	1.97E-06
I-135	6.27E+02	0.00E+00	2.84E-03	2.29E-02	2.71E-06	1.22E-01	1.26E-03	2.01E-04	4.25E-04	1.85E-07	7.00E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.13E-02	5.54E-02	3.04E-05	1.09E-04

QVA-QAPS, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .014 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .85E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	6.03E-02	7.13E-06	3.32E+00	6.00E-04	2.93E-04	1.37E-02	1.57E-07	1.21E-06
I-132	1.38E+04	0.00E+00	6.27E-02	5.84E-01	6.90E-05	1.16E+00	3.76E-02	6.46E-03	4.78E-03	8.31E-06	2.65E-05
I-133	9.78E+03	0.00E+00	4.43E-02	4.13E-01	4.88E-05	6.15E+00	5.28E-03	4.31E-03	2.53E-02	1.71E-06	1.77E-05
I-134	2.71E+04	0.00E+00	1.23E-01	1.14E+00	1.35E-04	1.07E+00	5.95E-02	1.28E-02	4.38E-03	1.75E-05	5.28E-05
I-135	1.43E+04	0.00E+00	6.46E-02	6.02E-01	7.12E-05	2.78E+00	2.87E-02	4.58E-03	1.14E-02	4.97E-06	1.88E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	3.31E-03	3.92E-07	1.83E-01	3.30E-05	1.61E-05	7.51E-04	8.64E-09	6.62E-08
I-132	7.60E+02	0.00E+00	3.44E-03	3.21E-02	3.79E-06	6.39E-02	2.07E-03	3.55E-04	2.63E-04	4.57E-07	1.46E-06
I-133	5.38E+02	0.00E+00	2.43E-03	2.27E-02	2.68E-06	3.38E-01	2.90E-04	2.37E-04	1.39E-03	9.37E-08	9.73E-07
I-134	1.49E+03	0.00E+00	6.75E-03	6.28E-02	7.43E-06	5.85E-02	3.27E-03	7.06E-04	2.41E-04	9.59E-07	2.90E-06
I-135	7.84E+02	0.00E+00	3.55E-03	3.31E-02	3.91E-06	1.53E-01	1.58E-03	2.52E-04	6.28E-04	2.73E-07	1.03E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	2.65E-03	3.13E-07	1.46E-01	2.64E-05	1.29E-05	6.00E-04	6.91E-09	5.30E-08
I-132	6.08E+02	0.00E+00	2.75E-03	2.57E-02	3.03E-06	5.12E-02	1.65E-03	2.84E-04	2.10E-04	3.65E-07	1.17E-06
I-133	4.30E+02	0.00E+00	1.95E-03	1.81E-02	2.15E-06	2.70E-01	2.32E-04	1.89E-04	1.11E-03	7.50E-08	7.79E-07
I-134	1.19E+03	0.00E+00	5.40E-03	5.03E-02	5.94E-06	4.68E-02	2.62E-03	5.65E-04	1.92E-04	7.67E-07	2.32E-06
I-135	6.27E+02	0.00E+00	2.84E-03	2.65E-02	3.13E-06	1.22E-01	1.26E-03	2.01E-04	5.02E-04	2.19E-07	8.27E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.13E-02	6.54E-02	3.58E-05	1.29E-04

QNA-0105, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .015 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .69E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTOR	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	6.69E-02	7.91E-06	3.32E+00	6.80E-04	2.93E-04	1.54E-02	1.78E-07	1.36E-06
I-132	1.38E+04	0.00E+00	6.27E-02	6.47E-01	7.65E-05	1.16E+00	3.76E-02	6.46E-03	5.40E-03	9.48E-06	3.00E-05
I-133	9.78E+03	0.00E+00	4.43E-02	4.58E-01	5.41E-05	6.15E+00	5.28E-03	4.31E-03	2.86E-02	1.93E-06	2.00E-05
I-134	2.71E+04	0.00E+00	1.23E-01	1.27E+00	1.50E-04	1.06E+00	5.95E-02	1.28E-02	4.94E-03	1.97E-05	5.96E-05
I-135	1.43E+04	0.00E+00	6.46E-02	6.68E-01	7.89E-05	2.78E+00	2.87E-02	4.58E-03	1.29E-02	5.62E-06	2.13E-05
PARTICULATE											
I-131	1.85E+01	0.00E+00	3.56E-04	3.67E-03	4.34E-07	1.83E-01	3.30E-05	1.61E-05	8.48E-04	9.77E-09	7.49E-08
I-132	7.60E+02	0.00E+00	3.44E-03	3.56E-02	4.20E-06	6.39E-02	2.07E-03	3.55E-04	2.97E-04	5.16E-07	1.65E-06
I-133	5.38E+02	0.00E+00	2.43E-03	2.51E-02	2.97E-06	3.38E-01	2.90E-04	2.37E-04	1.57E-03	1.06E-07	1.10E-06
I-134	1.49E+03	0.00E+00	6.74E-03	6.96E-02	8.23E-06	5.85E-02	3.27E-03	7.05E-04	2.72E-04	1.08E-06	3.28E-06
I-135	7.84E+02	0.00E+00	3.55E-03	3.67E-02	4.34E-06	1.53E-01	1.58E-03	2.52E-04	7.10E-04	3.09E-07	1.17E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	2.94E-03	3.47E-07	1.46E-01	2.64E-05	1.29E-05	6.79E-04	7.81E-09	5.99E-08
I-132	6.08E+02	0.00E+00	2.75E-03	2.84E-02	3.36E-06	5.11E-02	1.65E-03	2.84E-04	2.38E-04	4.13E-07	1.32E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.01E-02	2.38E-06	2.70E-01	2.32E-04	1.89E-04	1.26E-03	8.47E-08	8.80E-07
I-134	1.19E+03	0.00E+00	5.39E-03	5.57E-02	6.58E-06	4.68E-02	2.61E-03	5.64E-04	2.17E-04	8.66E-07	2.62E-06
I-135	6.27E+02	0.00E+00	2.84E-03	2.93E-02	3.47E-06	1.22E-01	1.26E-03	2.01E-04	5.68E-04	2.47E-07	9.35E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.13E-02	7.39E-02	4.05E-05	1.45E-04

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .016 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .51E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.17E-02	8.48E-06	3.32E+00	6.00E-04	2.93E-04	1.68E-02	1.94E-07	1.48E-06
I-132	1.38E+04	0.00E+00	6.26E-02	6.96E-01	8.21E-05	1.16E+00	3.76E-02	6.45E-03	5.89E-03	1.02E-05	3.27E-05
I-133	9.78E+03	0.00E+00	4.43E-02	4.91E-01	5.81E-05	6.15E+00	5.28E-03	4.31E-03	3.11E-02	2.10E-06	2.18E-05
I-134	2.70E+04	0.00E+00	1.23E-01	1.36E+00	1.61E-04	1.06E+00	5.94E-02	1.28E-02	5.38E-03	2.15E-05	6.49E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.16E-01	8.47E-05	2.78E+00	2.87E-02	4.58E-03	1.41E-02	6.13E-06	2.32E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	3.94E-03	4.66E-07	1.83E-01	3.30E-05	1.61E-05	9.25E-04	1.06E-08	8.16E-08
I-132	7.60E+02	0.00E+00	3.44E-03	3.81E-02	4.51E-06	6.39E-02	2.07E-03	3.55E-04	3.24E-04	5.62E-07	1.80E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.70E-02	3.19E-06	3.38E-01	2.90E-04	2.37E-04	1.71E-03	1.15E-07	1.20E-06
I-134	1.49E+03	0.00E+00	6.73E-03	7.46E-02	8.82E-06	5.84E-02	3.26E-03	7.05E-04	2.96E-04	1.18E-06	3.57E-06
I-135	7.84E+02	0.00E+00	3.55E-03	3.93E-02	4.65E-06	1.53E-01	1.58E-03	2.52E-04	7.74E-04	3.37E-07	1.27E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.15E-03	3.73E-07	1.46E-01	2.64E-05	1.29E-05	7.40E-04	8.52E-09	6.53E-08
I-132	6.08E+02	0.00E+00	2.75E-03	3.05E-02	3.61E-06	5.11E-02	1.65E-03	7.84E-04	2.59E-04	4.50E-07	1.44E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.16E-02	2.55E-06	2.70E-01	2.32E-04	1.89E-04	1.37E-03	9.24E-08	9.59E-07
I-134	1.19E+03	0.00E+00	5.39E-03	5.97E-02	7.06E-06	4.67E-02	2.61E-03	5.64E-04	2.37E-04	9.43E-07	2.85E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.15E-02	3.72E-06	1.22E-01	1.26E-03	2.01E-04	6.19E-04	2.69E-07	1.02E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.13E-02	8.06E-02	4.41E-05	1.58E-04

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .018 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .35E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.50E-02	8.87E-06	3.32E+00	6.00E-04	2.93E-04	1.78E-02	2.05E-07	1.57E-06
I-132	1.38E+04	0.00E+00	6.26E-02	7.25E-01	8.58E-05	1.16E+00	3.76E-02	6.45E-03	6.23E-03	1.08E-05	3.46E-05
I-133	9.78E+03	0.00E+00	4.43E-02	5.13E-01	6.07E-05	6.15E+00	5.28E-03	4.31E-03	3.30E-02	2.22E-06	2.31E-05
I-134	2.70E+04	0.00E+00	1.22E-01	1.42E+00	1.68E-04	1.04E+00	5.94E-02	1.28E-02	5.69E-03	2.27E-05	6.87E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.49E-01	8.85E-05	2.78E+00	2.87E-02	4.58E-03	1.49E-02	6.49E-06	2.45E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.12E-03	4.87E-07	1.83E-01	3.30E-05	1.61E-05	9.79E-04	1.13E-08	8.64E-08
I-132	7.60E+02	0.00E+00	3.44E-03	3.99E-02	4.71E-06	6.39E-02	2.06E-03	3.55E-04	3.42E-04	5.95E-07	1.90E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.82E-02	3.34E-06	3.38E-01	2.90E-04	2.37E-04	1.81E-03	1.22E-07	1.27E-06
I-134	1.48E+03	0.00E+00	6.73E-03	7.79E-02	9.21E-06	5.84E-02	3.26E-03	7.04E-04	3.13E-04	1.25E-06	3.77E-06
I-135	7.84E+02	0.00E+00	3.55E-03	4.11E-02	4.86E-06	1.53E-01	1.58E-03	2.51E-04	8.19E-04	3.56E-07	1.35E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.30E-03	3.90E-07	1.46E-01	2.64E-05	1.29E-05	7.83E-04	9.02E-09	6.91E-08
I-132	6.08E+02	0.00E+00	2.75E-03	3.19E-02	3.77E-06	5.11E-02	1.65E-03	2.84E-04	2.74E-04	4.76E-07	1.52E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.26E-02	2.67E-06	2.70E-01	2.32E-04	1.89E-04	1.45E-03	9.78E-08	1.02E-06
I-134	1.19E+03	0.00E+00	5.38E-03	6.23E-02	7.37E-06	4.67E-02	2.61E-03	5.63E-04	2.50E-04	9.98E-07	3.02E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.29E-02	3.89E-06	1.22E-01	1.26E-03	2.01E-04	6.55E-04	2.85E-07	1.08E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.45E-01	3.13E-02	8.53E-02	4.67E-05	1.68E-04

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AI .019 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .22E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.70E-02	9.11E-06	3.32E+00	6.00E-04	2.93E-04	1.85E-02	2.12E-07	1.63E-06
I-132	1.38E+04	0.00E+00	6.26E-02	7.45E-01	8.81E-05	1.16E+00	3.76E-02	6.45E-03	6.45E-03	1.12E-05	3.58E-05
I-133	9.78E+03	0.00E+00	4.43E-02	5.27E-01	6.23E-05	6.15E+00	5.28E-03	4.31E-03	3.42E-02	2.30E-06	2.39E-05
I-134	2.70E+04	0.00E+00	1.22E-01	1.46E+00	1.72E-04	1.06E+00	5.93E-02	1.28E-02	5.89E-03	2.35E-05	7.11E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.69E-01	9.09E-05	2.78E+00	2.87E-02	4.58E-03	1.54E-02	6.72E-06	2.54E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.23E-03	5.00E-07	1.83E-01	3.30E-05	1.61E-05	1.01E-03	1.17E-08	8.95E-08
I-132	7.59E+02	0.00E+00	3.44E-03	4.09E-02	4.84E-06	6.39E-02	2.06E-03	3.54E-04	3.55E-04	6.17E-07	1.97E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.90E-02	3.42E-	3.38E-01	2.90E-04	2.37E-04	1.88E-03	1.27E-07	1.32E-06
I-134	1.48E+03	0.00E+00	6.72E-03	7.99E-02	9.45E-	1.83E-02	3.26E-03	7.03E-04	3.24E-04	1.29E-06	3.91E-06
I-135	7.84E+02	0.00E+00	3.55E-03	4.22E-02	4.99E-0	1.53E-01	1.58E-03	2.51E-04	8.48E-04	3.69E-07	1.40E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.38E-03	4.00E-07	1.46E-01	2.64E-05	1.29E-05	8.11E-04	9.34E-09	7.16E-08
I-132	6.07E+02	0.00E+00	2.75E-03	3.27E-02	3.87E-06	5.11E-02	1.65E-03	2.84E-04	2.84E-04	4.93E-07	1.57E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.32E-02	2.74E-06	2.70E-01	2.32E-04	1.89E-04	1.50E-03	1.01E-07	1.05E-06
I-134	1.19E+03	0.00E+00	5.38E-03	6.40E-02	7.56E-06	4.67E-02	2.61E-03	5.63E-04	2.59E-04	1.03E-06	3.13E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.38E-02	4.00E-06	1.22E-01	1.26E-03	2.01E-04	6.79E-04	2.95E-07	1.12E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.44E-01	3.12E-02	8.84E-02	4.83E-05	1.74E-04

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .020 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .12E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.81E-02	9.24E-06	3.32E+00	6.00E-04	2.93E-04	1.88E-02	2.17E-07	1.66E-06
I-132	1.38E+04	0.00E+00	6.26E-02	7.55E-01	8.93E-05	1.16E+00	3.75E-02	6.45E-03	6.58E-03	1.14E-05	3.65E-05
I-133	9.78E+03	0.00E+00	4.43E-02	5.35E-01	6.32E-05	6.15E+00	5.28E-03	4.31E-03	3.49E-02	2.35E-06	2.44E-05
I-134	2.70E+04	0.00E+00	1.22E-01	1.47E+00	1.74E-04	1.06E+00	5.93E-02	1.28E-02	6.01E-03	2.40E-05	7.25E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.80E-01	9.22E-05	2.78E+00	2.87E-02	4.58E-03	1.58E-02	6.86E-06	2.59E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.29E-03	5.08E-07	1.83E-01	3.30E-05	1.61E-05	1.04E-03	1.19E-08	9.13E-08
I-132	7.59E+02	0.00E+00	3.44E-03	4.15E-02	4.91E-06	6.38E-02	2.06E-03	3.54E-04	3.62E-04	6.29E-07	2.01E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.94E-02	3.47E-06	3.38E-01	2.90E-04	2.37E-04	1.92E-03	1.29E-07	1.34E-06
I-134	1.48E+03	0.00E+00	6.72E-03	8.10E-02	9.58E-06	5.83E-02	3.26E-03	7.03E-04	3.30E-04	1.32E-06	3.98E-06
I-135	7.84E+02	0.00E+00	3.55E-03	4.28E-02	5.07E-06	1.53E-01	1.58E-03	2.51E-04	8.66E-04	3.77E-07	1.43E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.43E-03	4.06E-07	1.46E-01	2.64E-05	1.29E-05	8.28E-04	9.53E-09	7.31E-08
I-132	6.07E+02	0.00E+00	2.75E-03	3.32E-02	3.92E-06	5.11E-02	1.65E-03	2.83E-04	2.89E-04	5.03E-07	1.61E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.35E-02	2.78E-06	2.70E-01	2.32E-04	1.89E-04	1.53E-03	1.03E-07	1.07E-06
I-134	1.19E+03	0.00E+00	5.37E-03	6.48E-02	7.66E-06	4.66E-02	2.60E-03	5.62E-04	2.64E-04	1.05E-06	3.19E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.43E-02	4.05E-06	1.22E-01	1.26E-03	2.01E-04	6.93E-04	3.01E-07	1.14E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.44E-01	3.12E-02	9.02E-02	4.93E-05	1.77E-04

QVA-QIPS, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: Z350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .021 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .65E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.86E-02	9.30E-06	3.32E+00	6.80E-04	2.93E-04	1.90E-02	2.19E-07	1.68E-06
I-132	1.38E+04	0.00E+00	6.26E-02	7.60E-01	8.99E-05	1.16E+00	3.75E-02	6.45E-03	6.65E-03	1.16E-05	3.69E-05
I-133	9.78E+03	0.00E+00	4.43E-02	5.38E-01	6.37E-05	6.15E+00	5.28E-03	4.31E-03	3.52E-02	2.38E-06	2.47E-05
I-134	2.70E+04	0.00E+00	1.22E-01	1.48E+00	1.75E-04	1.06E+00	5.92E-02	1.28E-02	6.07E-03	2.42E-05	7.32E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.85E-01	9.28E-05	2.78E+00	2.87E-02	4.58E-03	1.59E-02	6.93E-06	2.62E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.32E-03	5.11E-07	1.83E-01	3.30E-05	1.61E-05	1.05E-03	1.20E-08	9.23E-08
I-132	7.59E+02	0.00E+00	3.44E-03	4.18E-02	4.94E-06	6.38E-02	2.06E-03	3.54E-04	3.66E-04	6.35E-07	2.03E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.96E-02	3.50E-06	3.38E-01	2.90E-04	2.37E-04	1.94E-03	1.31E-07	1.36E-06
I-134	1.48E+03	0.00E+00	6.71E-03	8.15E-02	9.64E-06	5.82E-02	3.25E-03	7.02E-04	3.33E-04	1.33E-06	4.02E-06
I-135	7.84E+02	0.00E+00	3.55E-03	4.31E-02	5.10E-06	1.53E-01	1.58E-03	2.51E-04	8.75E-04	3.81E-07	1.44E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.46E-03	4.09E-07	1.46E-01	2.64E-05	1.29E-05	8.37E-04	9.63E-09	7.38E-08
I-132	6.07E+02	0.00E+00	2.75E-03	3.34E-02	3.95E-06	5.10E-02	1.65E-03	2.83E-04	2.92E-04	5.08E-07	1.62E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.37E-02	2.80E-06	2.70E-01	2.32E-04	1.89E-04	1.55E-03	1.04E-07	1.09E-06
I-134	1.18E+03	0.00E+00	5.37E-03	6.52E-02	7.71E-06	4.66E-02	2.60E-03	5.62E-04	2.67E-04	1.06E-06	3.22E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.45E-02	4.08E-06	1.22E-01	1.26E-03	2.01E-04	7.00E-04	3.05E-07	1.15E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.44E-01	3.12E-02	9.11E-02	4.98E-05	1.79E-04

Q YA-0105, Rev 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .022 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .31E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	6.47E-03	7.89E-02	9.32E-06	3.32E+00	6.00E-04	2.93E-04	1.91E-02	2.20E-07	1.69E-06
I-132	1.38E+04	0.00E+00	6.25E-02	7.62E-01	9.01E-05	1.16E+00	3.75E-02	6.44E-03	6.68E-03	1.16E-05	3.71E-05
I-133	9.78E+03	0.00E+00	4.43E-02	5.40E-01	6.38E-05	6.15E+00	5.28E-03	4.31E-03	3.54E-02	2.39E-06	2.48E-05
I-134	2.69E+04	0.00E+00	1.22E-01	1.49E+00	1.76E-04	1.06E+00	5.91E-02	1.28E-02	6.09E-03	2.43E-05	7.35E-05
I-135	1.43E+04	0.00E+00	6.46E-02	7.87E-01	9.30E-05	2.78E+00	2.87E-02	4.57E-03	1.60E-02	6.96E-06	2.63E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	3.56E-04	4.33E-03	5.12E-07	1.83E-01	3.30E-05	1.61E-05	1.05E-03	1.21E-08	9.27E-08
I-132	7.58E+02	0.00E+00	3.44E-03	4.19E-02	4.95E-06	6.38E-02	2.06E-03	3.54E-04	3.67E-04	6.38E-07	2.04E-06
I-133	5.37E+02	0.00E+00	2.43E-03	2.97E-02	3.51E-06	3.38E-01	2.90E-04	2.37E-04	1.94E-03	1.31E-07	1.36E-06
I-134	1.48E+03	0.00E+00	6.70E-03	8.17E-02	9.66E-06	5.82E-02	3.25E-03	7.02E-04	3.35E-04	1.33E-06	4.04E-06
I-135	7.83E+02	0.00E+00	3.55E-03	4.32E-02	5.11E-06	1.53E-01	1.58E-03	2.51E-04	8.79E-04	3.82E-07	1.45E-06
ORGANIC											
I-131	6.28E+01	0.00E+00	2.84E-04	3.47E-03	4.10E-07	1.46E-01	2.64E-05	1.29E-05	8.41E-04	9.68E-09	7.42E-08
I-132	6.07E+02	0.00E+00	2.75E-03	3.35E-02	3.96E-06	5.10E-02	1.65E-03	2.83E-04	2.94E-04	5.11E-07	1.63E-06
I-133	4.30E+02	0.00E+00	1.95E-03	2.37E-02	2.81E-06	2.70E-01	2.32E-04	1.89E-04	1.56E-03	1.05E-07	1.09E-06
I-134	1.18E+03	0.00E+00	5.36E-03	6.53E-02	7.72E-06	4.65E-02	2.60E-03	5.61E-04	2.68E-04	1.07E-06	3.23E-06
I-135	6.27E+02	0.00E+00	2.84E-03	3.46E-02	4.09E-06	1.22E-01	1.26E-03	2.01E-04	7.03E-04	3.06E-07	1.16E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.59E+01	1.44E-01	3.12E-02	9.15E-02	5.00E-05	1.80E-04

ΦVA-ΦIBS, Rev. 3

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .023 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .14E-01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.43E+03	0.00E+00	3.24E-03	7.89E-02	9.33E-06	1.66E+00	3.00E-04	1.47E-04	9.58E-03	1.10E-07	6.45E-07
I-132	1.38E+04	0.00E+00	3.13E-02	7.62E-01	9.01E-05	5.80E-01	1.88E-02	3.22E-03	3.35E-03	5.82E-06	1.86E-05
I-133	9.78E+03	0.00E+00	2.21E-02	5.40E-01	6.38E-05	3.07E+00	2.64E-03	2.15E-03	1.77E-02	1.20E-06	1.24E-05
I-134	2.69E+04	0.00E+00	6.10E-02	1.49E+00	1.76E-04	5.29E-01	2.96E-02	6.38E-03	3.05E-03	1.22E-05	3.68E-05
I-135	1.43E+04	0.00E+00	3.23E-02	7.87E-01	9.31E-05	1.39E+00	1.44E-02	2.29E-03	8.01E-03	3.48E-06	1.32E-05
PARTICULATE											
I-131	7.85E+01	0.00E+00	1.78E-04	4.33E-03	5.13E-07	9.13E-02	1.65E-05	8.06E-06	5.26E-04	6.06E-09	4.64E-08
I-132	7.58E+02	0.00E+00	1.72E-03	4.19E-02	4.95E-06	3.19E-02	1.03E-03	1.77E-04	1.84E-04	3.20E-07	1.02E-06
I-133	5.37E+02	0.00E+00	1.22E-03	2.97E-02	3.51E-06	1.69E-01	1.45E-04	1.18E-04	9.74E-04	6.57E-08	6.82E-07
I-134	1.48E+03	0.00E+00	3.35E-03	8.16E-02	9.65E-06	2.91E-02	1.62E-03	3.51E-04	1.68E-04	6.68E-07	2.02E-06
I-135	7.83E+02	0.00E+00	1.77E-03	4.32E-02	5.11E-06	7.63E-02	7.89E-04	1.26E-04	4.40E-04	1.91E-07	7.24E-07
ORGANIC											
I-131	6.28E+01	0.00E+00	1.42E-04	3.47E-03	4.10E-07	7.30E-02	1.32E-05	6.44E-06	4.21E-04	4.85E-09	3.71E-08
I-132	6.07E+02	0.00E+00	1.37E-03	3.35E-02	3.96E-06	2.55E-02	8.24E-04	1.42E-04	1.47E-04	2.56E-07	8.16E-07
I-133	4.30E+02	0.00E+00	9.74E-04	2.37E-02	2.81E-06	1.35E-01	1.16E-04	9.47E-05	7.79E-04	5.26E-08	5.46E-07
I-134	1.18E+03	0.00E+00	2.68E-03	6.53E-02	7.72E-06	2.32E-02	1.30E-03	2.80E-04	1.34E-04	5.34E-07	1.62E-06
I-135	6.27E+02	0.00E+00	1.42E-03	3.46E-02	4.09E-06	6.11E-02	6.31E-04	1.01E-04	3.52E-04	1.53E-07	5.80E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						7.95E+00	7.21E-02	1.56E-02	4.58E-02	2.50E-05	8.99E-05

1 MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.08E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E+01	1.99E-04	1.52E-03
I-132	8.37E-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E+00	8.07E-03	2.58E-02
I-133	4.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E+01	2.09E-03	2.17E-02
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E+00	1.22E-02	3.69E-02
I-135	7.04E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E+01	5.71E-03	2.16E-02
PARTICULATE											
I-131	5.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.48E-01	1.09E-05	8.37E-05
I-132	4.60E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-01	4.44E-04	1.42E-03
I-133	2.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E+00	1.15E-04	1.19E-03
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-01	6.70E-04	2.03E-03
I-135	3.87E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-01	3.14E-04	1.19E-03
ORGANIC											
I-131	4.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.59E-01	8.73E-06	6.69E-05
I-132	3.68E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-01	3.55E-04	1.13E-03
I-133	2.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E+00	9.20E-05	9.56E-04
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-01	5.36E-04	1.62E-03
I-135	3.10E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-01	2.51E-04	9.49E-04
NOBLE GASE											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	7.59E+01	3.11E-02	1.18E-01

QVA-QIPS1, Rev. 3

TOTAL DOSES 0-30 DAYS	3.22E+02	2.94E+00	6.35E-01	7.68E+01	3.16E-02	1.20E-01

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MSLB GAUSSIAN 4.0uCi/g, 4500 cfm

ISOTOPE	ACTIVITY RELEASED (CURIES)		
	0. HRS	720. HRS	
ELEMENTAL			
I-131	1.31E-01	0.00E+00	1.31E-01
I-132	1.27E+00	0.00E+00	1.27E+00
I-133	8.97E-01	0.00E+00	8.97E-01
I-134	2.49E+00	0.00E+00	2.49E+00
I-135	1.31E+00	0.00E+00	1.31E+00
PARTICULATE			
I-131	7.20E-03	0.00E+00	7.20E-03
I-132	6.98E-02	0.00E+00	6.98E-02
I-133	4.93E-02	0.00E+00	4.93E-02
I-134	1.37E-01	0.00E+00	1.37E-01
I-135	7.19E-02	0.00E+00	7.19E-02
ORGANIC			
I-131	5.76E-03	0.00E+00	5.76E-03
I-132	5.58E-02	0.00E+00	5.58E-02
I-133	3.94E-02	0.00E+00	3.94E-02
I-134	1.09E-01	0.00E+00	1.09E-01
I-135	5.75E-02	0.00E+00	5.75E-02
NOBLE GASES			
XE-131M	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00

END EXECUTION DATE: 03/19/1997
END EXECUTION TIME: 17:57:27.19

ØVA-ØIØS. Rev 3

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AXIDENT VER 2 MOD 4
PRODUCTION DATE 02/18/92
BEGIN EXECUTION DATE:  03/19/1997
BEGIN EXECUTION TIME:  18:26:43.93



 1 MSLB 4.0uCi/g, 4500 cfm
 2 8 2 1.0 1.0
 3 -2350 2.6E6 2.9865E5 2.9865E5
 4 0.0 0.0 0.0 1.0 6.6234E7 1.0 1.0
 5 5 33.0 1.8E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 2*1.1323E-6 6*0.0
 7 8*1.0
 8 8*0.0
 9 8*4500
10 8*1.0
11 8*1.0
12 8*0.0
13 8*0.0
14 8*0.0
15 8*0.0
16 8*0.0
17 8*0.9
18 0.0 7*2.54E-5
19 0.0 7*2.54E-5
20 0.0 7*2.54E-5
21 1.0 1.0 1.0 0.700 0.700 0.700
22 1.0 1.0 1.0
23 4712 45816 32269 90354 47115 0.0 0.0 0.0
24 8*0.0
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ØVA-Ø1Ø5, Rev. 3 Ø

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MSLB 4.0uCi/g, 4500 cfm

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	4.712E+03
I-132	4.582E+04
I-133	3.227E+04
I-134	9.835E+04
I-135	4.712E+04
XE-131M	0.000E+00
XE-133M	0.000E+00
XE-133	0.000E+00
XE-135M	0.000E+00
XE-135	0.000E+00
XE-138	0.000E+00
KR-83M	0.000E+00
KR-85M	0.000E+00
KR-85	0.000E+00
KR-87	0.000E+00
KR-88	0.000E+00

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .001 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.700
PARTICULATE	.000	.000	.000	.000	1.000	.700
ORGANIC	.000	.000	.000	.000	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.07E+03	0.00E+00	6.07E-03	9.02E-03	1.07E-06	3.12E+00	5.63E-04	2.75E-04	1.37E-03	1.58E-08	1.21E-07
I-132	1.04E+04	0.00E+00	5.90E-02	8.76E-02	1.04E-05	1.10E+00	3.54E-02	6.08E-03	4.81E-04	8.36E-07	2.67E-06
I-133	7.34E+03	0.00E+00	4.16E-02	6.17E-02	7.30E-06	5.77E+00	4.96E-03	4.04E-03	2.53E-03	1.71E-07	1.78E-06
I-134	2.05E+04	0.00E+00	1.16E-01	1.73E-01	2.04E-05	1.01E+00	5.64E-02	1.22E-02	4.43E-04	1.77E-06	5.35E-06
I-135	1.07E+04	0.00E+00	6.07E-02	9.01E-02	1.07E-05	2.61E+00	2.70E-02	4.30E-03	1.15E-03	4.99E-07	1.89E-06
PARTICULATE											
I-131	5.89E+01	0.00E+00	3.33E-04	4.95E-04	5.86E-08	1.71E-01	3.09E-05	1.51E-05	7.52E-05	8.66E-10	6.64E-09
I-132	5.72E+02	0.00E+00	3.24E-03	4.82E-03	5.69E-07	6.02E-02	1.94E-03	3.34E-04	2.64E-05	4.60E-08	1.47E-07
I-133	4.03E+02	0.00E+00	2.28E-03	3.39E-03	4.01E-07	3.17E-01	2.72E-04	2.22E-04	1.39E-04	9.40E-09	9.76E-08
I-134	1.13E+03	0.00E+00	6.39E-03	9.49E-03	1.12E-06	5.54E-02	3.10E-03	6.69E-04	2.43E-05	9.71E-08	2.94E-07
I-135	5.89E+02	0.00E+00	3.33E-03	4.95E-03	5.86E-07	1.43E-01	1.48E-03	2.36E-04	6.30E-05	2.74E-08	1.04E-07
ORGANIC											
I-131	4.71E+01	0.00E+00	2.67E-04	3.96E-04	4.69E-08	1.37E-01	2.47E-05	1.21E-05	6.02E-05	6.93E-10	5.31E-09
I-132	4.58E+02	0.00E+00	2.59E-03	3.85E-03	4.56E-07	4.81E-02	1.56E-03	2.67E-04	2.11E-05	3.68E-08	1.17E-07
I-133	3.23E+02	0.00E+00	1.83E-03	2.71E-03	3.21E-07	2.54E-01	2.18E-04	1.78E-04	1.11E-04	7.52E-09	7.81E-08
I-134	9.03E+02	0.00E+00	5.11E-03	7.59E-03	8.98E-07	4.44E-02	2.48E-03	5.35E-04	1.95E-05	7.77E-08	2.35E-07
I-135	4.71E+02	0.00E+00	2.67E-03	3.96E-03	4.69E-07	1.15E-01	1.19E-03	1.89E-04	5.04E-05	2.19E-08	8.30E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						1.49E+01	1.37E-01	2.95E-02	6.57E-03	3.61E-06	1.30E-05

QVA-0105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .009 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .08E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.[illegible]E+05	0.00E+00	3.40E-02	5.93E-02	7.01E-06	1.75E+01	3.15E-03	1.54E-03	5.81E-02	6.69E-07	5.13E-06
I-132	1.04E+04	0.00E+00	3.30E-01	5.75E-01	6.80E-05	6.12E+00	1.98E-01	3.40E-02	2.04E-02	3.54E-05	1.13E-04
I-133	7.34E+03	0.00E+00	2.33E-01	4.06E-01	4.80E-05	3.23E+01	2.77E-02	2.26E-02	1.08E-01	7.26E-06	7.54E-05
I-134	2.04E+04	0.00E+00	6.49E-01	1.13E+00	1.33E-04	5.63E+00	3.15E-01	6.79E-02	1.87E-02	7.47E-05	2.26E-04
I-135	1.07E+04	0.00E+00	3.40E-01	5.92E-01	7.00E-05	1.46E+01	1.51E-01	2.41E-02	4.87E-02	2.12E-05	8.01E-05
PARTICULATE											
I-131	5.89E+01	0.00E+00	1.87E-03	3.26E-03	3.85E-07	9.59E-01	1.73E-04	8.46E-05	3.19E-03	3.68E-08	2.82E-07
I-132	5.71E+02	0.00E+00	1.81E-02	3.16E-02	3.73E-06	3.37E-01	1.09E-02	1.87E-03	1.12E-03	1.95E-06	6.22E-06
I-133	4.03E+02	0.00E+00	1.28E-02	2.23E-02	2.64E-06	1.77E+00	1.52E-03	1.24E-03	5.91E-03	3.99E-07	4.14E-06
I-134	1.12E+03	0.00E+00	3.57E-02	6.20E-02	7.33E-06	3.09E-01	1.73E-02	3.73E-03	1.83E-03	4.10E-06	1.24E-05
I-135	5.88E+02	0.00E+00	1.87E-02	3.25E-02	3.85E-06	8.03E-01	8.30E-03	1.32E-03	2.67E-03	1.16E-06	4.40E-06
ORGANIC											
I-131	4.71E+01	0.00E+00	1.49E-03	2.61E-03	3.08E-07	7.67E-01	1.39E-04	6.77E-05	2.55E-03	2.94E-08	2.25E-07
I-132	4.57E+02	0.00E+00	1.45E-02	2.53E-02	2.99E-06	2.69E-01	8.70E-03	1.49E-03	8.96E-04	1.56E-06	4.97E-06
I-133	3.23E+02	0.00E+00	1.02E-02	1.78E-02	2.11E-06	1.42E+00	1.22E-03	9.95E-04	4.73E-03	3.19E-07	3.31E-06
I-134	8.97E+02	0.00E+00	2.85E-02	4.96E-02	5.86E-06	2.47E-01	1.38E-02	2.99E-03	8.23E-04	3.28E-06	9.93E-06
I-135	4.71E+02	0.00E+00	1.49E-02	2.60E-02	3.08E-06	6.42E-01	6.64E-03	1.06E-03	2.14E-03	9.31E-07	3.52E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						8.36E+01	7.63E-01	1.65E-01	2.79E-01	1.53E-04	5.49E-04

QA-0105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CEN MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000		.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.07E+03	0.00E+00	0.00E+00	3.63E-02	4.29E-06	0.00E+00	0.00E+00	0.00E+00	5.03E+00	5.79E-05	4.44E-04
I-132	8.97E+03	0.00E+00	0.00E+00	3.04E-01	3.60E-05	0.00E+00	0.00E+00	0.00E+00	1.65E+00	2.87E-03	9.19E-03
I-133	7.22E+03	0.00E+00	0.00E+00	2.45E-01	2.90E-05	0.00E+00	0.00E+00	0.00E+00	9.24E+00	6.24E-04	6.48E-03
I-134	1.38E+04	0.00E+00	0.00E+00	4.68E-01	5.53E-05	0.00E+00	0.00E+00	0.00E+00	1.36E+00	5.42E-03	1.64E-02
I-135	1.02E+04	0.00E+00	0.00E+00	3.45E-01	4.08E-05	0.00E+00	0.00E+00	0.00E+00	4.11E+00	1.79E-03	6.77E-03
PARTICULATE											
I-131	5.86E+01	0.00E+00	0.00E+00	1.99E-03	2.36E-07	0.00E+00	0.00E+00	0.00E+00	2.76E-01	3.18E-06	2.44E-05
I-132	4.93E+02	0.00E+00	0.00E+00	1.67E-02	1.98E-06	0.00E+00	0.00E+00	0.00E+00	9.06E-02	1.58E-04	5.03E-04
I-133	3.97E+02	0.00E+00	0.00E+00	1.35E-02	1.59E-06	0.00E+00	0.00E+00	0.00E+00	5.08E-01	3.43E-05	3.56E-04
I-134	7.57E+02	0.00E+00	0.00E+00	2.57E-02	3.04E-06	0.00E+00	0.00E+00	0.00E+00	7.47E-02	2.98E-04	9.01E-04
I-135	5.59E+02	0.00E+00	0.00E+00	1.90E-02	2.24E-06	0.00E+00	0.00E+00	0.00E+00	2.26E-01	9.84E-05	3.72E-04
ORGANIC											
I-131	4.70E+01	0.00E+00	0.00E+00	1.60E-03	1.89E-07	0.00E+00	0.00E+00	0.00E+00	2.21E-01	2.54E-06	1.95E-05
I-132	3.94E+02	0.00E+00	0.00E+00	1.34E-02	1.58E-06	0.00E+00	0.00E+00	0.00E+00	7.25E-02	1.26E-04	4.02E-04
I-133	3.17E+02	0.00E+00	0.00E+00	1.08E-02	1.27E-06	0.00E+00	0.00E+00	0.00E+00	4.06E-01	2.74E-05	2.85E-04
I-134	6.06E+02	0.00E+00	0.00E+00	2.06E-02	2.43E-06	0.00E+00	0.00E+00	0.00E+00	5.98E-02	2.38E-04	7.21E-04
I-135	4.47E+02	0.00E+00	0.00E+00	1.52E-02	1.79E-06	0.00E+00	0.00E+00	0.00E+00	1.81E-01	7.87E-05	2.98E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	2.35E+01	1.18E-02	4.31E-02

ØVA-0185, Rev. 3

1 MSLB 4.0uCI/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.06E+03	0.00E+00	0.00E+00	8.11E-03	9.59E-07	0.00E+00	0.00E+00	0.00E+00	6.17E+00	7.10E-05	5.44E-04
I-132	5.71E+03	0.00E+00	0.00E+00	4.35E-02	5.14E-06	0.00E+00	0.00E+00	0.00E+00	1.59E+00	2.76E-03	8.82E-03
I-133	6.87E+03	0.00E+00	0.00E+00	5.24E-02	6.19E-06	0.00E+00	0.00E+00	0.00E+00	1.11E+01	7.47E-04	7.75E-03
I-134	4.16E+03	0.00E+00	0.00E+00	3.17E-02	3.75E-06	0.00E+00	0.00E+00	0.00E+00	8.97E-01	3.58E-03	1.08E-02
I-135	8.72E+03	0.00E+00	0.00E+00	6.64E-02	7.86E-06	0.00E+00	0.00E+00	0.00E+00	4.65E+00	2.02E-03	7.65E-03
PARTICULATE											
I-131	5.85E+01	0.00E+00	0.00E+00	4.46E-04	5.27E-08	0.00E+00	0.00E+00	0.00E+00	3.39E-01	3.90E-06	2.99E-05
I-132	3.13E+02	0.00E+00	0.00E+00	2.39E-03	2.82E-07	0.00E+00	0.00E+00	0.00E+00	8.73E-02	1.52E-04	4.84E-04
I-133	3.78E+02	0.00E+00	0.00E+00	2.88E-03	3.40E-07	0.00E+00	0.00E+00	0.00E+00	6.08E-01	4.10E-05	4.26E-04
I-134	2.28E+02	0.00E+00	0.00E+00	1.74E-03	2.06E-07	0.00E+00	0.00E+00	0.00E+00	4.93E-02	1.96E-04	5.95E-04
I-135	4.79E+02	0.00E+00	0.00E+00	3.65E-03	4.32E-07	0.00E+00	0.00E+00	0.00E+00	2.55E-01	1.11E-04	4.21E-04
ORGANIC											
I-131	4.68E+01	0.00E+00	0.00E+00	3.57E-04	4.22E-08	0.00E+00	0.00E+00	0.00E+00	2.71E-01	3.12E-06	2.39E-05
I-132	2.51E+02	0.00E+00	0.00E+00	1.91E-03	2.26E-07	0.00E+00	0.00E+00	0.00E+00	6.98E-02	1.21E-04	3.88E-04
I-133	3.02E+02	0.00E+00	0.00E+00	2.30E-03	2.72E-07	0.00E+00	0.00E+00	0.00E+00	4.86E-01	3.28E-05	3.41E-04
I-134	1.83E+02	0.00E+00	0.00E+00	1.39E-03	1.65E-07	0.00E+00	0.00E+00	0.00E+00	3.94E-02	1.57E-04	4.76E-04
I-135	3.83E+02	0.00E+00	0.00E+00	2.92E-03	3.45E-07	0.00E+00	0.00E+00	0.00E+00	2.04E-01	8.89E-05	3.36E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	2.68E+01	1.01E-02	3.91E-02

Ø VA. Ø105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATN = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	1.04E+03	0.00E+00	0.00E+00	2.02E-05	2.39E-09	0.00E+00	0.00E+00	0.00E+00	1.77E+00	2.04E-05	1.56E-04
I-132	9.36E+02	0.00E+00	0.00E+00	1.82E-05	2.15E-09	0.00E+00	0.00E+00	0.00E+00	2.65E-01	4.60E-04	1.47E-03
I-133	5.64E+03	0.00E+00	0.00E+00	1.09E-04	1.29E-08	0.00E+00	0.00E+00	0.00E+00	3.00E+00	2.83E-04	2.10E-03
I-134	3.44E+01	0.00E+00	0.00E+00	6.67E-07	7.89E-11	0.00E+00	0.00E+00	0.00E+00	6.52E-02	2.60E-04	7.86E-04
I-135	4.09E+03	0.00E+00	0.00E+00	9.10E-05	1.08E-08	0.00E+00	0.00E+00	0.00E+00	1.11E+00	4.81E-04	1.82E-03
PARTICULATE											
I-131	5.72E+01	0.00E+00	0.00E+00	1.11E-06	1.31E-10	0.00E+00	0.00E+00	0.00E+00	9.73E-02	1.12E-06	8.58E-06
I-132	5.14E+01	0.00E+00	0.00E+00	9.98E-07	1.18E-10	0.00E+00	0.00E+00	0.00E+00	1.46E-02	2.53E-05	8.08E-05
I-133	3.10E+02	0.00E+00	0.00E+00	6.01E-06	7.11E-10	0.00E+00	0.00E+00	0.00E+00	1.65E-01	1.11E-05	1.16E-04
I-134	1.89E+00	0.00E+00	0.00E+00	3.66E-08	4.33E-12	0.00E+00	0.00E+00	0.00E+00	3.58E-03	1.43E-05	4.32E-05
I-135	2.58E+02	0.00E+00	0.00E+00	5.00E-06	5.91E-10	0.00E+00	0.00E+00	0.00E+00	6.08E-02	2.64E-05	1.00E-04
ORGANIC											
I-131	4.58E+01	0.00E+00	0.00E+00	8.88E-07	1.05E-10	0.00E+00	0.00E+00	0.00E+00	7.78E-02	8.96E-07	6.87E-06
I-132	4.11E+01	0.00E+00	0.00E+00	7.98E-07	9.44E-11	0.00E+00	0.00E+00	0.00E+00	1.16E-02	2.02E-05	6.46E-05
I-133	2.48E+02	0.00E+00	0.00E+00	4.81E-06	5.69E-10	0.00E+00	0.00E+00	0.00E+00	1.32E-01	8.90E-06	9.25E-05
I-134	1.51E+00	0.00E+00	0.00E+00	2.93E-08	3.47E-12	0.00E+00	0.00E+00	0.00E+00	2.86E-03	1.14E-05	3.46E-05
I-135	2.06E+02	0.00E+00	0.00E+00	4.00E-06	4.73E-10	0.00E+00	0.00E+00	0.00E+00	4.86E-02	2.12E-05	8.00E-05
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	6.82E+00	1.57E-03	6.96E-03

ΦYA-ΦIPS, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	9.83E+02	0.00E+00	0.00E+00	2.31E-12	2.73E-16	0.00E+00	0.00E+00	0.00E+00	4.42E-03	5.09E-08	3.90E-07
I-132	7.54E+00	0.00E+00	0.00E+00	1.77E-14	2.09E-18	0.00E+00	0.00E+00	0.00E+00	1.11E-04	1.92E-07	6.14E-07
I-133	3.32E+03	0.00E+00	0.00E+00	7.80E-12	9.22E-16	0.00E+00	0.00E+00	0.00E+00	6.28E-03	4.24E-07	4.40E-06
I-134	9.61E-05	0.00E+00	0.00E+00	2.26E-19	2.67E-23	0.00E+00	0.00E+00	0.00E+00	1.37E-06	5.47E-09	1.66E-08
I-135	8.98E+02	0.00E+00	0.00E+00	2.11E-12	2.49E-16	0.00E+00	0.00E+00	0.00E+00	1.52E-03	6.60E-07	2.50E-06
PARTICULATE											
I-131	5.40E+01	0.00E+00	0.00E+00	1.27E-13	1.50E-17	0.00E+00	0.00E+00	0.00E+00	2.43E-04	2.80E-09	2.14E-08
I-132	4.14E-01	0.00E+00	0.00E+00	9.72E-16	1.15E-19	0.00E+00	0.00E+00	0.00E+00	6.08E-06	1.06E-08	3.37E-08
I-133	1.83E+02	0.00E+00	0.00E+00	4.29E-13	5.07E-17	0.00E+00	0.00E+00	0.00E+00	3.45E-04	2.33E-08	2.42E-07
I-134	5.28E-06	0.00E+00	0.00E+00	1.24E-20	1.47E-24	0.00E+00	0.00E+00	0.00E+00	7.54E-08	3.01E-10	9.10E-10
I-135	4.93E+01	0.00E+00	0.00E+00	1.16E-13	1.37E-17	0.00E+00	0.00E+00	0.00E+00	8.34E-05	3.63E-08	1.37E-07
ORGANIC											
I-131	4.32E+01	0.00E+00	0.00E+00	1.01E-13	1.20E-17	0.00E+00	0.00E+00	0.00E+00	1.94E-04	2.24E-09	1.72E-08
I-132	3.31E-01	0.00E+00	0.00E+00	7.78E-16	9.19E-20	0.00E+00	0.00E+00	0.00E+00	4.86E-06	8.46E-09	2.70E-08
I-133	1.46E+02	0.00E+00	0.00E+00	3.43E-13	4.05E-17	0.00E+00	0.00E+00	0.00E+00	2.76E-04	1.86E-08	1.94E-07
I-134	4.22E-06	0.00E+00	0.00E+00	9.91E-21	1.17E-24	0.00E+00	0.00E+00	0.00E+00	6.03E-08	2.41E-10	7.28E-10
I-135	3.95E+01	0.00E+00	0.00E+00	9.26E-14	1.10E-17	0.00E+00	0.00E+00	0.00E+00	6.67E-05	2.90E-08	1.10E-07
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.36E-02	1.46E-06	8.71E-06

QVA-0105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	7.60E+02	0.00E+00	0.00E+00	1.32E-43	1.57E-47	0.00E+00	0.00E+00	0.00E+00	5.05E-10	5.81E-15	4.46E-14
I-132	2.85E-09	0.00E+00	0.00E+00	4.98E-55	5.88E-59	0.00E+00	0.00E+00	0.00E+00	1.08E-13	1.87E-16	5.98E-16
I-133	3.09E+02	0.00E+00	0.00E+00	5.38E-44	6.37E-48	0.00E+00	0.00E+00	0.00E+00	4.48E-10	3.02E-14	3.14E-13
I-134	9.83E-30	0.00E+00	0.00E+00	1.71E-75	2.03E-79	0.00E+00	0.00E+00	0.00E+00	4.64E-19	1.85E-21	5.60E-21
I-135	5.28E-01	0.00E+00	0.00E+00	9.21E-47	1.09E-50	0.00E+00	0.00E+00	0.00E+00	3.51E-11	1.53E-14	5.78E-14
PARTICULATE											
I-131	4.17E+01	0.00E+00	0.00E+00	7.28E-45	8.61E-49	0.00E+00	0.00E+00	0.00E+00	2.77E-11	3.10E-16	2.45E-15
I-132	1.57E-10	0.00E+00	0.00E+00	2.73E-56	3.23E-60	0.00E+00	0.00E+00	0.00E+00	5.92E-15	1.03E-17	3.29E-17
I-133	1.70E+01	0.00E+00	0.00E+00	2.96E-45	3.50E-49	0.00E+00	0.00E+00	0.00E+00	2.46E-11	1.66E-15	1.73E-14
I-134	5.40E-31	0.00E+00	0.00E+00	9.42E-77	1.11E-80	0.00E+00	0.00E+00	0.00E+00	2.55E-20	1.02E-22	3.08E-22
I-135	2.90E-02	0.00E+00	0.00E+00	5.06E-48	5.98E-52	0.00E+00	0.00E+00	0.00E+00	1.93E-12	8.40E-16	3.18E-15
ORGANIC											
I-131	3.34E+01	0.00E+00	0.00E+00	5.82E-45	6.89E-49	0.00E+00	0.00E+00	0.00E+00	2.22E-11	2.55E-16	1.96E-15
I-132	1.25E-10	0.00E+00	0.00E+00	2.19E-56	2.59E-60	0.00E+00	0.00E+00	0.00E+00	4.74E-15	8.24E-18	2.63E-17
I-133	1.36E+01	0.00E+00	0.00E+00	2.37E-45	2.80E-49	0.00E+00	0.00E+00	0.00E+00	1.97E-11	1.33E-15	1.38E-14
I-134	4.32E-31	0.00E+00	0.00E+00	7.54E-77	8.91E-81	0.00E+00	0.00E+00	0.00E+00	2.04E-20	8.13E-23	2.46E-22
I-135	2.32E-02	0.00E+00	0.00E+00	4.05E-48	4.79E-52	0.00E+00	0.00E+00	0.00E+00	1.54E-12	6.72E-16	2.54E-15
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.09E-09	5.63E-14	4.58E-13

QA-Bids, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	8.09E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-41	3.34E-46	2.56E-45
I-132	6.28E-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-54	5.27E-57	1.68E-56
I-133	3.49E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.09E-42	2.09E-46	2.17E-45
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53E-75	1.41E-77	4.26E-77
I-135	5.28E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-45	6.68E-49	2.53E-48
PARTICULATE											
I-131	4.44E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-42	1.83E-47	1.41E-46
I-132	3.45E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-55	2.90E-58	9.25E-58
I-133	1.92E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-43	1.15E-47	1.19E-46
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-76	7.73E-79	2.34E-78
I-135	2.90E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-47	3.67E-50	1.39E-49
ORGANIC											
I-131	3.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-42	1.47E-47	1.12E-46
I-132	2.76E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-55	2.32E-58	7.40E-58
I-133	1.54E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-43	9.17E-48	9.53E-47
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-76	6.18E-79	1.87E-78
I-135	2.32E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-47	2.94E-50	1.11E-49
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	3.53E-41	5.97E-46	5.20E-45

ØVA-ØIPS, Rev 3

TOTAL DOSES 0-30 DAYS	9.86E+01	9.00E-01	1.95E-01	5.74E+01	2.36E-02	8.98E-02

1

MSLB 4.0uCi/g, 4300 cfm

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	4.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.01E-02
I-132	3.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.89E-01
I-133	2.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-01
I-134	7.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.65E-01
I-135	4.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-01
PARTICULATE						
I-131	2.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03
I-132	2.14E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-02
I-133	1.51E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-02
I-134	4.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20E-02
I-135	2.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-02
ORGANIC						
I-131	1.76E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03
I-132	1.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-02
I-133	1.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-02
I-134	3.36E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-02
I-135	1.76E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-02
NOBLE GASES						
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

END EXECUTION DATE: 03/19/1997
END EXECUTION TIME: 18:26:44.31

ØVA-Ø1Ø5, Rev. 3

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AXIDENT VER 2 MOD 4
PRODUCTION DATE 02/18/92
BEGIN EXECUTION DATE:  03/19/1997
BEGIN EXECUTION TIME:  16:26:24.10



 1 MSLB 4.0uCi/g, 4500 cfm
 2 8 2 1.0 1.0
 3 -2350 2.6E6 2.9865E5 2.9865E5
 4 0.0 0.0 0.0 1.0 6.6234E7 1.0 1.0
 5 5 33.0 1.8E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 2*1.1323E-6 6*0.0
 7 8*1.0
 8 8*0.0
 9 8*4500
10 8*1.0
11 8*1.0
12 8*0.0
13 8*0.0
14 8*0.0
15 8*0.0
16 8*0.0
17 8*0.0
18 0.0 7*2.54E-5
19 0.0 7*2.54E-5
20 0.0 7*2.54E-5
21 1.0 1.0 1.0 0.700 0.700 0.700
22 1.0 1.0 1.0
23 3141 30544 21513 60235 31410 0.0 0.0 0.0
24 8*0.0
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1

MSLB 4.0uCi/g, 4500 cfm

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	3.141E+03
I-132	3.054E+04
I-133	2.151E+04
I-134	6.824E+04
I-135	3.141E+04
XE-131M	0.000E+00
XE-133M	0.000E+00
XE-133	0.000E+00
XE-135M	0.000E+00
XE-135	0.000E+00
XE-138	0.000E+00
KR-83M	0.000E+00
KR-85M	0.000E+00
KR-85	0.000E+00
KR-87	0.000E+00
KR-88	0.000E+00

ΦYR-Φ10.5, Rev. 1

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .001 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.700
PARTICULATE	.000	.000	.000	.000	1.000	.700
ORGANIC	.000	.000	.000	.000	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	7.15E+02	0.00E+00	4.05E-03	6.01E-03	7.11E-07	2.08E+00	3.75E-04	1.83E-04	9.13E-04	1.05E-08	8.05E-08
I-132	6.95E+03	0.00E+00	3.93E-02	5.84E-02	6.91E-06	7.30E-01	2.36E-02	4.05E-03	3.21E-04	5.58E-07	1.78E-06
I-133	4.89E+03	0.00E+00	2.77E-02	4.12E-02	4.87E-06	3.85E+00	3.30E-03	2.70E-03	1.69E-03	1.14E-07	1.18E-06
I-134	1.37E+04	0.00E+00	7.75E-02	1.15E-01	1.36E-05	6.73E-01	3.76E-02	8.11E-03	2.95E-04	1.18E-06	3.56E-06
I-135	7.14E+03	0.00E+00	4.05E-02	6.01E-02	7.11E-06	1.74E+00	1.80E-02	2.87E-03	7.65E-04	3.33E-07	1.26E-06
PARTICULATE											
I-131	3.93E+01	0.00E+00	2.22E-04	3.30E-04	3.91E-08	1.14E-01	2.06E-05	1.01E-05	5.01E-05	5.77E-10	4.42E-09
I-132	3.82E+02	0.00E+00	2.16E-03	3.21E-03	3.80E-07	4.01E-02	1.30E-03	2.23E-04	1.76E-05	3.06E-08	9.78E-08
I-133	2.69E+02	0.00E+00	1.52E-03	2.26E-03	2.67E-07	2.11E-01	1.82E-04	1.48E-04	9.28E-05	6.26E-09	6.51E-08
I-134	7.52E+02	0.00E+00	4.26E-03	6.33E-03	7.48E-07	3.70E-02	2.07E-03	4.46E-04	1.62E-05	6.47E-08	1.96E-07
I-135	3.93E+02	0.00E+00	2.22E-03	3.30E-03	3.90E-07	9.56E-02	9.89E-04	1.57E-04	4.20E-05	1.83E-08	6.92E-08
ORGANIC											
I-131	3.14E+01	0.00E+00	1.78E-04	2.64E-04	3.12E-08	9.13E-02	1.65E-05	8.06E-06	4.01E-05	4.62E-10	3.54E-09
I-132	3.05E+02	0.00E+00	1.73E-03	2.57E-03	3.04E-07	3.21E-02	1.04E-03	1.78E-04	1.41E-05	2.45E-08	7.83E-08
I-133	2.15E+02	0.00E+00	1.22E-03	1.81E-03	2.14E-07	1.69E-01	1.45E-04	1.18E-04	7.43E-05	5.01E-09	5.21E-08
I-134	6.02E+02	0.00E+00	3.41E-03	5.06E-03	5.98E-07	2.96E-02	1.65E-03	3.57E-04	1.30E-05	5.18E-08	1.57E-07
I-135	3.14E+02	0.00E+00	1.78E-03	2.64E-03	3.12E-07	7.65E-02	7.91E-04	1.26E-04	3.36E-05	1.46E-08	5.53E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						9.96E+00	9.11E-02	1.97E-02	4.38E-03	2.41E-06	8.65E-06

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 32.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .009 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= 9.783 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	7.15E+02	0.00E+00	2.27E-02	3.95E-02	4.67E-06	1.16E+01	2.10E-03	1.03E-03	3.87E-02	4.46E-07	3.42E-06
I-132	6.93E+03	0.00E+00	2.20E-01	3.83E-01	4.53E-05	4.08E+00	1.32E-01	2.27E-02	1.36E-02	2.36E-05	7.54E-05
I-133	4.89E+03	0.00E+00	1.55E-01	2.71E-01	3.20E-05	2.15E+01	1.85E-02	1.51E-02	7.17E-02	4.84E-06	5.03E-05
I-134	1.36E+04	0.00E+00	4.33E-01	7.52E-01	8.89E-05	3.75E+00	2.10E-01	4.53E-02	1.25E-02	4.98E-05	1.51E-04
I-135	7.14E+03	0.00E+00	2.26E-01	3.95E-01	4.67E-05	9.74E+00	1.01E-01	1.60E-02	3.24E-02	1.41E-05	5.34E-05
PARTICULATE											
I-131	3.93E+01	0.00E+00	1.24E-03	2.17E-03	2.57E-07	6.39E-01	1.15E-04	5.64E-05	2.13E-03	2.45E-08	1.88E-07
I-132	3.81E+02	0.00E+00	1.21E-02	2.11E-02	2.49E-06	2.24E-01	7.25E-03	1.25E-03	7.47E-04	1.30E-06	4.15E-06
I-133	2.69E+02	0.00E+00	8.52E-03	1.49E-02	1.76E-06	1.18E+00	1.02E-03	8.29E-04	3.94E-03	2.66E-07	2.76E-06
I-134	7.47E+02	0.00E+00	2.38E-02	4.13E-02	4.89E-06	2.06E-01	1.15E-02	2.49E-03	6.86E-04	2.74E-06	8.28E-06
I-135	3.92E+02	0.00E+00	1.24E-02	2.17E-02	2.56E-06	5.35E-01	5.53E-03	8.81E-04	1.78E-03	7.76E-07	2.93E-06
ORGANIC											
I-131	3.14E+01	0.00E+00	9.96E-04	1.74E-03	2.05E-07	5.11E-01	9.24E-05	4.51E-05	1.70E-03	1.96E-08	1.50E-07
I-132	3.05E+02	0.00E+00	9.67E-03	1.68E-02	1.99E-06	1.79E-01	5.80E-03	9.96E-04	5.97E-04	1.04E-06	3.32E-06
I-133	2.15E+02	0.00E+00	6.82E-03	1.19E-02	1.41E-06	9.47E-01	8.13E-04	6.63E-04	3.15E-03	2.13E-07	2.21E-06
I-134	5.98E+02	0.00E+00	1.90E-02	3.31E-02	3.91E-06	1.65E-01	9.22E-03	1.99E-03	5.49E-06	2.19E-06	6.62E-06
I-135	3.14E+02	0.00E+00	9.95E-03	1.74E-02	2.05E-06	4.28E-01	4.43E-03	7.05E-04	1.43E-03	6.20E-07	2.35E-06
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						5.58E+01	5.09E-01	1.10E-01	1.86E-01	1.02E-04	3.66E-04

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	7.13E+02	0.00E+00	0.00E+00	2.42E-02	2.86E-06	0.00E+00	0.00E+00	0.00E+00	3.35E+00	3.86E-05	2.96E-04
I-132	5.98E+03	0.00E+00	0.00E+00	2.03E-01	2.40E-05	0.00E+00	0.00E+00	0.00E+00	1.10E+00	1.91E-03	6.10E-03
I-133	4.81E+03	0.00E+00	0.00E+00	1.63E-01	1.93E-05	0.00E+00	0.00E+00	0.00E+00	6.16E+00	4.16E-04	4.32E-03
I-134	9.19E+03	0.00E+00	0.00E+00	3.12E-01	3.69E-05	0.00E+00	0.00E+00	0.00E+00	9.06E-01	3.61E-03	1.09E-02
I-135	6.79E+03	0.00E+00	0.00E+00	2.30E-01	2.72E-05	0.00E+00	0.00E+00	0.00E+00	2.74E+00	1.19E-03	4.52E-03
PARTICULATE											
I-131	3.92E+01	0.00E+00	0.00E+00	1.33E-03	1.57E-07	0.00E+00	0.00E+00	0.00E+00	1.84E-01	2.12E-06	1.62E-05
I-132	3.28E+02	0.00E+00	0.00E+00	1.11E-02	1.32E-06	0.00E+00	0.00E+00	0.00E+00	6.04E-02	1.05E-04	3.35E-04
I-133	2.65E+02	0.00E+00	0.00E+00	8.97E-03	1.06E-06	0.00E+00	0.00E+00	0.00E+00	3.39E-01	2.28E-05	2.37E-04
I-134	5.05E+02	0.00E+00	0.00E+00	1.71E-02	2.03E-06	0.00E+00	0.00E+00	0.00E+00	4.98E-02	1.99E-04	6.01E-04
I-135	3.73E+02	0.00E+00	0.00E+00	1.26E-02	1.50E-06	0.00E+00	0.00E+00	0.00E+00	1.51E-01	6.56E-05	2.48E-04
ORGANIC											
I-131	3.14E+01	0.00E+00	0.00E+00	1.06E-03	1.26E-07	0.00E+00	0.00E+00	0.00E+00	1.47E-01	1.70E-06	1.30E-05
I-132	2.63E+02	0.00E+00	0.00E+00	8.91E-03	1.05E-06	0.00E+00	0.00E+00	0.00E+00	4.83E-02	8.40E-05	2.68E-04
I-133	2.12E+02	0.00E+00	0.00E+00	7.18E-03	8.49E-07	0.00E+00	0.00E+00	0.00E+00	2.71E-01	1.83E-05	1.90E-04
I-134	4.04E+02	0.00E+00	0.00E+00	1.37E-02	1.62E-06	0.00E+00	0.00E+00	0.00E+00	3.98E-02	1.59E-04	4.81E-04
I-135	2.98E+02	0.00E+00	0.00E+00	1.01E-02	1.20E-06	0.00E+00	0.00E+00	0.00E+00	1.21E-01	5.25E-05	1.99E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.57E+01	7.68E-03	2.88E-02

DVA-DIPS. Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (1/H-E)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	7.09E+02	0.00E+00	0.00E+00	5.41E-03	6.39E-07	0.00E+00	0.00E+00	0.00E+00	4.11E+00	4.73E-05	3.63E-04
I-132	3.80E+03	0.00E+00	0.00E+00	2.90E-02	3.43E-06	0.00E+00	0.00E+00	0.00E+00	1.06E+00	1.84E-03	5.88E-03
I-133	4.58E+03	0.00E+00	0.00E+00	3.49E-02	4.13E-06	0.00E+00	0.00E+00	0.00E+00	7.38E+00	4.98E-04	5.17E-03
I-134	2.77E+03	0.00E+00	0.00E+00	2.11E-02	2.50E-06	0.00E+00	0.00E+00	0.00E+00	5.98E-01	2.38E-03	7.21E-03
I-135	5.81E+03	0.00E+00	0.00E+00	4.43E-02	5.24E-06	0.00E+00	0.00E+00	0.00E+00	3.10E+00	1.35E-03	5.90E-03
PARTICULATE											
I-131	3.90E+01	0.00E+00	0.00E+00	2.97E-04	3.51E-08	0.00E+00	0.00E+00	0.00E+00	2.26E-01	2.60E-06	1.99E-05
I-132	2.09E+02	0.00E+00	0.00E+00	1.59E-03	1.88E-07	0.00E+00	0.00E+00	0.00E+00	5.82E-02	1.01E-04	3.23E-04
I-133	2.52E+02	0.00E+00	0.00E+00	1.92E-03	2.27E-07	0.00E+00	0.00E+00	0.00E+00	4.05E-01	2.73E-05	2.84E-04
I-134	1.52E+02	0.00E+00	0.00E+00	1.16E-03	1.37E-07	0.00E+00	0.00E+00	0.00E+00	3.29E-02	1.31E-04	3.96E-04
I-135	3.19E+02	0.00E+00	0.00E+00	2.43E-03	2.88E-07	0.00E+00	0.00E+00	0.00E+00	1.70E-01	7.41E-05	2.80E-04
ORGANIC											
I-131	3.12E+01	0.00E+00	0.00E+00	2.38E-04	2.81E-08	0.00E+00	0.00E+00	0.00E+00	1.81E-01	2.08E-06	1.59E-05
I-132	1.67E+02	0.00E+00	0.00E+00	1.27E-03	1.51E-07	0.00E+00	0.00E+00	0.00E+00	4.65E-02	8.09E-05	2.58E-04
I-133	2.01E+02	0.00E+00	0.00E+00	1.53E-03	1.81E-07	0.00E+00	0.00E+00	0.00E+00	3.24E-01	2.19E-05	2.27E-04
I-134	1.22E+02	0.00E+00	0.00E+00	9.28E-04	1.10E-07	0.00E+00	0.00E+00	0.00E+00	2.63E-02	1.05E-04	3.17E-04
I-135	2.55E+02	0.00E+00	0.00E+00	1.95E-03	2.30E-07	0.00E+00	0.00E+00	0.00E+00	1.36E-01	5.93E-05	2.24E-04
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	1.78E+01	6.72E-03	2.61E-02

DVA-0105, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	6.94E+02	0.00E+00	0.00E+00	1.35E-05	1.59E-09	0.00E+00	0.00E+00	0.00E+00	1.18E+00	1.36E-05	1.04E-04
I-132	6.24E+02	0.00E+00	0.00E+00	1.21E-05	1.43E-09	0.00E+00	0.00E+00	0.00E+00	1.77E-01	3.87E-04	9.80E-04
I-133	3.76E+03	0.00E+00	0.00E+00	7.29E-05	8.62E-09	0.00E+00	0.00E+00	0.00E+00	2.00E+00	1.35E-04	1.40E-03
I-134	2.29E+01	0.00E+00	0.00E+00	4.45E-07	5.26E-11	0.00E+00	0.00E+00	0.00E+00	4.34E-02	1.73E-04	5.24E-04
I-135	3.13E+03	0.00E+00	0.00E+00	6.07E-05	7.17E-09	0.00E+00	0.00E+00	0.00E+00	7.37E-01	3.21E-04	1.21E-03
PARTICULATE											
I-131	3.81E+01	0.00E+00	0.00E+00	7.40E-07	8.75E-11	0.00E+00	0.00E+00	0.00E+00	6.48E-02	7.46E-07	5.72E-06
I-132	3.43E+01	0.00E+00	0.00E+00	6.65E-07	7.86E-11	0.00E+00	0.00E+00	0.00E+00	9.70E-03	1.69E-05	5.38E-05
I-133	2.06E+02	0.00E+00	0.00E+00	4.01E-06	4.74E-10	0.00E+00	0.00E+00	0.00E+00	1.10E-01	7.42E-06	7.71E-05
I-134	1.26E+00	0.00E+00	0.00E+00	2.44E-08	2.89E-12	0.00E+00	0.00E+00	0.00E+00	2.39E-03	9.52E-06	2.88E-05
I-135	1.72E+02	0.00E+00	0.00E+00	3.33E-06	3.94E-10	0.00E+00	0.00E+00	0.00E+00	4.05E-02	1.76E-05	6.67E-05
ORGANIC											
I-131	3.05E+01	0.00E+00	0.00E+00	5.92E-07	7.00E-11	0.00E+00	0.00E+00	0.00E+00	5.19E-02	5.97E-07	4.58E-06
I-132	2.74E+01	0.00E+00	0.00E+00	5.32E-07	6.29E-11	0.00E+00	0.00E+00	0.00E+00	7.76E-03	1.35E-05	4.31E-05
I-133	1.65E+02	0.00E+00	0.00E+00	3.21E-06	3.79E-10	0.00E+00	0.00E+00	0.00E+00	8.80E-02	5.94E-06	6.17E-05
I-134	1.01E+00	0.00E+00	0.00E+00	1.95E-08	2.31E-12	0.00E+00	0.00E+00	0.00E+00	1.91E-03	7.61E-06	2.30E-05
I-135	1.37E+02	0.00E+00	0.00E+00	2.67E-06	3.15E-10	0.00E+00	0.00E+00	0.00E+00	3.24E-02	1.41E-05	5.34E-05
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	4.55E+00	1.04E-03	4.64E-03

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	6.56E+02	0.00E+00	0.00E+00	1.54E-12	1.82E-16	0.00E+00	0.00E+00	0.00E+00	2.95E-03	3.49E-08	2.60E-07
I-132	5.03E+00	0.00E+00	0.00E+00	1.18E-14	1.39E-18	0.00E+00	0.00E+00	0.00E+00	7.38E-05	1.28E-07	4.09E-07
I-133	2.22E+03	0.00E+00	0.00E+00	5.20E-12	6.15E-16	0.00E+00	0.00E+00	0.00E+00	4.19E-03	2.83E-07	2.94E-06
I-134	6.41E-05	0.00E+00	0.00E+00	1.50E-19	1.78E-23	0.00E+00	0.00E+00	0.00E+00	9.15E-07	3.65E-09	1.10E-08
I-135	5.99E+02	0.00E+00	0.00E+00	1.40E-12	1.66E-16	0.00E+00	0.00E+00	0.00E+00	1.01E-03	4.40E-07	1.67E-06
PARTICULATE											
I-131	3.60E+01	0.00E+00	0.00E+00	8.45E-14	9.99E-18	0.00E+00	0.00E+00	0.00E+00	1.62E-04	1.86E-09	1.43E-08
I-132	2.76E-01	0.00E+00	0.00E+00	6.48E-16	7.66E-20	0.00E+00	0.00E+00	0.00E+00	4.05E-06	7.05E-09	2.25E-08
I-133	1.22E+02	0.00E+00	0.00E+00	2.86E-13	3.38E-17	0.00E+00	0.00E+00	0.00E+00	2.30E-04	1.55E-08	1.61E-07
I-134	3.52E-06	0.00E+00	0.00E+00	8.26E-21	9.77E-25	0.00E+00	0.00E+00	0.00E+00	5.03E-08	2.00E-10	6.06E-10
I-135	3.29E+01	0.00E+00	0.00E+00	7.72E-14	9.13E-18	0.00E+00	0.00E+00	0.00E+00	5.56E-05	2.42E-08	9.15E-08
ORGANIC											
I-131	2.88E+01	0.00E+00	0.00E+00	6.76E-14	8.00E-18	0.00E+00	0.00E+00	0.00E+00	1.30E-04	1.49E-09	1.14E-08
I-132	2.21E-01	0.00E+00	0.00E+00	5.18E-16	6.13E-20	0.00E+00	0.00E+00	0.00E+00	3.24E-06	5.64E-09	1.80E-08
I-133	9.74E+01	0.00E+00	0.00E+00	2.29E-13	2.70E-17	0.00E+00	0.00E+00	0.00E+00	1.84E-04	1.24E-08	1.29E-07
I-134	2.82E-06	0.00E+00	0.00E+00	6.61E-21	7.82E-25	0.00E+00	0.00E+00	0.00E+00	4.02E-08	1.60E-10	4.85E-10
I-135	2.63E+01	0.00E+00	0.00E+00	6.17E-14	7.30E-18	0.00E+00	0.00E+00	0.00E+00	4.45E-05	1.93E-08	7.32E-08
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	9.04E-03	9.76E-07	5.80E-06

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .000 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	5.06E+02	0.00E+00	0.00E+00	8.83E-44	1.04E-47	0.00E+00	0.00E+00	0.00E+00	3.37E-10	3.87E-15	2.97E-14
I-132	1.90E-09	0.00E+00	0.00E+00	3.32E-55	3.92E-59	0.00E+00	0.00E+00	0.00E+00	7.19E-14	1.25E-16	3.99E-16
I-133	2.06E+02	0.00E+00	0.00E+00	3.59E-44	4.24E-48	0.00E+00	0.00E+00	0.00E+00	2.99E-10	2.02E-14	2.09E-13
I-134	6.55E-30	0.00E+00	0.00E+00	1.14E-75	1.35E-79	0.00E+00	0.00E+00	0.00E+00	3.09E-19	1.23E-21	3.73E-21
I-135	3.52E-01	0.00E+00	0.00E+00	6.14E-47	7.26E-51	0.00E+00	0.00E+00	0.00E+00	2.34E-11	1.02E-14	3.85E-14
PARTICULATE											
I-131	2.78E+01	0.00E+00	0.00E+00	4.85E-45	5.74E-49	0.00E+00	0.00E+00	0.00E+00	1.85E-11	2.13E-16	1.33E-15
I-132	1.04E-10	0.00E+00	0.00E+00	1.82E-56	2.16E-60	0.00E+00	0.00E+00	0.00E+00	3.95E-15	6.87E-18	2.19E-17
I-133	1.13E+01	0.00E+00	0.00E+00	1.97E-45	2.33E-49	0.00E+00	0.00E+00	0.00E+00	1.64E-11	1.11E-15	1.15E-14
I-134	3.60E-31	0.00E+00	0.00E+00	6.28E-77	7.43E-81	0.00E+00	0.00E+00	0.00E+00	1.70E-20	6.78E-23	2.05E-22
I-135	1.93E-02	0.00E+00	0.00E+00	3.37E-48	3.99E-52	0.00E+00	0.00E+00	0.00E+00	1.29E-12	5.60E-16	2.12E-15
ORGANIC											
I-131	2.23E+01	0.00E+00	0.00E+00	3.88E-45	4.59E-49	0.00E+00	0.00E+00	0.00E+00	1.48E-11	1.70E-16	1.31E-15
I-132	8.36E-11	0.00E+00	0.00E+00	1.46E-56	1.72E-60	0.00E+00	0.00E+00	0.00E+00	3.16E-15	5.49E-18	1.75E-17
I-133	9.04E+00	0.00E+00	0.00E+00	1.58E-45	1.87E-49	0.00E+00	0.00E+00	0.00E+00	1.31E-11	8.86E-16	9.20E-15
I-134	2.88E-31	0.00E+00	0.00E+00	5.02E-77	5.94E-81	0.00E+00	0.00E+00	0.00E+00	1.36E-20	5.42E-23	1.64E-22
I-135	1.55E-02	0.00E+00	0.00E+00	2.70E-48	3.19E-52	0.00E+00	0.00E+00	0.00E+00	1.03E-12	4.48E-16	1.69E-15
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	7.24E-10	3.77E-14	3.06E-13

ΦYA-ΦIPS, Rev. 3

1 MSLB 4.0uCi/g, 4500 cfm

ANALYSIS BASED ON: 2350 MWT, 298650. FT3 CONT CENTER VOLUME, 298650. FT3 CONTROL ROOM VOLUME, 52.24 FT EFF RADIUS

******** FT3 SPRAYED VOL, 1. FT3 UNSPRAYED VOL, 1. CFM MIXING, 100.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .10E+01 SEC/M3 PRIMARY LEAK RATE= .060 PERCENT/DAY CONTROL ROOM INTAKE=4500.0 CFM

X/Q CONT ROOM= .10E+01 SEC/M3 SEC RELEASE RATE= .86E+05 VOL/DAY PCT PRI LKG TO ATM = 100.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.914E-01	1.000	.700
PARTICULATE	.000	.000	.000	.914E-01	1.000	.700
ORGANIC	.000	.000	.000	.914E-01	1.000	.700

	ACTIVITY (CURIES)			CONTROL ROOM		SITE BOUNDARY DOSES (REM)			CONTROL ROOM DOSES (REM)		
ISOTOPE	PRIMARY	SECONDARY	RELEASE	(CURIES)	(UCI/CM3)	THYROID	WH BODY	BETA	THYROID	WH BODY	BETA
ELEMENTAL											
I-131	5.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-41	2.22E-46	1.71E-45
I-132	4.18E-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-54	3.52E-57	1.12E-56
I-133	2.33E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-42	1.39E-46	1.45E-45
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-75	9.38E-78	2.84E-77
I-135	3.52E-29	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-45	4.45E-49	1.68E-48
PARTICULATE											
I-131	2.96E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-42	1.22E-47	9.37E-47
I-132	2.30E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-55	1.93E-58	6.17E-58
I-133	1.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-43	7.64E-48	7.94E-47
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-76	5.15E-79	1.56E-78
I-135	1.93E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.62E-47	2.45E-50	9.26E-50
ORGANIC											
I-131	2.37E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.49E-43	9.78E-48	7.49E-47
I-132	1.84E-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.89E-56	1.55E-58	4.93E-58
I-133	1.02E-0.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.06E-44	6.12E-48	6.35E-47
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-76	4.12E-79	1.25E-78
I-135	1.55E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-47	1.96E-50	7.40E-50
NOBLE GASES											
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	2.35E-41	3.98E-46	3.46E-45

TOTAL DOSES 0-30 DAYS	6.57E+01	6.00E-01	1.30E-01	3.83E+01	1.58E-02	5.99E-02

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MSLB 4.0uCi/g, 4500 cfm

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	2.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-02
I-132	2.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-01
I-133	1.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-01
I-134	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E-01
I-135	2.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-01
PARTICULATE						
I-131	1.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-03
I-132	1.42E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-02
I-133	1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02
I-134	2.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-02
I-135	1.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-02
ORGANIC						
I-131	1.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-03
I-132	1.14E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-02
I-133	8.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-03
I-134	2.24E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-02
I-135	1.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-02
NOBLE GASES						
XE-131M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

END EXECUTION DATE: 03/19/1997
END EXECUTION TIME: 18:26:24.48

QVA-0105, Rev. 3

Calc. No. CP&L-CED-M-01, Rev. 3, Attachment N, ICRP 30 DCF Conversion, Uniform Cloud w/4.0 uCi/g

1 OF 1

	5 sec	33 sec	30 min	2 hrs	8 hrs	24 hrs	4 days	30 days	Total w/ Axident DCFs	Axident DCF	ICRP 30 DCF	Total w/ ICRP 30 DCFs
Elemental Iodines												
I-131	1.83E-03	7.75E-02	6.70E+00	8.22E+00	2.36E+00	5.90E-03	6.73E-10	3.87E-41	1.74E+01	1.48E+06	1.10E+06	1.29E+01
I-132	6.41E-04	2.72E-02	2.20E+00	2.12E+00	3.53E-01	1.48E-04	1.44E-13	4.04E-54	4.70E+00	5.35E+04	6.30E+03	5.54E-01
I-133	3.38E-03	1.43E-01	1.23E+01	1.48E+01	4.00E+00	8.38E-03	5.97E-10	4.12E-42	3.13E+01	4.00E+05	1.80E+05	1.41E+01
I-134	5.91E-04	2.50E-02	1.81E+00	1.20E+00	8.69E-02	1.83E-06	6.19E-19	4.70E-75	3.12E+00	2.50E+04	1.10E+03	1.37E-01
I-135	1.53E-03	6.49E-02	5.49E+00	6.20E+00	1.47E+00	2.02E-03	4.68E-11	2.05E-45	1.32E+01	1.24E+05	3.10E+04	3.31E+00
Particulate Iodines												
I-131	1.00E-04	4.26E-03	3.68E-01	4.52E-01	1.30E-01	3.24E-04	3.70E-11	2.12E-42	9.55E-01	1.48E+06	1.10E+06	7.10E-01
I-132	3.52E-05	1.49E-03	1.21E-01	1.16E-01	1.94E-02	8.11E-06	7.90E-15	2.22E-55	2.58E-01	5.35E+04	6.30E+03	3.04E-02
I-133	1.86E-04	7.88E-03	6.77E-01	8.11E-01	2.20E-01	4.60E-04	3.28E-11	2.27E-43	1.72E+00	4.00E+05	1.80E+05	7.72E-01
I-134	3.25E-05	1.37E-03	9.96E-02	6.57E-02	4.77E-03	1.01E-07	3.40E-20	2.58E-76	1.71E-01	2.50E+04	1.10E+03	7.54E-03
I-135	8.40E-05	3.56E-03	3.01E-01	3.41E-01	8.10E-02	1.11E-04	2.57E-12	1.12E-46	7.27E-01	1.24E+05	3.10E+04	1.82E-01
Organic Iodines												
I-131	8.02E-05	3.41E-03	2.95E-01	3.61E-01	1.04E-01	2.59E-04	2.96E-11	1.70E-42	7.64E-01	1.48E+06	1.10E+06	5.68E-01
I-132	2.82E-05	1.19E-03	9.67E-02	9.31E-02	1.55E-02	6.48E-06	6.32E-15	1.78E-55	2.07E-01	5.35E+04	6.30E+03	2.43E-02
I-133	1.49E-04	6.30E-03	5.42E-01	6.48E-01	1.76E-01	3.68E-04	2.63E-11	1.81E-43	1.37E+00	4.00E+05	1.80E+05	6.18E-01
I-134	2.60E-05	1.10E-03	7.97E-02	5.26E-02	3.82E-03	8.04E-08	2.72E-20	2.07E-76	1.37E-01	2.50E+04	1.10E+03	6.04E-03
I-135	6.72E-05	2.85E-03	2.41E-01	2.72E-01	6.48E-02	8.89E-05	2.06E-12	9.00E-47	5.81E-01	1.24E+05	3.10E+04	1.45E-01
Total Dose									7.66E+01			3.40E+01
DCF Dose Reduction Factor												4.45E-01

ØNA-Ø1Ø5, Rev. 3

	4 sec	8 sec	12 sec	16 sec	20 sec	24 sec	28 sec	32 sec	36 sec	40 sec	43 sec	47 sec
Elemental Iodines												
I-131	1.50E-05	6.44E-05	1.71E-04	3.83E-04	7.69E-04	1.41E-03	2.39E-03	3.77E-03	5.54E-03	7.63E-03	7.20E-03	1.16E-02
I-132	5.26E-06	2.26E-05	6.02E-05	1.35E-04	2.70E-04	4.95E-04	8.39E-04	1.32E-03	1.94E-03	2.67E-03	2.52E-03	4.05E-03
I-133	2.77E-05	1.19E-04	3.17E-04	7.09E-04	1.42E-03	2.61E-03	4.43E-03	6.98E-03	1.03E-02	1.41E-02	1.33E-02	2.14E-02
I-134	4.84E-06	2.08E-05	5.54E-05	1.24E-04	2.48E-04	4.55E-04	7.71E-04	1.21E-03	1.78E-03	2.45E-03	2.31E-03	3.71E-03
I-135	1.25E-05	5.39E-05	1.43E-04	3.21E-04	6.44E-04	1.18E-03	2.00E-03	3.16E-03	4.64E-03	6.38E-03	6.02E-03	9.68E-03
Particulate Iodines												
I-131	8.22E-07	3.54E-06	9.41E-06	2.11E-05	4.22E-05	7.75E-05	1.31E-04	2.07E-04	3.04E-04	4.19E-04	3.95E-04	6.35E-04
I-132	2.89E-07	1.24E-06	3.31E-06	7.39E-06	1.48E-05	2.72E-05	4.61E-05	7.26E-05	1.07E-04	1.47E-04	1.39E-04	2.23E-04
I-133	1.52E-06	6.54E-06	1.74E-05	3.90E-05	7.82E-05	1.43E-04	2.43E-04	3.83E-04	5.63E-04	7.75E-04	7.32E-04	1.18E-03
I-134	2.66E-07	1.14E-06	3.04E-06	6.80E-06	1.36E-05	2.50E-05	4.23E-05	6.67E-05	9.79E-05	1.35E-04	1.27E-04	2.04E-04
I-135	6.88E-07	2.96E-06	7.88E-06	1.76E-05	3.54E-05	6.49E-05	1.10E-04	1.73E-04	2.55E-04	3.51E-04	3.31E-04	5.32E-04
Organic Iodines												
I-131	6.57E-07	2.83E-06	7.53E-06	1.68E-05	3.38E-06	6.20E-05	1.05E-04	1.66E-04	2.44E-04	3.35E-04	3.16E-04	5.08E-04
I-132	2.31E-07	9.94E-07	2.64E-06	5.91E-06	1.19E-05	2.18E-05	3.69E-05	5.81E-05	8.54E-05	1.17E-04	1.11E-04	1.78E-04
I-133	1.22E-06	5.24E-06	1.39E-05	3.12E-05	6.25E-05	1.15E-04	1.95E-04	3.07E-04	4.51E-04	6.20E-04	5.85E-04	9.41E-04
I-134	2.13E-07	9.15E-07	2.43E-06	5.44E-06	1.09E-05	2.00E-05	3.39E-05	5.33E-05	7.83E-05	1.08E-04	1.02E-04	1.63E-04
I-135	5.51E-07	2.37E-06	6.31E-06	1.41E-05	2.83E-05	5.19E-05	8.81E-05	1.39E-04	2.04E-04	2.81E-04	2.65E-04	4.25E-04
Total Dose												
DCF Dose Reduction Factor												

ØNA-Ø105, Rev. 3

51 sec	55 sec	59 sec	63 sec	67 sec	71 sec	75 sec	79 sec	81 sec	30 days	Total w/ Axident DCFs	Axident DCF	ICRP 30 DCF	Total w/ ICRP 30 DCFs
1.37E-02	1.54E-02	1.68E-02	1.78E-02	1.85E-02	1.88E-02	1.90E-02	1.91E-02	9.58E-03	1.73E+01	1.75E+01	1.48E+06	1.10E+06	1.30E+01
4.78E-03	5.40E-03	5.89E-03	6.23E-03	6.45E-03	6.58E-03	6.65E-03	6.68E-03	3.35E-03	4.64E+00	4.71E+00	5.35E+04	6.30E+03	5.54E-01
2.53E-02	2.86E-02	3.11E-02	3.30E-02	3.42E-02	3.49E-02	3.52E-02	3.54E-02	1.77E-02	3.10E+01	3.14E+01	4.00E+05	1.80E+05	1.41E+01
4.38E-03	4.94E-03	5.38E-03	5.69E-03	5.89E-03	6.01E-03	6.07E-03	6.09E-03	3.05E-03	3.06E+00	3.12E+00	2.50E+04	1.10E+03	1.37E-01
1.14E-02	1.29E-02	1.41E-02	1.49E-02	1.54E-02	1.58E-02	1.59E-02	1.60E-02	8.01E-03	1.31E+01	1.33E+01	1.24E+05	3.10E+04	3.31E+00
7.51E-04	8.48E-04	9.25E-04	9.79E-04	1.01E-03	1.04E-03	1.05E-03	1.05E-03	5.26E-04	9.48E-01	9.58E-01	1.48E+06	1.10E+06	7.12E-01
2.63E-04	2.97E-04	3.24E-04	3.42E-04	3.55E-04	3.62E-04	3.66E-04	3.67E-04	1.84E-04	2.55E-01	2.59E-01	5.35E+04	6.30E+03	3.05E-02
1.39E-03	1.57E-03	1.71E-03	1.81E-03	1.88E-03	1.92E-03	1.94E-03	1.94E-03	9.74E-04	1.70E+00	1.72E+00	4.00E+05	1.80E+05	7.74E-01
2.41E-04	2.72E-04	2.96E-04	3.13E-04	3.24E-04	3.30E-04	3.33E-04	3.35E-04	1.68E-04	1.68E-01	1.71E-01	2.50E+04	1.10E+03	7.54E-03
6.28E-04	7.10E-04	7.74E-04	8.19E-04	8.49E-04	8.68E-04	8.75E-04	8.79E-04	4.40E-04	7.21E-01	7.30E-01	1.24E+05	3.10E+04	1.82E-01
6.00E-04	6.79E-04	7.40E-04	7.83E-04	8.11E-04	8.28E-04	8.37E-04	8.41E-04	4.21E-04	7.59E-01	7.67E-01	1.48E+06	1.10E+06	5.70E-01
2.10E-04	2.38E-04	2.59E-04	2.74E-04	2.84E-04	2.89E-04	2.92E-04	2.94E-04	1.47E-04	2.04E-01	2.07E-01	5.35E+04	6.30E+03	2.44E-02
1.11E-03	1.26E-03	1.37E-03	1.45E-03	1.50E-03	1.53E-03	1.55E-03	1.56E-03	7.79E-04	1.36E+00	1.38E+00	4.00E+05	1.80E+05	6.19E-01
1.92E-04	2.17E-04	2.37E-04	2.50E-04	2.59E-04	2.64E-04	2.67E-04	2.68E-04	1.34E-04	1.34E-01	1.37E-01	2.50E+04	1.10E+03	6.01E-03
5.02E-04	5.68E-04	6.19E-04	6.55E-04	6.79E-04	6.93E-04	7.00E-04	7.03E-04	3.52E-04	5.77E-01	5.84E-01	1.24E+05	3.10E+04	1.48E-01
										7.68E+01			3.42E+01
													4.45E-01

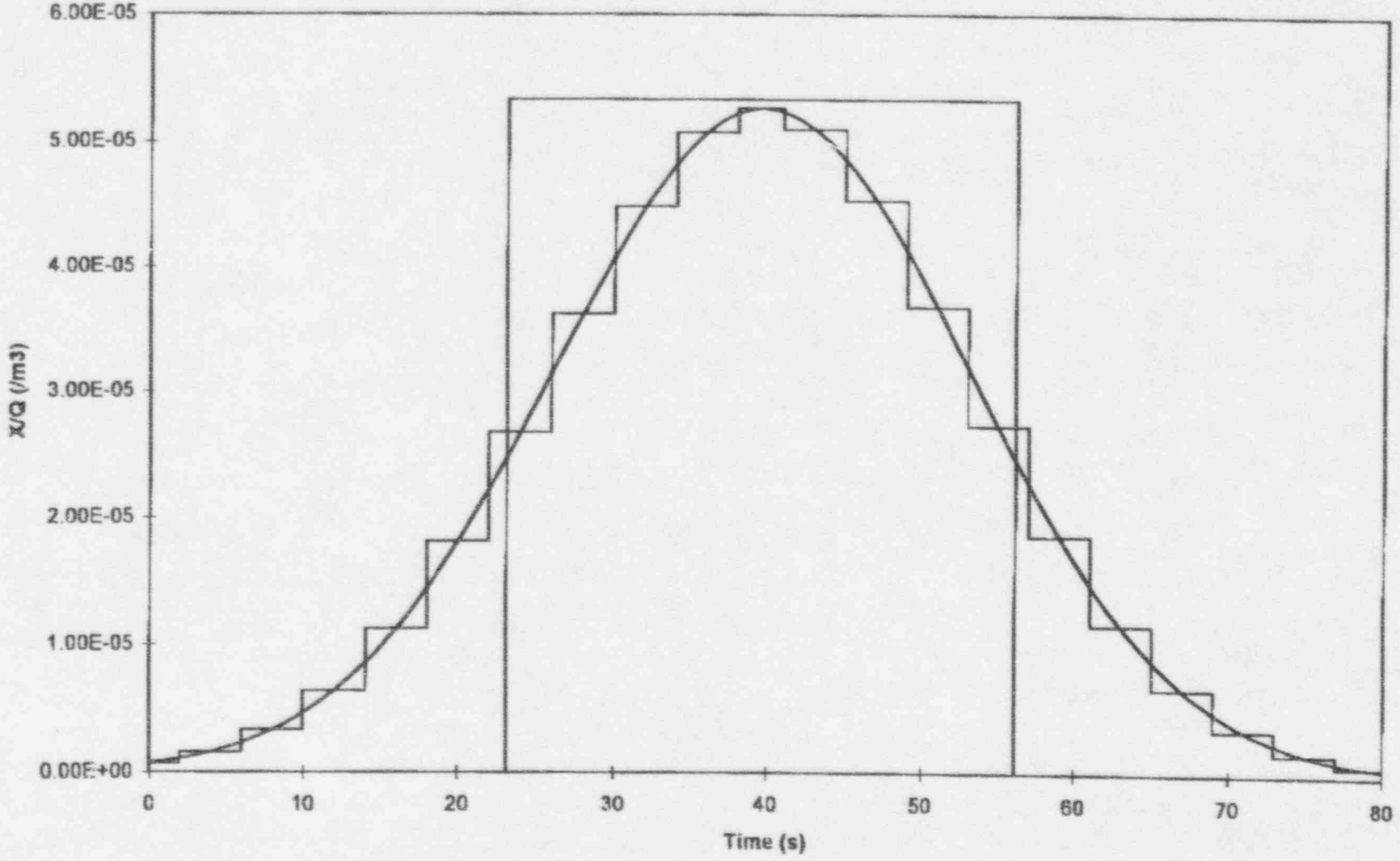
ØVA-Ø1ØS, Rev. 3

	5 sec	33 sec	30 min	2 hrs	8 hrs	24 hrs	4 days	30 days	Total w/ Axident DCFs	Axident DCF	ICRP 30 DCF	Total w/ ICRP 30 DCFs
Elemental Iodines												
I-131	1.37E-03	5.81E-02	5.03E+00	6.17E+00	1.77E+00	4.42E-03	5.05E-10	2.80E-41	1.30E+01	1.48E+06	1.10E+06	9.69E+00
I-132	4.81E-04	2.04E-02	1.65E+00	1.59E+00	2.65E-01	1.11E-04	1.08E-13	3.03E-54	3.53E+00	5.35E+04	6.30E+03	4.15E-01
I-133	2.53E-03	1.08E-01	9.24E+00	1.11E+01	3.00E+00	6.28E-03	4.48E-10	3.09E-42	2.35E+01	4.00E+05	1.80E+05	1.06E+01
I-134	4.43E-04	1.87E-02	1.36E+00	8.97E-01	6.52E-02	1.37E-06	4.64E-19	3.53E-75	2.34E+00	2.50E+04	1.10E+03	1.03E-01
I-135	1.15E-03	4.87E-02	4.11E+00	4.65E+00	1.11E+00	1.52E-03	3.51E-11	1.53E-45	9.92E+00	1.24E+05	3.10E+04	2.48E+00
Particulate Iodines												
I-131	7.52E-05	3.19E-03	2.76E-01	3.39E-01	9.73E-02	2.43E-04	2.77E-11	1.59E-42	7.16E-01	1.48E+06	1.10E+06	5.32E-01
I-132	2.64E-05	1.12E-03	9.06E-02	8.73E-02	1.46E-02	6.08E-06	5.92E-15	1.67E-55	1.94E-01	5.35E+04	6.30E+03	2.28E-02
I-133	1.39E-04	5.91E-03	5.08E-01	6.08E-01	1.65E-01	3.45E-04	2.46E-11	1.70E-43	1.29E+00	4.00E+05	1.80E+05	5.79E-01
I-134	2.43E-05	1.03E-03	7.47E-02	4.93E-02	3.58E-03	7.54E-08	2.55E-20	1.94E-76	1.29E-01	2.50E+04	1.10E+03	5.68E-03
I-135	6.30E-05	2.67E-03	2.26E-01	2.55E-01	6.08E-02	8.34E-05	1.93E-12	8.43E-47	5.45E-01	1.24E+05	3.10E+04	1.36E-01
Organic Iodines												
I-131	6.02E-05	2.55E-03	2.21E-01	2.71E-01	7.78E-02	1.94E-04	2.22E-11	1.27E-42	5.73E-01	1.48E+06	1.10E+06	4.26E-01
I-132	2.11E-05	8.96E-04	7.25E-02	6.98E-02	1.16E-02	4.86E-06	4.74E-15	1.33E-55	1.55E-01	5.35E+04	6.30E+03	1.82E-02
I-133	1.11E-04	4.73E-03	4.06E-01	4.86E-01	1.32E-01	2.76E-04	1.97E-11	1.36E-43	1.03E+00	4.00E+05	1.80E+05	4.63E-01
I-134	1.95E-05	8.23E-04	5.98E-02	3.94E-02	2.86E-03	6.03E-08	2.04E-20	1.55E-76	1.03E-01	2.50E+04	1.10E+03	4.53E-03
I-135	5.04E-05	2.14E-03	1.81E-01	2.04E-01	4.86E-02	6.67E-05	1.54E-12	6.75E-47	4.36E-01	1.24E+05	3.10E+04	1.09E-01
Total Dose									5.74E+01			2.55E+01
DCF Dose Reduction Factor												4.45E-01

	5 sec	33 sec	30 min	2 hrs	8 hrs	24 hrs	4 days	30 days	Total w/ Axident DCFs	Axident DCF	ICRP 30 DCF	Total w/ ICRP 30 DCFs
Elemental Iodines												
I-131	9.13E-04	3.87E-02	3.35E+00	4.11E+00	1.18E+00	2.95E-03	3.37E-10	1.93E-41	8.68E+00	1.48E+06	1.10E+06	5.45E+00
I-132	3.21E-04	1.36E-02	1.10E+00	1.06E+00	1.77E-01	7.38E-05	7.19E-14	2.02E-54	2.35E+00	5.35E+04	6.30E+03	2.77E-01
I-133	1.69E-03	7.17E-02	6.16E+00	7.38E+00	2.00E+00	4.19E-03	2.99E-10	2.06E-42	1.56E+01	4.00E+05	1.80E+05	7.03E+00
I-134	2.95E-04	1.25E-02	9.06E-01	5.98E-01	4.34E-02	9.15E-07	3.09E-19	2.35E-75	1.56E+00	2.50E+04	1.10E+03	6.86E-02
I-135	7.65E-04	3.24E-02	2.74E+00	3.10E+00	7.37E-01	1.01E-03	2.34E-11	1.02E-45	6.61E+00	1.24E+05	3.10E+04	1.65E+00
Particulate Iodines												
I-131	5.01E-05	2.13E-03	1.84E-01	2.26E-01	6.48E-02	1.62E-04	1.85E-11	1.06E-42	4.77E-01	1.48E+06	1.10E+06	3.55E-01
I-132	1.76E-05	7.47E-04	6.04E-02	5.82E-02	9.70E-03	4.05E-06	3.95E-15	1.11E-55	1.29E-01	5.35E+04	6.30E+03	1.52E-02
I-133	9.28E-05	3.94E-03	3.39E-01	4.05E-01	1.10E-01	2.30E-04	1.64E-11	1.13E-43	8.58E-01	4.00E+05	1.80E+05	3.86E-01
I-134	1.62E-05	6.86E-04	4.98E-02	3.29E-02	2.39E-03	5.03E-08	1.70E-20	1.29E-76	8.58E-02	2.50E+04	1.10E+03	3.77E-03
I-135	4.20E-05	1.78E-03	1.51E-01	1.70E-01	4.05E-02	5.56E-05	1.29E-12	5.62E-47	3.63E-01	1.24E+05	3.10E+04	9.08E-02
Organic Iodines												
I-131	4.01E-05	1.70E-03	1.47E-01	1.81E-01	5.19E-02	1.30E-04	1.48E-11	8.49E-43	3.82E-01	1.48E+06	1.10E+06	2.84E-01
I-132	1.41E-05	5.97E-04	4.83E-02	4.65E-02	7.76E-03	3.24E-06	3.16E-15	8.89E-56	1.03E-01	5.35E+04	6.30E+03	1.21E-02
I-133	7.43E-05	3.15E-03	2.71E-01	3.24E-01	8.80E-02	1.84E-04	1.31E-11	9.06E-44	6.86E-01	4.00E+05	1.80E+05	3.09E-01
I-134	1.30E-05	5.49E-04	3.98E-02	2.63E-02	1.91E-03	4.02E-08	1.36E-20	1.03E-76	6.86E-02	2.50E+04	1.10E+03	3.02E-03
I-135	3.36E-05	1.43E-03	1.21E-01	1.36E-01	3.24E-02	4.45E-05	1.03E-12	4.50E-47	2.91E-01	1.24E+05	3.10E+04	7.27E-02
Total Dose									3.83E+01			1.70E+01
DCF Dose Reduction Factor												4.45E-01

QVA-0105, Rev. 3

Calc. No. CP&L-CED-M-01, Rev. 3, Attachment R
Comparison of Diffusion Models



ATTACHMENT 2
Sheet 1 of 1
Record of Lead Review

Design CALC ØVA-Ø1Ø5 Revision 3
SCIENTECH-NUS CALC # CP&L-CED-M-Ø1 REV. 3

The signature below of the Lead Reviewer records that:
- the review indicated below has been performed by the Lead Reviewer;
- appropriate reviews were performed and errors/deficiencies (for all reviews performed) have been resolved and these records are included in the design package;
- the review was performed in accordance with EGR-NGGC-0003.

☐ Design Verification Review ☐ Engineering Review ☒ Owner Review
- ☐ Design Review
- ☐ Alternate Calculation
- ☐ Qualification Testing

☐ Special Engineering Review _____

☐ YES ☒ N/A Other Records are attached.

TOM DEVORE Thomas F. DeVore MECH 4/4/97
Lead Reviewer (print/sign) Discipline Date

Item No.	Deficiency	Resolution/Date
	NONE NOTED.	N/A

FORM EGR-NGGC-0003-2-0

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
NRC DOCKET NOS. 50-325 AND 50-324
OPERATING LICENSE NOS. DPR-71 AND DPR-62
MAIN STEAM LINE BREAK CONTROL ROOM DOSE CALCULATION

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Carolina Power & Light (CP&L) Company in this document. Any other actions discussed in the submittal represent intended or planned actions by CP&L. They are described to NRC for the NRC's information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs at the Brunswick Steam Electric Plant of any questions regarding this document or any associated regulatory commitments.

	Commitment	Committed date or outage
1.	A license amendment request limiting reactor coolant peak activity to less than 2.0 micocuries per gram dose equivalent I-131 will be submitted by May 23, 1997.	5/23/97