Title: Review of Scientech Calculation 17080-M-02, Control Room Habitability and Offsite Dose for a Fuel Handling Accident	Calculation No: NEDC 99-032
System/Structure: HVAC, SGT, SC / ERP	Task Identification No: N/A
Component: N/A	Design Change No: N/A
Classification: [X] Essential; [ ] Non-Essential	Discipline: Mechanical Design

Calc. Description:

PURPOSE:

This calculation incorporates by attachment Scientech Engineering Calculation No. 17080-M-02, Rev. 0, prepared under Task Agreement 99A-C20, in accordance with CNS Engineering Procedure 3.4.7, Section 4. The calculation determines the doses to a Control Room operator and to a person at the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) following a postulated design basis Fuel Handling Accident (FHA). This calculation has been prepared as a Status 2 calculation for NRC review and will be as-built upon NRC approval.

RESULTS:

The results are tabulated in Tables 10-1, 10-2, and 10-3 of Scientech's calculation for each of the three (3) receptor locations:

1. Control Room,
2. Low Population Zone (LPZ), and
3. Exclusion Area Boundary (EAB).

All calculated doses are less than the corresponding regulatory limits.

ATTACHMENTS:

1. Scientech Engineering Calculation No. 17080-M-02, Rev.0 (including attachments thereto).
2. Reviewer Comments and Resolutions
3. GE Letters REK:99-152, REK:99-211, and REK:99-227 (References 5.23 and 5.21 of Scientech calculation)

Rev. No.	Status	Revision Description	Prepared By/Date	Reviewed By/Date	Independent Design Verification/Date	Approved By/Date
0	2	Original Issue	Scientech, Inc. 12/3/99	J. J. Drasler 12/8/99	N/A	12/10/99

Status Codes

1. As - Built
2. Information Only
3. For Construction
4. Superseded or Deleted

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DESIGN CALCULATION CROSS REFERENCE INDEX

NEDC: 99-032 Preparer: Scientech, Inc. Reviewer: J. J. Drasler

Rev. No: 0 Date: 12/3/99 Date: 12/8/99

Item No.	DESIGN INPUTS	Rev. No.	PENDING CHANGES TO DESIGN INPUTS
1	NEDC 99-031	0	none
2	NEDC 99-036	0	none
3	NEDC 99-080	0	none
4	NEDC 99-081	0	none
5	Burns and Roe Dwg 2019	N35	none
6	Burns and Roe Dwg 2020	N45	DCN 99-0534
7	Burns and Roe Dwg 2037	N54	none
8	Burns and Roe Dwg 2051	N16	DCN 99-0915
9	Burns and Roe Dwg 2052	N14	DCNs 98-0071, 98-0994, 98-1043
10	TS 1.1	178	none
11	TS 3.7.4	178	none
12	TS 5.5.7	178	none
13	USAR XIV-6.4	8/15/98	none
14	OP 2.2.47	20	none
15	SP 6.HV.101	4	none
16	SP 6.SC.201	11	none
17	DC 94-102	0	none
18	STP 94-199	1	none
19	Burns and Roe Calculation - Book 4, Retrieval No. 00103-0487	NA	none
20	GE NEDC-32868P	0	none
21	NUREG 0800	1	none
22	Reg Guide 1.25	3/23/72	none
23	Reg Guide 1.52	1	none
24	GE Letter REK:99-152	9/1/99	none
25	GE Letter REK:99-211	11/9/99	none
26	GE Letter REK:99-227	12/7/99	none

27	NEDC 90-113	0	none
28	DC 89-245	0	none
29	TID-14844	0	none
30	NUREG/CR-5009	0	none
31	ICRP-2	0	none
32	ICRP-30	0	none

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Item No.	Affected Documents	Rev. No.	CHANGE Required	Action Item Tracking Number (If change is required)
	none			

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Rev. No: 0 Date: 12/3/99 Date: 12/8/99

PURPOSE

This calculation incorporates by attachment Scientech Engineering Calculation No. 17080-M-02, Rev. 0, prepared under Task Agreement 99A-C20, in accordance with CNS Engineering Procedure 3.4.7, Section 4. The calculation determines the doses to a Control Room operator and to a person at the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) following a postulated design basis Fuel Handling Accident (FHA).

EXTENT OF REVIEW

Scientech's calculation was performed under their own QA program, which included an independent technical review. Therefore, the NPPD review does not include in-depth checks of mathematical calculations, but rather focuses on general acceptability of design inputs, assumptions, methodology, and conclusions. Any significant comments or concerns identified during the review have been resolved with Scientech and incorporated.

REVIEW SUMMARY

Scientech's calculation is organized into a single main portion and Attachments A through I, which include the computer code input and output.

1. **Purpose** - The purpose of the calculation is as given above and as stated in Section 1 of Scientech's calculation. This section was reviewed and found to be acceptable.

2. **Design Inputs** - Design Inputs are identified throughout the text and particularly in Section 4 of Scientech's calculation with the references for the design inputs listed in Section 5. The source term is conservatively based on the worst case fuel drop combination of GE9B (8x8NB) and GE14 (10x10) fuel, and is bounded by the GE14 fuel with an applied radial peaking factor of 1.7 (maximum in Cycles 20 through 23). The source term is computed from TID-14844, using Regulatory Guide 1.25 methodology, and conservatively accounts for gap activities in extended burnup fuel per guidance from NUREG/CR-5009 (Reference 5.22). Cycle 20 maximum fuel pressurization was determined to be less than the 1200 psig value in the Regulatory Guide, as documented in GE letter REK:99-227 (Attachment 3).

   Values used for the Reactor Building exhaust and Control Room intake isolation valve closure conservatively bound the corresponding surveillance data. The time varying exhaust flow rate during Reactor Building isolation from NEDC 99-080 was used to determine the release rate from the refueling area. After Reactor Building isolation, both SGT fans are conservatively assumed to be in operation for 1 hour, whereafter, the operator aligns SGT to one selected train. Effective SGT and Control Room filtration efficiencies are calculated to conservatively account for a

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failed or nonoperating SGT heater and unfiltered Control Room inleakage. Atmospheric dispersion factors for the Control Room were taken from Reference 5.9 (NEDC 99-031) and from Reference 5.20 (NEDC 99-036) for the LPZ and EAB.

The design inputs were reviewed and found to be acceptable.

Documents comprising CNS-controlled source documents whose revision could impact input used in this calculation are identified on the Cross Reference Index in the front of this calculation. Non-status 1 inputs were verified using additional information and were found to be acceptable for use in this calculation.

3. **Assumptions** - Major assumptions are identified in Section 6 of Scientech's calculation. Additional assumptions are inferred in the input documents used and identified throughout Scientech's calculation by inference according to context and use. The assumptions were reviewed and found to be acceptable.

4. **Methodology** - The methodology is described in Section 3, Technical Approach. In general, the Scientech-NUS computer code AXIDENT is used to predict the radiological dose consequences of the postulated Fuel Handling Accident at the 3 receptor locations:

   1. Control Room,
   2. Exclusion Area Boundary (EAB), and
   3. Low Population Zone (LPZ).

   For control room dose calculations, several Reactor Building exhaust flow cases (minimum, intermediate, and design maximum) were analyzed to determine which was more limiting to control room dose; offsite doses are conservatively modeled to be unaffected by flow rate. The minimum flow case (30,000 cfm) is the minimum allowed by procedure. The intermediate flow case (50,000 cfm) is the maximum allowed by procedure. The design maximum (74,000 cfm) gives the upper bound flow. For each flow case, the flow was allowed to vary with time from the initial value to zero during Reactor Building isolation (fan coastdown and valve closure) in order to account for the variation in release rate and dispersion with flow. The product of the release rate and dispersion for each flow case was used to determine relative activity concentrations in the Control Room intake as a function of time. Polynomial curve-fits were integrated over applicable times to determine relative activities added to the control room during the time period. The numbers were used to calculate an effective X/Q for each time period considered that, when used with a

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constant release rate (normalized to 74,000 cfm), gives the same total activity admitted into the control room prior to isolation and activation of emergency filtration. Maximum Control Room doses occur at 50,000 cfm Reactor Building flow. Time periods were selected by varying Control Room isolation times to determine the time that would yield the maximum Control Room dose. Maximum Control Room doses occur at 70 seconds isolation time, with corresponding activation of emergency filtration.

The AXIDENT code models the transport of radioactivity to the environment and to the control room. This code accounts for HVAC recirculation, filtration, atmospheric dispersion, and natural decay. The AXIDENT computer code version used is listed in Section 7. Section 8 includes a discussion of the AXIDENT input preparation and Appendix A lists the code input requirements. Spreadsheet calculations to determine the release to the refueling area are included as Appendix B. The AXIDENT calculations were subdivided into time intervals depending on the release flow rate (Reactor Building exhaust or SGT flow), status of the release from the refueling area (ground level or elevated), and the status of the control room isolation with emergency filtration. Computer output for the various time intervals are listed in Appendices A through O, as identified in Section 9 of Scientech's calculation. The total dose for a given receptor location is the sum of the doses accumulated during each of the discrete time intervals.

The methodology was reviewed and found to be acceptable.

However, the mathematical model used by Scientech is based on curve fits, not exact mathematical solutions, and is subject, therefore, to a certain amount of inaccuracy. Separate informal checks were made on Scientech's model to determine whether 50,000 cfm was, in fact, the worst flow case. It was found that the 50,000 cfm curve was limiting except for a single point on the 60,000 cfm curve (corresponding to 90 seconds isolation) that was found to exceed the maximum on the 50,000 cfm curve by 2.1 percent. This point was determined to be caused by the polynomial curve fit that introduced anomalous area at the high end. Although easily explained away, it is felt that the potential for modeling inaccuracies do exist using curve fitting techniques. Therefore, to conservatively bound modeling inaccuracies (or future uncertainties), Scientech's calculated Control Room doses are increased 5 percent.

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5. **Results / Conclusions** - Results and conclusions are given in Sections 10 and 11, respectively, of Scientech's calculation. Tables 10-1, 10-2, and 10-3 give the calculated dose consequences for at the Control Room, LPZ, and EAB, respectively. Results for the maximum case are summarized below, based on 70 seconds control room isolation with emergency filtration. Isolation times before or after 70 seconds result in lower Control Room doses. To conservatively bound potential modeling inaccuracies, Control Room doses are increased 5 percent; the adjusted doses are presented in Table 1 below. The unadjusted numbers are shown in parentheses.

TABLE 1: SUMMARY OF FHA ACCIDENT DOSES

	Control Room (30 days)			EAB (2 hours)		LPZ (30 days)	
	Thyroid	Whole Body	Beta	Thyroid	Whole Body	Thyroid	Whole Body
Dose (rem)	(27.6) 29.0	(1.16E-2) 1.22E-2	(0.455) 0.478	16.3	7.13E-2	9.97	5.89E-2
Limit (rem)	30	5	30	75	6	75	6

The results and conclusions sections were reviewed and found to be acceptable. All calculated doses are below the corresponding regulatory limits.

SCIENTECH.

ENGINEERING CALCULATION

CLIENT/PROJECT NPPD/Cooper CALC. NO. 17080-M-02 REV. 0

TITLE Control Room Habitability and Offsite Dose for a Fuel Handling Accident

AUTHOR/DATE:	VERIFIED BY/DATE:	APPROVED BY/DATE:
W. Arcieri and D. Studley 12/3/99	Hanny A. Wagage 12/3/1999	D. Studley for M. Dinoven 12/3/99

Purpose

The purpose of this calculation is to determine the doses to the control room operator and to a person at the Exclusion Area Boundary (EAB) and at the Low Population Zone (LPZ) of the Cooper Nuclear Station (CNS) following a design basis Fuel Handling Accident (FHA). Calculations are performed with the X/Q values discussed in Section 4.

Results

Accident doses from a Fuel Handling Accident (FHA) were calculated for the Control Room (CR) operator, a person at the EAB, and a person at the LPZ. The analysis performed demonstrates, using a conservative model, that the regulatory dose limits will not be exceeded following a FHA. The numerical results for doses are summarized in Section 10.

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 PURPOSE OF ANALYSIS

The purpose of this calculation is to determine the doses to the control room operator and to a person at the EAB and the LPZ of the Cooper Nuclear Station following a design basis Fuel Handling Accident (FHA). Calculations are performed with the X/Q values discussed in Section 4.

2.0 INTENDED USE OF ANALYSIS RESULTS

The results of this analysis are to be used to reevaluate the design basis of CNS by comparing the calculated doses for the control room operator, a person at the EAB, and a person at the LPZ to the regulatory dose limits.

3.0 TECHNICAL APPROACH

3.1 General Description

The radiological consequences of a FHA are based on the fuel failure due to the drop of a fuel assembly onto the core in conjunction with a conservative transport methodology based on Standard Review Plan (SRP) 15.7.4 (Reference 1). Doses are calculated for control room operators and individuals at the site boundary beginning 72 hours after plant shutdown (upon commencement of refueling).

The radiological consequences for the control room operators are assessed using the SCIENTECH-NUS computer code AXIDENT. This code calculates individual whole body (beta and gamma) and thyroid doses resulting from any postulated accident which releases radioactivity within the containment. AXIDENT models the transport of radioactivity to the environment and to the control room. This code includes the time dependent effects of containment sprays, recirculation, purge and intake filters, atmospheric dispersion and natural decay. The AXIDENT code is discussed in Reference 2. The principal application of the AXIDENT code is to determine the control room, LPZ and EAB dose due to a loss of coolant accident (LOCA).

The original AXIDENT code used very conservative dose conversion factors (DCFs) that were in effect and used for the design basis 10 CFR 100 type reactor siting analyses (i.e., TID 14844, Reference 16, and ICRP Publication 2, Reference 32). For this analysis, more accurate DCFs are used that are obtained from ICRP 30, Reference 31.

3.2 Fuel Handling Accident Event

The postulated FHA event begins with a drop of a fuel assembly into the core during refueling operations from a height of 32.95 feet (Reference 3), which is the maximum height allowed by

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the fuel handling equipment. The resulting impact of the fuel assembly onto the top of the core will damage a number of fuel rods sufficiently to cause a release of radionuclides to the water pool above the core. Subsequently, the radionuclides will be released to the refueling area and to the environment. Release of radionuclides to the environment can result in a dose to the control room operators due to intake of contaminated air from the environment via the control room ventilation system. Since both the primary containment and reactor vessel are open during refueling, the main barrier to release of radionuclides to the environment is the refueling area structure which is part of secondary containment. The water pool above the core also serves as a barrier to release of radioiodine.

3.3 Modeling Approach for the AXIDENT Code

The AXIDENT code computes individual whole body, beta, and thyroid doses resulting from any postulated accident which releases radionuclides to the containment. This code incorporates models to determine doses to both control room personnel and individuals at the site boundary. The AXIDENT code incorporates models for the primary and secondary containment. The time dependent effects of containment sprays, HVAC recirculation, filtration, atmospheric dispersion, and decay are included in the models. Further details are found in the AXIDENT User's Manual.

In AXIDENT, all releases are presumed to be to the primary containment. In the case of the FHA, the release occurs while the drywell head is removed, so that the primary containment is not considered in the AXIDENT model. To bypass the primary containment (essentially releasing the nuclides to the secondary containment), a primary containment leak rate of 1 volume/sec is used.

Assumptions on the fraction of the core inventory of various radionuclide groups available for release are incorporated into the AXIDENT code (100 percent of the noble gases and 25 percent of the iodines). To obtain the correct release for the FHA, the iodine source term used in AXIDENT must be increased by a factor of 4 to compensate for the AXIDENT modeling assumptions. The radionuclide release to the secondary containment for input to the AXIDENT code is discussed in Section 4.

The secondary containment, removal and filtration AXIDENT models are selectively used. Because SGTS and Control Room filter efficiencies are treated as a constant by AXIDENT, it is necessary to perform several runs for each combination of SGTS and Control Room filtration to determine the Control Room and LPZ dose. The runs made are discussed in Section 9.

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4.0 DESIGN INPUT INFORMATION

4.1 Source Term

The general FHA analysis assumptions and methodology are based on the accident information from the Cooper USAR and a very conservative transport methodology based on Standard Review Plan (SRP) Section 15.7.4.

The radionuclide release during a fuel handling accident is based on the total number of fuel rods in the reactor core damaged as a result of the accident, which depends on the type of fuel used. This analysis addresses the worst fuel drop combination of GE 8x8NB fuel (current core) and GE14 10x10 fuel (first batch to be loaded during Spring 2000 in RE 19). The resulting damaged rod fraction multiplied by the total core inventory adjusted for radial peaking becomes the radionuclide release to the refueling pool.

Data indicates (Assumption 2 in Section 6) that the radionuclide release fraction from a FHA is 0.76 times that released in a FHA from a core of all 7x7 assemblies. Hence, the damaged rod fraction is based on the 7x7 fuel geometry while the core inventory of radionuclides is computed based on a radial peaking factor typical of the GE14 fuel design. Then, the radionuclide release from the FHA is computed as

$$\text{FHA Release} = 0.76 * \text{Damaged Rod Fraction} * \text{7x7 Core Inventory}$$

The damaged rod fraction is computed by assuming that drop of a 7x7 fuel bundle on a 7x7 core damages 111 rods (Assumption 3 in Section 6); each assembly contains 49 rods and there are 548 assemblies in the core. The damaged rod fraction becomes 111/25208 = 0.0044.

The total radionuclide inventory in the core is computed using the TID-14844 source term model based on a rated core thermal power of 2381 MWth (Reference 4) for an operating period of 1000 days. A factor of 1.02 is conservatively applied to account for uncertainty in core power (Section 15.6.5 of the SRP (Reference 1)). In addition, a radial peaking factor of 1.7 (Assumption 4 in Section 6) is applied to the radionuclide inventory calculation to reflect the typical peaking factor in GE14 fuel. Note that this radial peaking factor value is higher than the 1.5 value suggested in Regulatory Guide 1.25 (Reference 5). The combination of the 102% power factor and a radial peaking factor of 1.7 results in a very conservative source term.

The fraction of radionuclides released from the damaged rods is 10% of the total noble gases (other than Kr-85, 30% of the Kr-85), and 10% of the total radioactive iodine (other than I-131) in the rods at the time of the accident per the assumptions of Regulatory Guide 1.25. For I-131, the release fraction is increased to 12% to account for extended fuel burnup in accordance with NUREG/CR-5009 (Reference 22). These release fractions are more conservative than those used in the original FHA analysis contained in the USAR. A conservative effective refueling

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pool decontamination factor of 100 is applied to determine the release of iodine to the refueling area in this analysis per the guidance of Regulatory Guide 1.25. Actual pool decontamination factors are expected to be orders of magnitude in excess of 100.

The source terms in Appendix B are based on a 72-hour decay period prior to the event (see assumption 10).

Because AXIDENT is intended for LOCA dose analysis applications, assumptions on the fraction of the core inventory of various radionuclide groups available for release are incorporated into the AXIDENT code (100 percent of the noble gases and 25 percent of the iodine). To obtain the correct release for the FHA, the iodine source term used in AXIDENT must be increased by a factor of 4 to compensate for the AXIDENT modeling assumptions. The radionuclide release to the refueling area for input to the AXIDENT code is computed in Appendix B based on the TID-14844 source term model.

4.2 Release Rate from the Refueling Area

Immediately after the fuel bundle drop, radionuclides (principally the noble gases) are assumed to be released from the refueling pool to the refueling floor in sufficient quantities to initiate secondary containment isolation due to high radiation. The normal reactor building HVAC system is tripped and SGTS operation commences. Air from the normal HVAC exhaust is released through the RB exhaust vent, which is not charcoal-filtered. After HVAC system fan coastdown occurs, all air from the secondary containment, which includes the refueling area, is exhausted through the SGTS filters (charcoal and HEPA) to the elevated release point (ERP). The release rate of radionuclides to the environment is based on the refueling area free air volume, the reactor building HVAC fan coastdown rate during the first 90-second damper closure period after the FHA and the SGTS ventilation rate after 90 sec.

The effective free volume of the refueling floor area is 7.95×10^5 ft^3 (Reference 6). Radionuclides released to the refueling area are assumed to be diluted in 50 percent of the air volume of the refueling area for the purposes of determining the radionuclide release rate to the environment (See Assumption 6 in Section 6). This assumption increases the rate of activity that is released and thus is conservative.

The period of time that the release from the secondary containment is unfiltered by the SGTS is based on the most limiting closure time of the reactor building HVAC isolation damper HV-MO-258 and 260. The current CNS surveillance procedure 6.SC.201, Secondary Containment Valve Operability Test, gives an IST Retest Limit for closure of HV-MO-258 of 46.3 to 62.7 seconds, with an Operability Limit of 74 seconds maximum (Reference 7). The IST Retest Limit for closure of HV-MO-260 is 48.2 to 65.2 seconds, with an Operability Limit of 77 seconds maximum. This analysis is conservatively based on a 90-second closure time, which yields a 30% margin over the IST Retest Limit. As a note, this delay only occurs in the event of a single failure of the quick acting Reactor Building isolation damper. Furthermore, the reactor building ventilation system design includes a "6-second" hold-up duct section to allow the isolation

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damper to close before the activity is released from the building. Reference 27 determines the Reactor Building release rate as a function of time for the scenario that includes a failure of the quick acting isolation damper. Reference 27 considers the factors such as the 90-second closure period, fan coastdown, coincident damper closure, and the effective hold-up time.

The Reactor Building ventilation system response to the event includes a trip of the supply and exhaust fans and an isolation signal that initiates closure of the redundant exhaust isolation dampers (one of which is an MOV and one of which is an AOV). The design intent of the isolation dampers, assuming no single failure, is to close before activity passes the dampers thereby minimizing the amount of activity discharged during the FHA (the exhaust ductwork is routed back and forth across the reactor building ceiling to allow for a "6-second" delay). However, during a single failure of the fast-acting AOV, activity will be released via the RB vent due to the closure time of the MOV.

For this analysis, it is assumed that over a 90-second period, the RB exhaust fan coasts down in accordance with the manufacturer's curve and the MOV closes in accordance with its closure characteristics (see Reference 27). Since the X/Q and release rate both change during this coastdown period, the analysis models various release rates and X/Q's during the coastdown period.

Atmospheric dispersion factors using ARCON96 and site specific meteorological data have been calculated for the RB exhaust vent in Reference 9. These results are discussed in Section 4.4. The results of the analysis show extremely low dispersion factors when credit is taken for vertical release velocity associated with the normal exhaust flow. The analysis also determined the dispersion factor as a function of discharge velocity and flow rate. At the moment the event occurs, the exhaust flow may be as high as its design flow of approximately 74,000 cfm (Reference 10). It is anticipated that after the fan receives the trip signal, the flow will rapidly decrease nonlinearly. The review of the site specific ARCON96 calculation results show very small dispersion factors (i.e., low resulting concentrations at the CR intake) at the design flow and increasing dispersion factors (i.e., higher resulting concentrations at the CR intake) as the flow decreases.

Since the combination of dispersion factor and release rate may yield higher results at lower flow, the analysis needs consider the operation of the Reactor Building Ventilation System at lower flows as could occur during the winter months (CNS Procedure 2.2.47, Step 11.2 allows operation at a minimum of 30,000 cfm for winter). Appendix L includes a comparative analysis of three initial Reactor Building flow conditions (30,000 cfm, 50,000 cfm and 74,000 cfm). The result of the comparison identifies that the highest doses will be received with the initial flow at 50,000 cfm. Appendix L determines "effective X/Qs" that produce the equivalent concentration based on a constant 74,000 cfm Reactor Building release rate.

The release rates (sec^{-1}) are computed for input to AXIDENT code as follows:

- $\lambda_{Release}$ = (RB Flow (cfm))(1/60 min/sec)(1/0.5)(1/7.95 x 10^5 cubic feet)

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For the EAB and LPZ analysis, the reactor Building release was conservatively held constant at 74,000 cfm for the duration of the RB isolation damper closure, i.e., neglects the coastdown and damper closure effects.

The SGTS flow rate consists of two components that are summarized below (Reference 10 and Reference 11):

- operating train – 1492 cfm **
- idle train – 288 cfm **

** SGT design flow is 1780 cfm and maximum crosstie flow is 280 cfm. For conservative computation of SGT filtration, operating train flow is reduced and crosstie flow (conservatively assumed to be unheated) is increased.

However, the initial SGTS flowrate may be much higher (See Section 6). Both SGTS trains will start upon a secondary containment isolation signal. Once an operator verifies that the secondary containment is at a negative pressure of 0.25" H_2O with respect to the outside, he/she will secure one system and make necessary flow adjustments in the operating train to maintain the negative pressure. The flow with both trains operating will be somewhere between 1780 cfm (single train) and 3560 cfm (arithmetic sum of both trains). With a constant system resistance curve, the two parallel fans operate at less than 1.1 times the single fan operation (Reference 29). For this analysis, a conservative flowrate of 2984 cfm or 49.73 ft^3/sec was used. This flow corresponds to 2 times the flow through a single operating SGT filter, which is approximately 1 2/3 times the total SGT design flow for a single train. The flow used for this analysis conservatively bounds the maximum flow resulting from a Group 6 signal in which, per DC 89-245 (Reference 30), the SGT flow control valves move to their full open position. After one hour, the SGTS flow is reduced to its single fan mode of operation (Reference 11). As can be seen from the results, the dose contribution from the SGTS operating mode is negligible. (See Section 10)

The following leak rates from the Reactor Building are used for input to AXIDENT for the analysis:

$LS_1 = 74{,}000/60/0.5/7.95 \times 10^5$

$= 3.10 \times 10^{-3}$ sec^{-1} (from 0 to 90 sec after FHA, i.e., RB roof release)

$LS_2 = 2984/60/0.5/7.95 \times 10^5$

$= 1.25 \times 10^{-4}$ sec^{-1} (> 90 sec to 1 hr after FHA, i.e., SGTS release)

$LS_3 = 1780/60/0.5/7.95 \times 10^5$

$= 7.46 \times 10^{-5}$ sec^{-1} (> 1 hr after FHA, i.e., SGTS release)

The filtration efficiency of the operating train of the SGTS is 95 percent for all iodine species (Reference 12). As conservatism, the filtration efficiency for the remaining SGTS train is assumed to be 90 percent for elemental iodine, 30 percent for organic iodine and 95 percent for

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particulate iodine. This reduced efficiency is based on Regulatory Guide 1.52 for units without operating heating elements (Reference 13). Use of the reduced efficiencies tacitly assumes that the heaters failed in the remaining SGTS train (See assumption 9 in Section 6).

As AXIDENT input requirements only allow specification of a single filter efficiency (actually a non-removal factor) for the three assumed iodine species, an effective non-removal factor for the operating and "idle" train is computed as follows (for elemental iodine):

$$\text{Filter Non - removal Factor} = \frac{1492 * 0.05 + 1492 * 0.1}{2 * 1492}$$

$$\text{Filter Non-removal Factor} = 0.075$$

The results for the three assumed iodine species is summarized in the following table:

Table 4-1
Summary of SGTS Non-Removal Factors

Flow Rates:			
Idle Train	1492 cfm		
Normal Train	1492 cfm		
	SGTS Non-Removal Factors		
Iodine Form	Idle Train	Operating Train	Effective
Elemental	0.1	0.05	0.075
Organic	0.7	0.05	0.375
Particulate	0.05	0.05	0.05

Note that full SGTS operation does not commence until 90 seconds after the high radiation containment isolation signal occurs as discussed above. During that time, the air discharge rate is based on reactor building HVAC system fan coastdown and no filtration of iodine is assumed.

Note that the chemical/physical form of iodine released to the refueling area in AXIDENT is apportioned among the three iodine species as given below:

- 0.91 for elemental iodine
- 0.05 for particulate iodine
- 0.04 for organic iodine

This apportionment is not part of the user-specified input, but is incorporated into the AXIDENT coding. Regulatory Guide 1.25 guidance specifies that only 0.25 percent of the iodine is treated as organic species (the remainder is inorganic). As identified in regulatory Guide 1.25, this

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analysis uses an effective pool decontamination factor of 100 (as opposed to a DF for inorganic and organic species of 133 and 1, respectively). As such, the net percentage of organic species released to the environment would be above 4%. However, since the dose contribution from the SGTS operating mode is negligible, the use of the default 4% is acceptable.

4.3 Control Room Parameters

The air intake rate to the control room, the control room HVAC system filter efficiency, and the control room volume is needed to determine the control room dose.

The dimensions of the control room and the cable spreading room are obtained from References 14 and 15 to obtain the control room volume. The calculation of volume is shown below (rounded to 3 significant figures), assuming 20% of the total volume is occupied by walls, floors, equipment, etc.

Control Room (proper) drawing takeoff

Width = 72' (Reference 14)

Length = 80' 9" - 13' 3" = 67.5' (Reference 15)

Floor El = 932' 6" (Reference 15)

High point of roof slab = 949' 1.5"

Cable Room

west of column H7

Outside wall to H7 = 80' 9" - 13' 3" = 67.5' (Reference 15)

N-S = 72' (Reference 14)

Floor El = 918' (Reference 14)

column H7 to G

H7 to G = 35' + 13' 3" = 48.25' (Reference 15)

E-W = 37' 3" (Reference 14)

Floor El = 918' (Reference 14)

Control Room proper

Height = 949' 1.5" - 932' 6" = 16.625'

Volume = 72' · 67.5' · 16.625' = 80,800 ft^3

Cable Room

Height = 932' 6" - 918' = 14.5'

Volume = (72' · 67.5' · 14.5') + (37.25' · 48.25' · 14.5') = 96,530 ft^3

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Total volume = 80,800 ft^3 + 96,530 ft^3 = 177,330 ft^3

Assuming 20% of the volumes include walls, floors, and equipment, the net volumes are:

Control Room proper = 64,640 ft^3

Control Center = 141,860 ft^3

The air intake rate to the control room prior to isolation is summarized below:

- 3235 cfm – normal air intake flow (Reference 17)
- 71 cfm – infiltration inleakage (this inleakage rate was based on tracer gas testing documented in Reference 18)
- 10 cfm – inleakage through opening and closing doors (SRP, Section 6.4 (Reference 1))

The total air intake rate is 3316 cfm prior to isolation. After the normal intake is isolated, the control room is summarized below:

- 900±10% cfm – emergency supply air intake rate (Reference 18 and Reference 19)
- 71 cfm – unfiltered inleakage
- 10 cfm – ingress/egress inleakage

After isolation, the analysis conservatively uses 891 cfm to maximize the trapping of the activity in the CR (900 cfm minus 10% plus 81 cfm). As can be seen from the results, the operation of the CR emergency filter unit has a negligible effect on the dose (with the SGTS in operation discharging the activity from the elevated release, the release is essentially clean and the filters provide no measurable effect – See Section 10).

Before control room isolation, the normal ventilation flow rate is applied in the AXIDENT analysis and no filtration is assumed in the analysis during this period.

The control room ventilation system filter efficiency is specified as 95 percent for all iodine species (Reference 12). To account for inleakage, the effective non-removal factor is calculated as follows:

$$\text{Non - removal Factor} = \frac{990 * 0.05 + 81}{990 + 81}$$

Effective Non-removal Factor = 0.122

The analysis also determines the calculated dose in the event that the Control Room radiation monitor does not automatically isolate. In addition to assessing the impact of no isolation, various isolation times were considered to determine the most conservative isolation time. In each of these cases, the analysis uses an "effective X/Q" based on the integrated release over the

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entire closure period and based on an equivalent X/Q for the closure period (see Appendix L). Once the SGTS is fully functional at 90 seconds after the event, the activity at the CR intake will be 6 orders of magnitude lower due to the SGTS filtration and due to the significant reduction in dispersion factors. This assessment conservatively reduces the CR intake flow to its minimum after isolation to "bottle-up" the activity. This will produce the most conservative results. Reference 28 calculates the CR isolation times and confirms that the intakes will isolate before 60 seconds.

4.4 X/Q values for the Control Room Intake

AXIDENT calculations are performed considering X/Q values for two release points. For the first 90 seconds until reactor building isolation with the SGTS is complete, the release point is the reactor building vent (conservatively taken to be at ground level). After 90 seconds, the release point is the SGTS elevated release point. Occupancy factors for the operators after 1 day are applied to the X/Q values to allow for the actual time that the operator is assumed to be present in the control room (SRP Section 6.4 (Reference 1)). The revised X/Q values are tabulated below.

The following table, from the CR ARCON96 calculation (Reference 9), shows how the X/Q changes with release rate.

Table 4-2

X/Q (sec/m3) as a Function of Reactor Building Release from the Vent

	RX building Release				
Time period	0 cfm	18500 cfm	37000 cfm	55500 cfm	74,000 cfm
0 to 2 hours	4.36E-3	1.98E-3	4.47E-4	2.13E-4	1.11E-4
2 to 8 hours	1.19E-3	7.41E-4	1.42E-4	9.19E-5	5.69E-5
8 to 24 hours	6.89E-4	2.63E-4	5.84E-5	3.42E-5	2.00E-5
1 to 4 days	6.46E-4	2.78E-4	6.08E-5	2.89E-5	1.39E-5
4 to 30 days	7.26E-4	2.53E-4	5.67E-5	2.76E-5	1.29E-5

The following graph shows the 0 to 2 hour RB vent X/Q as a function of release rate (note that the values for 9,250 cfm and 27,750 cfm are interpolated):

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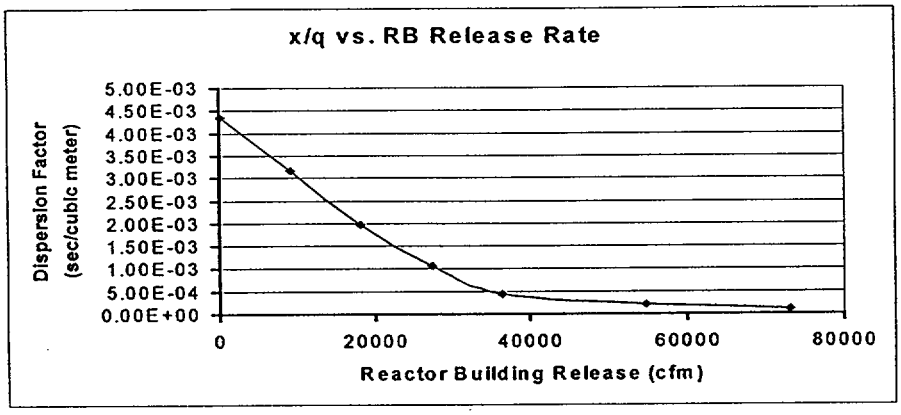

In Appendix L, an equivalent X/Q is determined considering the decreasing Reactor Building flow during the initial 90- second RB isolation period and the increasing X/Qs during this same period. The equivalent X/Q is determined by integrating a weighted release curve (which is the product of time dependent release rate and time dependent X/Q) and determining an "effective X/Q." The "effective X/Q" is the X/Q that when used in conjunction with 74,000 cfm results in an equivalent amount of activity at the CR intake as the time dependent function. The analysis in Appendix L also evaluates the effect of lower initial Reactor Building exhaust flows as could occur during the winter months. This comparison was performed to ensure that the combination of lower flow and higher X/Q did not result in higher CR doses. As a reminder, this quasi-mechanistic modeling is being applied to the release during a single failure of the quick acting Reactor Building isolation damper.

Since the offsite dispersion factors being used in the analysis do not credit any vertical plume rise from the RB roof exhaust, the most conservative EAB and LPZ doses occur at the higher RB release rate.

Table 4-3

Revised X/Q Values (sec/m3) for the Control Room Intake (Reference 9)

Time Period	X/Q Value (sec/m3)	Occupancy Factor	X/Q Value (sec/m3) Adjusted for Occupancy	Comments
0 – 70 Sec	3.051E-04	1	3.051E -04	Represents an "equivalent X/Q" for the Reactor Building Vent release if the intake is

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Table 4-3
Revised X/Q Values (sec/m3) for the Control Room Intake (Reference 9)

Time Period	X/Q Value (sec/m3)	Occupancy Factor	X/Q Value (sec/m3) Adjusted for Occupancy	Comments
				isolated at 70-seconds
70 – 90 sec	3.051E -04	1	3.051E -04	Represents an equivalent X/Q for the Reactor Building Vent release if the intake is isolated at 70-seconds
90 Sec – 0.5 Hours	1.00E-09	1	1.00E-09	SGTS Elevated Release Point
0.5 - 1 Hour	1.00E-09	1	1.00E-09	SGTS Elevated Release Point
1 – 2 Hours	1.00E-09	1	1.00E-09	SGTS Elevated Release Point
2 – 8 Hours	2.65E-09	1	2.65E-09	SGTS Elevated Release Point
8 – 24 Hours	6.41E-8	1	6.41E-8	SGTS Elevated Release Point
1 – 4 Days	2.00E-8	0.6	1.20E-08	SGTS Elevated Release Point
4 – 30 Days	1.66E-8	0.4	6.64E-09	SGTS Elevated Release Point

Note – for the AXIDENT models, t = 0 is defined as the moment that activity leaves the RB vent and simultaneously enters the CR intake (the model conservatively neglects the transit time from the release point to the CR intake).

The "effective X/Qs" for different isolation times are in Appendix L.

4.5 X/Q values for the EAB and LPZ

The X/Q values for the LPZ are summarized in the following table:

Table 4-4
X/Q Values for the LPZ (Reference 20)

Time Period	X/Q Value (sec/m3)	Comments
0-90 Sec	2.9E-4	RB Vent (Ground level release)
90 Sec – 0.5 Hrs	1.4E-4	SGTS Elevated Release Point
0.5 to 1 Hrs	4.0E-5	SGTS Elevated Release Point

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Table 4-4 X/Q Values for the LPZ (Reference 20)		
1 to 2 Hrs	4.0E-5	SGTS Elevated Release Point
2 to 8 Hrs	4.0E-5	SGTS Elevated Release Point
8 – 24 Hrs	1.6E-5	SGTS Elevated Release Point
1 – 4 Days	5.8E-6	SGTS Elevated Release Point
4 – 30 Days	1.7E-6	SGTS Elevated Release Point

The X/Q values for the EAB are summarized in the following table:

Table 4-5 X/Q Values for the EAB (Reference 20)		
Time Period	X/Q Value (sec/m3)	Comments
0-90 Sec	5.2E-4	RB Vent (Ground level release)
90 Sec – 0.5 Hrs	1.2E-4	SGTS Release Stack (elevated)
0.5 to 2 Hrs	1.6E-5	SGTS Release Stack (elevated)

5.0 REFERENCES

1. NUREG-0800, Standard Review Plan, Rev. 1, July 1981 (Sections 6.5.3, 15.6.5, and 15.7.4).
2. S.J. Nathan, "AXIDENT – A Digital Computer Dose Calculation Model," NUS-1954, Revision 2
3. Cooper Nuclear Station Updated Safety Analysis Report (USAR), Chapter XIV, Section 6.4
4. Cooper Technical Specifications, Section 1.1
5. U.S. Nuclear Regulatory Commission, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel handling and Storage Facility for Boiling and Pressurized Water Reactors," Regulatory Guide 1.25, 3/23/72
6. Burns and Roe Calculation – System Sizing, Standby Gas Treatment System, Book 4, Retrieval 00103-0487
7. CNS Procedure 6.SC.201, Secondary Containment Valve Operability Test, Revision 11

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8. B&R Dwg 2037, Rev. N54
9. SCIENTECH Calculation 17080-M-01, "Control Room Dispersion Factors Using ARCON96", Revision 0.
10. Burns and Roe Drawing 2020, Rev. N45
11. DC 94-102, "SGT System Crosstie Valve Modification / Heater Setpoint Change"
12. Cooper Technical Specifications, Section 5.5.7
13. Regulatory Guide 1.52, Design, Testing, And Maintenance Criteria For Post-Accident Engineered Safety Feature Atmosphere Cleanup System Air Filtration And Adsorption Units Of Light Water Cooled Nuclear Power Plants (6/73) (Revision 1, 7/76)
14. Burns and Roe Drawing 2051, Rev. N16
15. Burns and Roe Drawing 2052, Rev N03
16. TID 14844, "Calculation of Distance Factors for Power and Test Reactor Sites," 1962
17. Burns and Roe Drawing 2019, Sheet 1, Rev. N35
18. CNS Test Procedure
    STP-94-199, Control Room Envelope Unfiltered Inleakage Test
    STP-94-199-1, Control Room Envelope Unfiltered Inleakage Test (Amendment 1)
19. Cooper Technical Specifications, Section 3.7.4
20. SCIENTECH calculation 17080-M-06, "EAB and LPZ Meteorological Dispersion- Accident Analyses", July 1999.
21. GE Letter REK:99-211, R.E. Kingston to J.L. Lewis, dated November 9, 1999.
22. NUREG/CR-5009, "Assessment Of The Use Of Extended Burnup Fuel In Light Water Power Reactors" 152 12/7/99
23. GE Letter REK:99-~~161~~, R.E. Kingston to J.L. Lewis, dated September ~~17~~, 1999. 1 12/7/99
24. CNS Surveillance Procedure 6.HV.101, Revision 4, "Control Room Ventilation"
25. CNS System Operating Procedure 2.2.47, Revision 20, "HVAC Reactor Building"
26. GE NEDC-32868P, Rev.0, GE14 Compliance With Amendment 22 of NEDE-24011-P-A (GESTAR II).
27. NEDC 99-080, Rev. 0, "Reactor Building HVAC Exhaust Duct Hold Up Time and Exhaust Flow Variation During Reactor Building Isolation"
28. NEDC 99-081, Rev. 0, "Control Room Isolation Time"
29. NEDC 90-113, Rev. 0, "Reactor Building Pressure For Standby Gas Treatment Plant Operation"

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30. DC 89-245, "Removal of Instrument Air Connections to SGT Solenoid Valves"

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

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

6.0 MAJOR ASSUMPTIONS

The major assumptions used in this calculation are summarized below:

1) After secondary containment isolation, all airflow is filtered through the SGTS system. This is consistent with the SGTS design basis.

2) The activity released is based on GE data that indicates that 0.76 of the FHA activity in a reactor core of 7x7 fuel assemblies is released in a FHA with a GE14 reactor core (Reference 26). This activity fraction is assumed to bound the worst fuel drop combination of GE 8x8NB fuel and GE14 10x10 fuel (Reference 21).

3) The activity released in a FHA on a 7x7 core is based on 111 rods assumed to have been damaged (Reference 26).

4) A radial peaking factor of 1.7 is applied to the fuel to determine the initial core inventory to bound different fuel designs that may be used at Cooper (Reference 23).

5) A factor of 1.02 increase in core thermal power is assumed based on the Standard Review Plan, Section 15.6.5 (Reference 1). This 1.02 factor is a LOCA analysis requirement that is conservatively being extended to the FHA (the 1.5 radial peaking factor should be sufficient to account for instrument uncertainties).

6) It is assumed that radionuclide mixing takes place in 50 percent of the refueling area volume (Regulatory Guide 1.25, Section C.1.k (Reference 5), also see SRP Section 6.5.3 (Reference 1)). Assuming mixing in a portion of the area increases the dose consequences of the FHA.

7) It is assumed that unfiltered inleakage continues to occur after control room ventilation system isolation even when the CR is at positive pressure.

8) Deleted.

9) It is assumed that both SGTS trains operate for the first hour. Filter efficiency is based on 95 percent for the operating train. For the remaining train, reduced efficiencies of 90 percent for elemental iodine, 30 percent for organic iodine and 95 percent for particulate iodine are applied based on Regulatory Guide 1.52. Use of the reduced filter efficiencies tacitly assumes that the heaters in the remaining SGTS train are not operating.

10) It is conservatively assumed that the event occurs 72 hours after reactor shutdown from full power level.

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7.0 COMPUTER CODES AND COMPUTER USED

The SCIENTECH-NUS code AXIDENT, Version 2, Mod 4 is used for this analysis. AXIDENT is a PC code and runs on a PC running Windows 95, Windows 98 or Windows NT 4.0.

8.0 DETAILED CALCULATIONS

The analysis is performed using the AXIDENT code and the calculations that were done to develop the AXIDENT input are discussed in Section 4. Notes on the AXIDENT input preparation are summarized below:

- Development of the radionuclide release to the refueling area is discussed in Section 4.1. A spreadsheet was used to perform the actual calculations using the TID-14844 source term model. The results are provided in Appendix B.
- X/Q values for the control room intake are taken from Table 4-3. X/Q values for the LPZ are taken from Table 4-4. X/Q values for the EAB are taken from Table 4-5.
- Release rate data based on reactor building HVAC flow and SGTS flow is taken from Section 4.2. Filter non-removal factors for the SGTS are taken from Table 4-1.
- Control room data is taken from Section 4.3.

A tabulation of the input requirements for AXIDENT is provided in Appendix A for reference.

9.0 COMPUTER INPUT AND OUTPUT

The AXIDENT cases that were run are summarized in the following table. As stated in Section 3, the SGTS and Control Room filter efficiencies are treated as a constant by AXIDENT. Hence, it is necessary to perform several runs for each combination of SGTS and Control Room filtration to determine the Control Room and LPZ dose. Note that the input and output files for each case are called **fhax.i** and **fhaxout.txt** respectively where x is the case number.

Case	Description	Secondary Containment Parameters	CR Parameters
App. N	CR, LPZ dose - 0-70 sec Sec, CR not isolated	$LS_1 = 3.10 \times 10^{-3}$ no filtration	air intake = 3316 CFM no filtration
	Not Used		
App. E	CR, LPZ dose - 70-90 sec Sec not isolated, CR isolated	$LS_1 = 3.10 \times 10^{-3}$ no filtration	air intake = 891 CFM non-removal = 0.122
App. F	CR, LPZ dose – 90 sec - 30 days	$LS_2 = 1.25 \times 10^{-4}$ (1 hr.) $LS_3 = 7.46 \times 10^{-5}$ (>1hr)	air intake = 891 CFM non-removal = 0.122

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Case	Description	Secondary Containment Parameters	CR Parameters
	CR, Sec isolated.	W/SGTS filtration (Table 4-1)	
App. G	EAB - 0-90 sec Sec not isolated	$LS_1 = 3.10x10^{-3}$ No filtration	N/A
	Not Used		
App. I	EAB - 90 sec – 2 hrs Sec isolated	$LS_2 = 1.25x10^{-4}$ (1 hr.) $LS_3 = 7.46x10^{-5}$ (>1hr) W/SGTS filtration (Table 4-1)	N/A
App. K	Assessment of CR dose w/o CR intake isolation	$LS_1 = 3.10x10^{-3}$ No filtration	air intake = 3316 CFM no filtration, after 90 second – intake flow reduced to 891 cfm.
App. M	Assessment of CR dose w/ 50 second CR intake isolation	$LS_1 = 3.10x10^{-3}$ No filtration	air intake = 3316 CFM no filtration, after 50 second – intake flow reduced to 891 cfm.
App. ~~N~~ C	Assessment of CR dose w/ ~~70~~ 60 second CR intake isolation	$LS_1 = 3.10x10^{-3}$ No filtration	air intake = 3316 CFM no filtration, after ~~70~~ 60 second – intake flow reduced to 891 cfm.
App. O	Assessment of CR dose w/ 80 second CR intake isolation	$LS_1 = 3.10x10^{-3}$ No filtration	air intake = 3316 CFM no filtration, after 80 second – intake flow reduced to 891 cfm.

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A listing of the AXIDENT run results are provided in a series of appendixes to this calculation. Note that the input used for each case is listed at the beginning of the results for each case.

10.0 SUMMARY OF RESULTS

The results of the dose analysis are summarized in the following tables:

The results of the assessment of the impact of various isolation times identified that the maximum dose is received when the Control Room intake damper isolates at 70 seconds and that the subsequent CR flow is at its minimum value. This results in the peak activity being "bottled-

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up" in the CR. Isolation times before or after 70 seconds results in lower doses. A plot of the calculated CR dose as a function of isolation time is plotted in Figure 4-1.

Table 10-1
Control Room Doses (rem) Over 30 days Following a FHA
(Cases fha 10, 3,4)

Case	Thyroid	Whole Body	Beta
0-70 sec Sec, CR not isolated (App. N)	2.73E+01	1.07E-02	4.20E-01
70-90 sec Sec not isolated, CR isolated (App. E)	2.82E-01	8.84E-04	3.52E-02
90 sec – 30 days CR, Sec isolated. (App. F)	9.84E-06	3.52E-07	1.41E-05
Total	**2.76E+01**	**1.16E-02**	**4.55E-01**
Criteria	**30.0**	**5.0**	**30.0**

Table 10-2
LPZ Doses (rem) Over 30 days Following a FHA
(Cases fha 10, 3,4)

Case	Thyroid	Whole Body	Beta
0-70 sec Sec, CR not isolated (App. N)	7.13E+00	2.63E-02	1.10E-01
70-90 sec Sec not isolated, CR isolated (App. E)	2.23E+00	8.22E-03	3.44E-02
90 sec – 30 days CR, Sec isolated. (App. F)	6.09E-01	2.44E-02	1.10E-01
Total	**9.97E+00**	**5.89E-02**	**2.54E-01**
Criteria	75.0	6.0	N/A

Table 10-3
EAB Doses (rem) Over 2 Hours Following a FHA
(Cases fha 5,7)

Case	Thyroid	Whole Body	Beta
0-90 sec Sec Not Isolated (App. G)	1.60E+01	5.91E-02	2.47E-01
90 sec – 2 hrs Sec Isolated (App. I)	3.07E-01	1.22E-02	5.48E-02
Total	**1.63E+01**	**7.13E-02**	**3.02E-01**
Criteria	75.0	6.0	N/A

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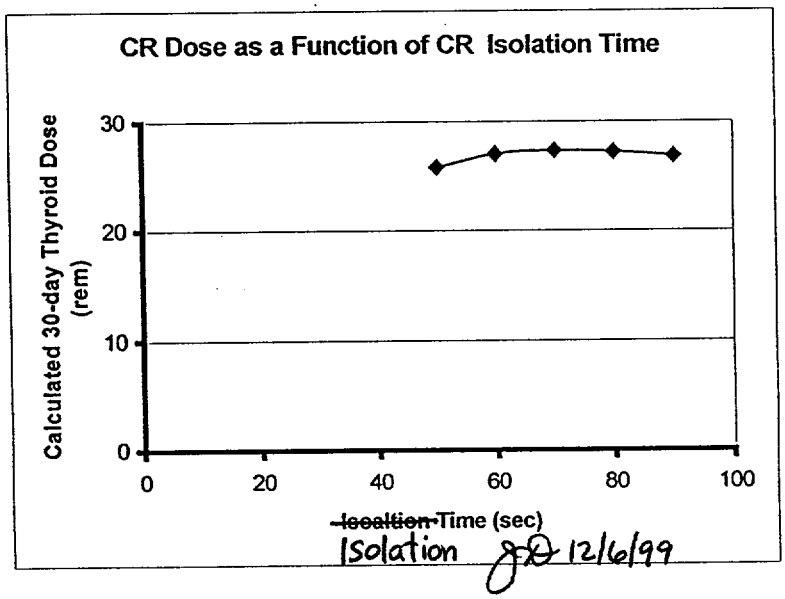

11.0 CONCLUSIONS

All calculated doses are below the stipulated limits. It is concluded that, using a conservative model, that the regulatory dose limits will not be exceeded following a design basis FHA.

The maximum dose is received when the Control Room intake damper isolates at 70 seconds and that the subsequent CR flow is at its minimum value. This results in the peak activity being "bottled-up" in the CR. Isolation times before or after 70 seconds results in lower doses.

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Appendix A
Summary of AXIDENT Input Requirements

The input requirements for the AXIDENT code are summarized in the following table. This table is provided to allow review of the input listed in the output for each AXIDENT run provided in this analysis. Details are found in the AXIDENT User's Manual (Reference 2).

Description of AXIDENT Input Requirements		
Line	Word	Description
1	TITLE	Title
2	TIME	Number of times to be analyzed. The actual times are given on card 5.
	LOCATE	Analysis Option: Site boundary dose plus control room dose to be calculated. For the EAB, only the site boundary (EAB) doses are calculated.
	TIE	Time of Ingress/Egress (min) (e.g., from control room to site boundary).
	XQIE	X/Q for Ingress/Egress
3	MWT	Core Power (MWt). A negative value indicates the code requires input of the core inventory on Cards 20.
	FRA	Time at which spray removal is assumed to start. The AXIDENT manual states that "the use of FRA on card 3 should be avoided". Therefore, this value is set to a time greater than the problem end time.
	VCCFT3	Free volume of control center (ft^3).
	VCRFT3	Free volume of the control room proper (ft^3).
4	LSPE	Spray removal rate for elemental Iodine in sprayed region (hr^{-1}).
	LSPP	Spray removal rate for particulate iodine in sprayed region (hr^{-1}).
	LSP0	Spray removal rate for organic iodine in sprayed region (hr^{-1}).
	Q	Mixing flow rate between sprayed and unsprayed regions (cfm). (zero is not allowed in AXIDENT)
	V1	Sprayed region volume (ft^3). (zero is not allowed in AXIDENT).
	V2	Unsprayed region volume (ft^3). (zero is not allowed in AXIDENT).
	F1	Fraction of initial fission product release to sprayed region. All fission products go into the sprayed region (cloud).
5	T (1 to TIME)	Times at which time dependent parameters change (sec).
6	LP 1 to X	Leak rate from primary containment (sec^{-1}).
7	LS 1 to X	Leak rate from secondary containment (sec^{-1}).
8	BP 1-X	Fraction of primary leakage that goes through secondary containment.
9	VCFM 1 – X	Intake rate to control center (cfm).
10	XQ	Site boundary X/Q (sec/m^3).
11	XQC	X/Q to control center intake (sec/m^3).
12	CPE 1-8	Cleanup rate for elemental iodine in primary (sec^{-1}).
13	CPP 1-8	Cleanup rate for particulate iodine in primary containment (sec^{-1}).
14	CPO 1-8	Cleanup rate for organic iodine in primary containment (sec^{-1}).

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Description of AXIDENT Input Requirements		
Line	Word	Description
15	CSE 1-8	Cleanup rate for elemental iodine in secondary containment (sec^{-1}).
16	CSP 1-8	Cleanup rate for particulate iodine in secondary containment (sec^{-1}).
17	CSO 1-8	Cleanup rate for organic iodine in secondary containment (sec^{-1}).
18	CCE 1-8	Cleanup rate for elemental iodine in control room (sec^{-1}).
19	CCP 1-8	Cleanup rate for particulate iodine in control room (sec^{-1}).
20	CCO 1-8	Cleanup rate for organic iodine in control room (sec^{-1}).
21	RFE	Combined filter non-removal factors for elemental iodine released to environment (used for SGTS filtration).
	RFP	Combined filter non-removal factors for particulate iodine released to environment (used for SGTS filtration).
	RFO	Combined filter non-removal factors for organic iodine released to environment (used for SGTS filtration).
	IFE	Combined filter non-removal factors for elemental iodine in control room intake.
	IFP	Combined filter non-removal factors for particulate iodine in control room intake.
	IFO	Combined filter non-removal factors for organic iodine in control room intake.
	PFE	Combined filter non-removal factors for elemental iodine released direct from primary.
	PFP	Combined filter non-removal factors for particulate iodine released direct from primary.
	PFO	Combined filter non-removal factors for organic iodine released direct from primary.
	Radionuclide Inventory (Curies by Isotope) in the following order: I-131, I-132, I-133, I-134, I-135, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, Xe-138, Kr-83m, Kr-85m, Kr-85, Kr-87, Kr-88	

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Appendix B

Calculation of the Radionuclide Release to the Refueling Area

The radionuclide release to the refueling area based on the TID Source Term used in AXIDENT is computed in Table B-1. The equation used is from Section 2.1.6, equation 36 of the AXIDENT Manual (Reference 2). The decay constants and fission yield are from Table 1 of the AXIDENT Manual. Headings are provided for each column to show how parameters are arithmetically combined.

Inventory of Radionuclides Released to the Secondary Containment from a FHA

Constant (C)	8.65E+03	T	86400000 sec	(1000 day operation assumed)
Core Power	2381.0 MWth			
Uncertainty Factor	1.02	Peaking Factor (PF)	1.7	
Power (P)	2428.62 MW	Decay Period (DP)	259200 secs	

Number of Rods Failed	111 (based on 7x7 fuel)
Total Number of Rods	25208 (based on 7x7 fuel)
Fraction of Rods Failed (FRF)	0.00440
Corr Factor for GE14 Fuel (GE14)	0.76

Nuclide	Decay Constant (1/sec)	Fission Yield (%)	X1	X2	Core Inventory (Ci)	Fraction of Core Inventory Released	Water Pool Decon Factor	Axident Correction Factor (ACF)	Decay Adjustment (DA)	Source Term (Ci)
	DC	FY	C * P * FY	1-exp(-DC*T)	X1 * X2	Rel (RG 1.25)	DF (RG 1.25)	ACF	exp (-DC*DP)	Core Inv * PF * Rel * DF * ACF * FRF*GE14
I131	9.97E-07	2.91	6.11E+07	1.00E+00	6.11E+07	0.12	0.01	4	0.772269	1.289E+03
I132	8.37E-05	4.33	9.10E+07	1.00E+00	9.10E+07	0.1	0.01	4	3.78E-10	7.833E-07
I133	9.17E-06	6.69	1.41E+08	1.00E+00	1.41E+08	0.1	0.01	4	0.092841	2.969E+02
I134	2.22E-04	7.8	1.64E+08	1.00E+00	1.64E+08	0.1	0.01	4	1.02E-25	3.813E-22
I135	2.87E-05	6.2	1.30E+08	1.00E+00	1.30E+08	0.1	0.01	4	0.000588	1.742E+00
Xe131m	6.79E-07	0.022	4.62E+05	1.00E+00	4.62E+05	0.1	1	1	0.838621	2.205E+02
Xe133m	3.55E-06	0.17	3.57E+06	1.00E+00	3.57E+06	0.1	1	1	0.398455	8.096E+02
Xe133	1.52E-06	6.69	1.41E+08	1.00E+00	1.41E+08	0.1	1	1	0.674365	5.392E+04
Xe135m	7.40E-04	1.8	3.78E+07	1.00E+00	3.78E+07	0.1	1	1	5E-84	1.075E-79
Xe135	2.11E-05	6.3	1.32E+08	1.00E+00	1.32E+08	0.1	1	1	0.004215	3.174E+02
Xe138	6.60E-04	5.9	1.24E+08	1.00E+00	1.24E+08	0.1	1	1	5.06E-75	3.570E-70
Kr83m	1.03E-04	0.52	1.09E+07	1.00E+00	1.09E+07	0.1	1	1	2.54E-12	1.581E-08
Kr85m	4.38E-05	1.3	2.73E+07	1.00E+00	2.73E+07	0.1	1	1	1.17E-05	1.823E-01
Kr85	2.04E-09	0.27	5.67E+06	1.62E-01	9.17E+05	0.3	1	1	0.999471	1.564E+03
Kr87	1.52E-04	2.5	5.25E+07	1.00E+00	5.25E+07	0.1	1	1	7.75E-18	2.317E-13
Kr88	6.88E-05	3.56	7.48E+07	1.00E+00	7.48E+07	0.1	1	1	1.8E-08	7.658E-04

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Appendix C

This Appendix contains the AXIDENT results (fha1) for the control room and LPZ dose for the case of no secondary containment or control room isolation (0 to 60 sec).

```
AXIDENT VER 2 MOD 4
                  PRODUCTION DATE 02/18/92
                  BEGIN EXECUTION DATE:  12/02/1999
                  BEGIN EXECUTION TIME:  20:44:35.98



 1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated
 2 10 2 0.0 1.0
 3 -1 1.0E7 1.4186E5 6.46E4
 4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
 5 45.0 60.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 10*1.0
 7 2*3.10E-3 8*0
 8 10*1.0
 9 2*3316 8*891
10 3.20E-4 3.20E-4 3.20E-4 1.10E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
11 3*3.468E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
12 10*0.0
13 10*0.0
14 10*0.0
15 10*0.0
16 10*0.0
17 10*0.0
18 10*0.0
19 10*0.0
20 10*0.0
21 1.0 1.0 1.0 1.0 1.0 1.0
22 1.0 1.0 1.0
23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
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1

FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	1.289E+03
I-132	7.833E-07
I-133	2.969E+02
I-134	3.813E-22
I-135	1.742E+00
XE-131M	2.205E+02
XE-133M	8.096E+02
XE-133	5.392E+04
XE-135M	1.075E-79
XE-135	3.174E+02
XE-138	3.570E-70
KR-83M	1.581E-08
KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .35E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	2.01E-02	5.01E-06	4.57E+00	1.11E-03	5.42E-04	4.32E-02	3.88E-07	5.12E-06
I-132	5.08E-27	1.55E-07	2.27E-08	1.22E-11	3.03E-15	1.59E-11	4.35E-12	7.48E-13	1.50E-13	1.31E-15	7.06E-15
I-133	1.93E-18	5.89E+01	8.61E+00	4.63E-03	1.15E-06	1.72E-01	3.29E-04	2.68E-04	1.63E-03	1.44E-07	2.53E-06
I-134	2.46E-42	7.49E-23	1.10E-23	5.89E-27	1.47E-30	1.34E-27	1.71E-27	3.69E-28	1.27E-29	6.84E-31	3.48E-30
I-135	1.13E-20	3.45E-01	5.05E-02	2.72E-05	6.76E-09	1.74E-04	7.19E-06	1.14E-06	1.64E-06	1.71E-09	1.08E-08
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	1.11E-03	2.75E-07	2.51E-01	6.10E-05	2.98E-05	2.37E-03	2.13E-08	2.81E-07
I-132	2.79E-28	8.51E-09	1.25E-09	6.69E-13	1.67E-16	8.72E-13	2.39E-13	4.11E-14	8.23E-15	7.23E-17	3.88E-16
I-133	1.06E-19	3.24E+00	4.73E-01	2.54E-04	6.33E-08	9.46E-03	1.81E-05	1.47E-05	8.94E-05	7.91E-09	1.39E-07
I-134	1.35E-43	4.12E-24	6.05E-25	3.24E-28	8.06E-32	7.39E-29	9.38E-29	2.02E-29	6.97E-31	3.76E-32	1.91E-31
I-135	6.23E-22	1.90E-02	2.77E-03	1.49E-06	3.71E-10	9.55E-06	3.95E-07	6.29E-08	9.02E-08	9.39E-11	5.94E-10
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	8.84E-04	2.20E-07	2.01E-01	4.88E-05	2.38E-05	1.90E-03	1.71E-08	2.25E-07
I-132	2.23E-28	6.81E-09	9.97E-10	5.35E-13	1.33E-16	6.97E-13	1.91E-13	3.29E-14	6.59E-15	5.78E-17	3.10E-16
I-133	8.50E-20	2.59E+00	3.78E-01	2.04E-04	5.07E-08	7.56E-03	1.44E-05	1.18E-05	7.15E-05	6.33E-09	1.11E-07
I-134	1.08E-43	3.29E-24	4.84E-25	2.59E-28	6.45E-32	5.91E-29	7.50E-29	1.62E-29	5.57E-31	3.01E-32	1.53E-31
I-135	4.98E-22	1.52E-02	2.22E-03	1.19E-06	2.97E-10	7.64E-06	3.16E-07	5.03E-08	7.22E-08	7.52E-11	4.75E-10
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	1.51E-02	3.77E-06	0.00E+00	4.95E-05	2.79E-04	0.00E+00	7.55E-08	2.64E-06
XE-133M	2.32E-17	7.06E+02	1.03E+02	5.55E-02	1.38E-05	0.00E+00	2.72E-04	1.18E-03	0.00E+00	1.23E-07	1.11E-05
XE-133	1.54E-15	4.70E+04	6.87E+03	3.70E+00	9.21E-04	0.00E+00	1.65E-02	7.39E-02	0.00E+00	1.83E-05	6.98E-04
XE-135M	2.98E-99	9.07E-80	1.35E-80	7.13E-84	1.78E-87	0.00E+00	4.55E-85	9.62E-86	0.00E+00	1.63E-88	9.04E-88
XE-135	9.08E-18	2.77E+02	4.05E+01	2.18E-02	5.41E-06	0.00E+00	7.96E-04	9.59E-04	0.00E+00	2.79E-07	9.06E-06
XE-138	9.92E-90	3.02E-70	4.48E-71	2.38E-74	5.92E-78	0.00E+00	1.03E-74	2.64E-75	0.00E+00	9.50E-79	2.48E-77
KR-83M	4.50E-28	1.37E-08	2.01E-09	1.08E-12	2.69E-16	0.00E+00	8.04E-16	5.03E-15	0.00E+00	4.18E-18	4.75E-17
KR-85M	5.21E-21	1.59E-01	2.32E-02	1.25E-05	3.11E-09	0.00E+00	2.90E-07	3.98E-07	0.00E+00	1.09E-10	3.76E-09

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KR-85	4.48E-17	1.36E+03	1.99E+02	1.07E-01	2.67E-05	0.00E+00	3.35E-05	3.27E-03	0.00E+00	1.20E-08	3.09E-05
KR-87	6.59E-33	2.01E-13	2.94E-14	1.58E-17	3.93E-21	0.00E+00	3.24E-18	2.28E-18	0.00E+00	5.64E-22	2.15E-20
KR-88	2.19E-23	6.66E-04	9.75E-05	5.24E-08	1.30E-11	0.00E+00	1.36E-08	2.45E-09	0.00E+00	4.07E-12	2.31E-11
						5.21E+00	1.92E-02	8.05E-02	4.92E-02	1.94E-05	7.60E-04

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .017 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .35E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.57E-24	2.44E+02	1.16E+01	2.63E-02	6.54E-06	1.42E+00	3.45E-04	1.69E-04	3.31E-02	2.98E-07	3.93E-06
I-132	1.55E-33	1.48E-07	7.03E-09	1.59E-11	3.96E-15	4.92E-12	1.35E-12	2.32E-13	1.15E-13	1.01E-15	5.41E-15
I-133	5.91E-25	5.62E+01	2.68E+00	6.05E-03	1.51E-06	5.35E-02	1.02E-04	8.33E-05	1.25E-03	1.10E-07	1.94E-06
I-134	7.50E-49	7.13E-23	3.40E-24	7.67E-27	1.91E-30	4.15E-28	5.27E-28	1.14E-28	9.68E-30	5.23E-31	2.65E-30
I-135	3.46E-27	3.29E-01	1.57E-02	3.55E-05	8.83E-09	5.40E-05	2.23E-06	3.56E-07	1.26E-06	1.31E-09	8.29E-09
PARTICULATE											
I-131	1.41E-25	1.34E+01	6.39E-01	1.44E-03	3.60E-07	7.80E-02	1.90E-05	9.26E-06	1.82E-03	1.64E-08	2.16E-07
I-132	8.53E-35	8.11E-09	3.86E-10	8.73E-13	2.17E-16	2.70E-13	7.42E-14	1.27E-14	6.30E-15	5.53E-17	2.97E-16
I-133	3.25E-26	3.09E+00	1.47E-01	3.33E-04	8.28E-08	2.94E-03	5.61E-06	4.58E-06	6.85E-05	6.07E-09	1.07E-07
I-134	4.12E-50	3.92E-24	1.87E-25	4.22E-28	1.05E-31	2.28E-29	2.90E-29	6.25E-30	5.32E-31	2.87E-32	1.46E-31
I-135	1.90E-28	1.81E-02	8.62E-04	1.95E-06	4.85E-10	2.97E-06	1.23E-07	1.95E-08	6.92E-08	7.20E-11	4.56E-10
ORGANIC											
I-131	1.13E-25	1.07E+01	5.11E-01	1.16E-03	2.88E-07	6.24E-02	1.52E-05	7.41E-06	1.46E-03	1.31E-08	1.73E-07
I-132	6.82E-35	6.49E-09	3.09E-10	6.99E-13	1.74E-16	2.16E-13	5.94E-14	1.02E-14	5.04E-15	4.43E-17	2.38E-16
I-133	2.60E-26	2.47E+00	1.18E-01	2.66E-04	6.62E-08	2.35E-03	4.49E-06	3.66E-06	5.48E-05	4.85E-09	8.54E-08
I-134	3.29E-50	3.13E-24	1.49E-25	3.37E-28	8.40E-32	1.82E-29	2.32E-29	5.00E-30	4.25E-31	2.30E-32	1.17E-31
I-135	1.52E-28	1.45E-02	6.90E-04	1.56E-06	3.88E-10	2.37E-06	9.81E-08	1.56E-08	5.53E-08	5.76E-11	3.64E-10
NOBLE GASES											
XE-131M	1.93E-24	1.84E+02	8.74E+00	1.98E-02	4.92E-06	0.00E+00	1.54E-05	8.68E-05	0.00E+00	5.79E-08	2.03E-06
XE-133M	7.09E-24	6.74E+02	3.21E+01	7.26E-02	1.81E-05	0.00E+00	8.47E-05	3.66E-04	0.00E+00	9.42E-08	8.54E-06

XE-133	4.72E-22	4.49E+04	2.14E+03	4.83E+00	1.20E-03	0.00E+00	5.13E-03	2.30E-02	0.00E+00	1.41E-05	5.36E-04
XE-135M	9.00-106	8.56E-80	4.10E-81	9.22E-84	2.29E-87	0.00E+00	1.38E-85	2.93E-86	0.00E+00	1.23E-88	6.82E-88
XE-135	2.78E-24	2.64E+02	1.26E+01	2.84E-02	7.07E-06	0.00E+00	2.47E-04	2.98E-04	0.00E+00	2.14E-07	6.95E-06
XE-138	3.00E-96	2.86E-70	1.37E-71	3.08E-74	7.66E-78	0.00E+00	3.14E-75	8.05E-76	0.00E+00	7.18E-79	1.88E-77
KR-83M	1.38E-34	1.31E-08	6.23E-10	1.41E-12	3.51E-16	0.00E+00	2.49E-16	1.56E-15	0.00E+00	3.20E-18	3.64E-17
KR-85M	1.59E-27	1.51E-01	7.21E-03	1.63E-05	4.06E-09	0.00E+00	9.00E-08	1.24E-07	0.00E+00	8.36E-11	2.88E-09
KR-85	1.37E-23	1.30E+03	6.20E+01	1.40E-01	3.49E-05	0.00E+00	1.04E-05	1.02E-03	0.00E+00	9.20E-09	2.37E-05
KR-87	2.01E-39	1.91E-13	9.11E-15	2.06E-17	5.12E-21	0.00E+00	1.00E-18	7.04E-19	0.00E+00	4.31E-22	1.64E-20
KR-88	6.68E-30	6.35E-04	3.02E-05	6.84E-08	1.70E-11	0.00E+00	4.22E-09	7.59E-10	0.00E+00	3.12E-12	1.77E-11
						1.62E+00	5.98E-03	2.50E-02	3.78E-02	1.49E-05	5.83E-04

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .35E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.44E+02	0.00E+00	2.62E-02	6.52E-06	0.00E+00	0.00E+00	0.00E+00	7.48E-02	6.73E-07	8.88E-06
I-132	1.45E-46	1.47E-07	0.00E+00	1.58E-11	3.93E-15	0.00E+00	0.00E+00	0.00E+00	2.59E-13	2.27E-15	1.22E-14
I-133	5.53E-38	5.62E+01	0.00E+00	6.03E-03	1.50E-06	0.00E+00	0.00E+00	0.00E+00	2.82E-03	2.49E-07	4.39E-06
I-134	6.97E-62	7.08E-23	0.00E+00	7.60E-27	1.89E-30	0.00E+00	0.00E+00	0.00E+00	2.18E-29	1.17E-30	5.97E-30
I-135	3.24E-40	3.29E-01	0.00E+00	3.53E-05	8.79E-09	0.00E+00	0.00E+00	0.00E+00	2.84E-06	2.96E-09	1.87E-08
PARTICULATE											
I-131	1.32E-38	1.34E+01	0.00E+00	1.44E-03	3.58E-07	0.00E+00	0.00E+00	0.00E+00	4.11E-03	3.70E-08	4.88E-07
I-132	7.96E-48	8.09E-09	0.00E+00	8.68E-13	2.16E-16	0.00E+00	0.00E+00	0.00E+00	1.42E-14	1.25E-16	6.70E-16
I-133	3.04E-39	3.09E+00	0.00E+00	3.31E-04	8.25E-08	0.00E+00	0.00E+00	0.00E+00	1.55E-04	1.37E-08	2.41E-07
I-134	3.83E-63	3.89E-24	0.00E+00	4.18E-28	1.04E-31	0.00E+00	0.00E+00	0.00E+00	1.20E-30	6.46E-32	3.28E-31
I-135	1.78E-41	1.81E-02	0.00E+00	1.94E-06	4.83E-10	0.00E+00	0.00E+00	0.00E+00	1.56E-07	1.63E-10	1.03E-09
ORGANIC											
I-131	1.06E-38	1.07E+01	0.00E+00	1.15E-03	2.87E-07	0.00E+00	0.00E+00	0.00E+00	3.29E-03	2.96E-08	3.90E-07
I-132	6.37E-48	6.47E-09	0.00E+00	6.95E-13	1.73E-16	0.00E+00	0.00E+00	0.00E+00	1.14E-14	9.98E-17	5.36E-16

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I-133	2.43E-39	2.47E+00	0.00E+00	2.65E-04	6.60E-08	0.00E+00	0.00E+00	0.00E+00	1.24E-04	1.10E-08	1.93E-07
I-134	3.06E-63	3.11E-24	0.00E+00	3.34E-28	8.32E-32	0.00E+00	0.00E+00	0.00E+00	9.57E-31	5.16E-32	2.62E-31
I-135	1.42E-41	1.45E-02	0.00E+00	1.55E-06	3.87E-10	0.00E+00	0.00E+00	0.00E+00	1.25E-07	1.30E-10	8.23E-10
NOBLE GASES											
XE-131M	1.81E-37	1.84E+02	0.00E+00	1.97E-02	4.91E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-07	4.58E-06
XE-133M	6.63E-37	6.74E+02	0.00E+00	7.23E-02	1.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-07	1.93E-05
XE-133	4.42E-35	4.49E+04	0.00E+00	4.82E+00	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.18E-05	1.21E-03
XE-135M	8.24-119	8.38E-80	0.00E+00	8.99E-84	2.24E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-88	1.52E-87
XE-135	2.60E-37	2.64E+02	0.00E+00	2.83E-02	7.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.83E-07	1.57E-05
XE-138	2.76-109	2.80E-70	0.00E+00	3.01E-74	7.48E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-78	4.18E-77
KR-83M	1.28E-47	1.30E-08	0.00E+00	1.40E-12	3.48E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-18	8.20E-17
KR-85M	1.49E-40	1.51E-01	0.00E+00	1.62E-05	4.04E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-10	6.51E-09
KR-85	1.28E-36	1.30E+03	0.00E+00	1.40E-01	3.48E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-08	5.36E-05
KR-87	1.87E-52	1.90E-13	0.00E+00	2.04E-17	5.08E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.71E-22	3.70E-20
KR-88	6.24E-43	6.34E-04	0.00E+00	6.80E-08	1.69E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-12	3.99E-11
						0.00E+00	0.00E+00	0.00E+00	8.53E-02	3.37E-05	1.32E-03

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, . 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .11E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.44E+02	0.00E+00	2.19E-02	5.44E-06	0.00E+00	0.00E+00	0.00E+00	3.90E+00	3.50E-05	4.62E-04
I-132	0.00E+00	1.28E-07	0.00E+00	1.15E-11	2.85E-15	0.00E+00	0.00E+00	0.00E+00	1.26E-11	1.10E-13	5.93E-13
I-133	0.00E+00	5.53E+01	0.00E+00	4.96E-03	1.24E-06	0.00E+00	0.00E+00	0.00E+00	1.46E-01	1.29E-05	2.27E-04
I-134	0.00E+00	4.84E-23	0.00E+00	4.35E-27	1.08E-30	0.00E+00	0.00E+00	0.00E+00	9.46E-28	5.11E-29	2.59E-28
I-135	0.00E+00	3.13E-01	0.00E+00	2.81E-05	7.00E-09	0.00E+00	0.00E+00	0.00E+00	1.45E-04	1.51E-07	9.53E-07
PARTICULATE											
I-131	0.00E+00	1.34E+01	0.00E+00	1.20E-03	2.99E-07	0.00E+00	0.00E+00	0.00E+00	2.14E-01	1.92E-06	2.54E-05
I-132	0.00E+00	7.01E-09	0.00E+00	6.29E-13	1.57E-16	0.00E+00	0.00E+00	0.00E+00	6.91E-13	6.06E-15	3.26E-14

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I-133	0.00E+00	3.04E+00	0.00E+00	2.73E-04	6.79E-08	0.00E+00	0.00E+00	0.00E+00	8.01E-03	7.09E-07	1.25E-05
I-134	0.00E+00	2.66E-24	0.00E+00	2.39E-28	5.95E-32	0.00E+00	0.00E+00	0.00E+00	5.20E-29	2.81E-30	1.43E-29
I-135	0.00E+00	1.72E-02	0.00E+00	1.55E-06	3.85E-10	0.00E+00	0.00E+00	0.00E+00	7.95E-06	8.27E-09	5.23E-08
ORGANIC											
I-131	0.00E+00	1.07E+01	0.00E+00	9.61E-04	2.39E-07	0.00E+00	0.00E+00	0.00E+00	1.71E-01	1.54E-06	2.03E-05
I-132	0.00E+00	5.61E-09	0.00E+00	5.03E-13	1.25E-16	0.00E+00	0.00E+00	0.00E+00	5.53E-13	4.85E-15	2.61E-14
I-133	0.00E+00	2.43E+00	0.00E+00	2.18E-04	5.43E-08	0.00E+00	0.00E+00	0.00E+00	6.41E-03	5.67E-07	9.98E-06
I-134	0.00E+00	2.13E-24	0.00E+00	1.91E-28	4.76E-32	0.00E+00	0.00E+00	0.00E+00	4.16E-29	2.24E-30	1.14E-29
I-135	0.00E+00	1.38E-02	0.00E+00	1.24E-06	3.08E-10	0.00E+00	0.00E+00	0.00E+00	6.36E-06	6.62E-09	4.19E-08
NOBLE GASES											
XE-131M	0.00E+00	1.83E+02	0.00E+00	1.65E-02	4.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.82E-06	2.38E-04
XE-133M	0.00E+00	6.70E+02	0.00E+00	6.01E-02	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-05	1.00E-03
XE-133	0.00E+00	4.48E+04	0.00E+00	4.02E+00	1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-03	6.30E-02
XE-135M	0.00E+00	2.36E-80	0.00E+00	2.12E-84	5.28E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.12E-87	4.52E-86
XE-135	0.00E+00	2.54E+02	0.00E+00	2.28E-02	5.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-05	8.03E-04
XE-138	0.00E+00	9.06E-71	0.00E+00	8.13E-75	2.02E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-77	1.31E-75
KR-83M	0.00E+00	1.09E-08	0.00E+00	9.81E-13	2.44E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E-16	3.92E-15
KR-85M	0.00E+00	1.40E-01	0.00E+00	1.26E-05	3.13E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.48E-09	3.27E-07
KR-85	0.00E+00	1.30E+03	0.00E+00	1.17E-01	2.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-06	2.79E-03
KR-87	0.00E+00	1.47E-13	0.00E+00	1.32E-17	3.28E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E-20	1.70E-18
KR-88	0.00E+00	5.64E-04	0.00E+00	5.06E-08	1.26E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-10	1.96E-09
						0.00E+00	0.00E+00	0.00E+00	4.44E+00	1.75E-03	6.86E-02

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT,' 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.43E+02	0.00E+00	1.81E-02	4.50E-06	0.00E+00	0.00E+00	0.00E+00	3.41E+00	3.06E-05	4.04E-04
I-132	0.00E+00	1.10E-07	0.00E+00	8.16E-12	2.03E-15	0.00E+00	0.00E+00	0.00E+00	9.51E-12	8.35E-14	4.48E-13

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I-133	0.00E+00	5.44E-01	0.00E+00	4.04E-03	1.01E-06	0.00E+00	0.00E+00	0.00E+00	1.26E-01	1.11E-05	1.96E-04
I-134	0.00E+00	3.25E-23	0.00E+00	2.41E-27	6.01E-31	0.00E+00	0.00E+00	0.00E+00	5.62E-28	3.03E-29	1.54E-28
I-135	0.00E+00	2.98E-01	0.00E+00	2.21E-05	5.51E-09	0.00E+00	0.00E+00	0.00E+00	1.21E-04	1.25E-07	7.94E-07
PARTICULATE											
I-131	0.00E+00	1.34E+01	0.00E+00	9.94E-04	2.47E-07	0.00E+00	0.00E+00	0.00E+00	1.87E-01	1.68E-06	2.22E-05
I-132	0.00E+00	6.03E-09	0.00E+00	4.48E-13	1.12E-16	0.00E+00	0.00E+00	0.00E+00	5.23E-13	4.59E-15	2.46E-14
I-133	0.00E+00	2.99E+00	0.00E+00	2.22E-04	5.53E-08	0.00E+00	0.00E+00	0.00E+00	6.90E-03	6.11E-07	1.08E-05
I-134	0.00E+00	1.79E-24	0.00E+00	1.33E-28	3.30E-32	0.00E+00	0.00E+00	0.00E+00	3.09E-29	1.67E-30	8.47E-30
I-135	0.00E+00	1.64E-02	0.00E+00	1.22E-06	3.03E-10	0.00E+00	0.00E+00	0.00E+00	6.62E-06	6.89E-09	4.36E-08
ORGANIC											
I-131	0.00E+00	1.07E+01	0.00E+00	7.95E-04	1.98E-07	0.00E+00	0.00E+00	0.00E+00	1.50E-01	1.35E-06	1.78E-05
I-132	0.00E+00	4.83E-09	0.00E+00	3.59E-13	8.93E-17	0.00E+00	0.00E+00	0.00E+00	4.18E-13	3.67E-15	1.97E-14
I-133	0.00E+00	2.39E+00	0.00E+00	1.78E-04	4.43E-08	0.00E+00	0.00E+00	0.00E+00	5.52E-03	4.89E-07	8.60E-06
I-134	0.00E+00	1.43E-24	0.00E+00	1.06E-28	2.64E-32	0.00E+00	0.00E+00	0.00E+00	2.47E-29	1.33E-30	6.77E-30
I-135	0.00E+00	1.31E-02	0.00E+00	9.72E-07	2.42E-10	0.00E+00	0.00E+00	0.00E+00	5.30E-06	5.51E-09	3.49E-08
NOBLE GASES											
XE-131M	0.00E+00	1.83E+02	0.00E+00	1.36E-02	3.39E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.96E-06	2.09E-04
XE-133M	0.00E+00	6.66E+02	0.00E+00	4.95E-02	1.23E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.63E-06	8.72E-04
XE-133	0.00E+00	4.47E+04	0.00E+00	3.32E+00	8.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-03	5.50E-02
XE-135M	0.00E+00	6.24E-81	0.00E+00	4.64E-85	1.15E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-87	1.09E-86
XE-135	0.00E+00	2.45E+02	0.00E+00	1.82E-02	4.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-05	6.78E-04
XE-138	0.00E+00	2.76E-71	0.00E+00	2.05E-75	5.11E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-77	3.64E-76
KR-83M	0.00E+00	9.09E-09	0.00E+00	6.75E-13	1.68E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-16	2.87E-15
KR-85M	0.00E+00	1.30E-01	0.00E+00	9.64E-06	2.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.69E-09	2.65E-07
KR-85	0.00E+00	1.30E+03	0.00E+00	9.68E-02	2.41E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.49E-07	2.45E-03
KR-87	0.00E+00	1.12E-13	0.00E+00	8.30E-18	2.07E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-20	1.14E-18
KR-88	0.00E+00	4.98E-04	0.00E+00	3.70E-08	9.21E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-10	1.53E-09
						0.00E+00	0.00E+00	0.00E+00	3.88E+00	1.53E-03	5.99E-02

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

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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	0.00E+00	2.42E+02	0.00E+00	1.24E-02	3.08E-06	0.00E+00	0.00E+00	0.00E+00	5.15E+00	4.63E-05	6.11E-04
I-132	0.00E+00	8.12E-08	0.00E+00	4.14E-12	1.03E-15	0.00E+00	0.00E+00	0.00E+00	1.16E-11	1.02E-13	5.47E-13
I-133	0.00E+00	5.27E+01	0.00E+00	2.68E-03	6.68E-07	0.00E+00	0.00E+00	0.00E+00	1.86E-01	1.64E-05	2.89E-04
I-134	0.00E+00	1.46E-23	0.00E+00	7.45E-28	1.85E-31	0.00E+00	0.00E+00	0.00E+00	4.86E-28	2.62E-29	1.33E-28
I-135	0.00E+00	2.68E-01	0.00E+00	1.37E-05	3.41E-09	0.00E+00	0.00E+00	0.00E+00	1.69E-04	1.76E-07	1.12E-06
PARTICULATE											
I-131	0.00E+00	1.33E+01	0.00E+00	6.79E-04	1.69E-07	0.00E+00	0.00E+00	0.00E+00	2.83E-01	2.54E-06	3.36E-05
I-132	0.00E+00	4.46E-09	0.00E+00	2.28E-13	5.66E-17	0.00E+00	0.00E+00	0.00E+00	6.38E-13	5.60E-15	3.01E-14
I-133	0.00E+00	2.89E+00	0.00E+00	1.48E-04	3.67E-08	0.00E+00	0.00E+00	0.00E+00	1.02E-02	9.03E-07	1.59E-05
I-134	0.00E+00	8.03E-25	0.00E+00	4.09E-29	1.02E-32	0.00E+00	0.00E+00	0.00E+00	2.67E-29	1.44E-30	7.31E-30
I-135	0.00E+00	1.47E-02	0.00E+00	7.52E-07	1.87E-10	0.00E+00	0.00E+00	0.00E+00	9.30E-06	9.69E-09	6.13E-08
ORGANIC											
I-131	0.00E+00	1.07E+01	0.00E+00	5.43E-04	1.35E-07	0.00E+00	0.00E+00	0.00E+00	2.26E-01	2.03E-06	2.68E-05
I-132	0.00E+00	3.57E-09	0.00E+00	1.82E-13	4.53E-17	0.00E+00	0.00E+00	0.00E+00	5.10E-13	4.48E-15	2.40E-14
I-133	0.00E+00	2.31E+00	0.00E+00	1.18E-04	2.94E-08	0.00E+00	0.00E+00	0.00E+00	8.16E-03	7.23E-07	1.27E-05
I-134	0.00E+00	6.42E-25	0.00E+00	3.27E-29	8.15E-33	0.00E+00	0.00E+00	0.00E+00	2.13E-29	1.15E-30	5.85E-30
I-135	0.00E+00	1.18E-02	0.00E+00	6.02E-07	1.50E-10	0.00E+00	0.00E+00	0.00E+00	7.44E-06	7.75E-09	4.90E-08
NOBLE GASES											
XE-131M	0.00E+00	1.83E+02	0.00E+00	9.32E-03	2.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.02E-06	3.15E-04
XE-133M	0.00E+00	6.57E+02	0.00E+00	3.35E-02	8.34E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	1.31E-03
XE-133	0.00E+00	4.44E+04	0.00E+00	2.26E+00	5.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-03	8.30E-02
XE-135M	0.00E+00	4.35E-82	0.00E+00	2.22E-86	5.51E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.22E-88	2.90E-87
XE-135	0.00E+00	2.27E+02	0.00E+00	1.16E-02	2.88E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-05	9.72E-04
XE-138	0.00E+00	2.57E-72	0.00E+00	1.31E-76	3.26E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.40E-78	1.15E-76
KR-83M	0.00E+00	6.27E-09	0.00E+00	3.20E-13	7.96E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-16	3.33E-15
KR-85M	0.00E+00	1.11E-01	0.00E+00	5.65E-06	1.41E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-08	3.58E-07
KR-85	0.00E+00	1.30E+03	0.00E+00	6.64E-02	1.65E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-06	3.71E-03
KR-87	0.00E+00	6.46E-14	0.00E+00	3.29E-18	8.20E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.08E-20	1.17E-18
KR-88	0.00E+00	3.89E-04	0.00E+00	1.98E-08	4.93E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-10	1.93E-09
						0.00E+00	0.00E+00	0.00E+00	5.86E+00	2.30E-03	9.03E-02

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER

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ELEMENTAL	.000	.000	.000	.000	1.000	1.000
PARTICULATE	.000	.000	.000	.000	1.000	1.000
ORGANIC	.000	.000	.000	.000	1.000	1.000

	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	0.00E+00	2.37E+02	0.00E+00	1.26E-03	3.14E-07	0.00E+00	0.00E+00	0.00E+00	9.98E+00	8.97E-05	1.18E-03
I-132	0.00E+00	1.33E-08	0.00E+00	7.08E-14	1.76E-17	0.00E+00	0.00E+00	0.00E+00	1.18E-11	1.03E-13	5.54E-13
I-133	0.00E+00	4.32E+01	0.00E+00	2.30E-04	5.71E-08	0.00E+00	0.00E+00	0.00E+00	3.35E-01	2.97E-05	5.22E-04
I-134	0.00E+00	1.21E-25	0.00E+00	6.42E-31	1.60E-34	0.00E+00	0.00E+00	0.00E+00	2.16E-28	1.17E-29	5.93E-29
I-135	0.00E+00	1.44E-01	0.00E+00	7.67E-07	1.91E-10	0.00E+00	0.00E+00	0.00E+00	2.59E-04	2.70E-07	1.71E-06
PARTICULATE											
I-131	0.00E+00	1.30E+01	0.00E+00	6.93E-05	1.72E-08	0.00E+00	0.00E+00	0.00E+00	5.48E-01	4.93E-06	6.51E-05
I-132	0.00E+00	7.32E-10	0.00E+00	3.89E-15	9.68E-19	0.00E+00	0.00E+00	0.00E+00	6.46E-13	5.67E-15	3.05E-14
I-133	0.00E+00	2.37E+00	0.00E+00	1.26E-05	3.14E-09	0.00E+00	0.00E+00	0.00E+00	1.84E-02	1.63E-06	2.87E-05
I-134	0.00E+00	6.64E-27	0.00E+00	3.53E-32	8.78E-36	0.00E+00	0.00E+00	0.00E+00	1.19E-29	6.42E-31	3.26E-30
I-135	0.00E+00	7.94E-03	0.00E+00	4.22E-08	1.05E-11	0.00E+00	0.00E+00	0.00E+00	1.42E-05	1.48E-08	9.38E-08
ORGANIC											
I-131	0.00E+00	1.04E+01	0.00E+00	5.54E-05	1.38E-08	0.00E+00	0.00E+00	0.00E+00	4.39E-01	3.94E-06	5.21E-05
I-132	0.00E+00	5.86E-10	0.00E+00	3.11E-15	7.75E-19	0.00E+00	0.00E+00	0.00E+00	5.17E-13	4.54E-15	2.44E-14
I-133	0.00E+00	1.90E+00	0.00E+00	1.01E-05	2.51E-09	0.00E+00	0.00E+00	0.00E+00	1.47E-02	1.30E-06	2.30E-05
I-134	0.00E+00	5.31E-27	0.00E+00	2.82E-32	7.02E-36	0.00E+00	0.00E+00	0.00E+00	9.51E-30	5.14E-31	2.61E-30
I-135	0.00E+00	6.35E-03	0.00E+00	3.37E-08	8.40E-12	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.19E-08	7.51E-08
NOBLE GASES											
XE-131M	0.00E+00	1.80E+02	0.00E+00	9.57E-04	2.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-05	6.13E-04
XE-133M	0.00E+00	6.09E+02	0.00E+00	3.23E-03	8.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-05	2.48E-03
XE-133	0.00E+00	4.30E+04	0.00E+00	2.28E-01	5.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-03	1.60E-01
XE-135M	0.00E+00	4.97E-89	0.00E+00	2.64E-94	6.57E-98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-89	1.46E-88
XE-135	0.00E+00	1.44E+02	0.00E+00	7.65E-04	1.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.88E-05	1.58E-03
XE-138	0.00E+00	1.65E-78	0.00E+00	8.78E-84	2.19E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-79	7.84E-78
KR-83M	0.00E+00	6.78E-10	0.00E+00	3.60E-15	8.97E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-16	2.96E-15
KR-85M	0.00E+00	4.30E-02	0.00E+00	2.29E-07	5.69E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-08	4.87E-07
KR-85	0.00E+00	1.30E+03	0.00E+00	6.92E-03	1.72E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-06	7.25E-03
KR-87	0.00E+00	2.42E-15	0.00E+00	1.29E-20	3.20E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-20	7.68E-19
KR-88	0.00E+00	8.79E-05	0.00E+00	4.67E-10	1.16E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.83E-10	2.18E-09
						0.00E+00	0.00E+00	0.00E+00	1.13E+01	4.44E-03	1.74E-01

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

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X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.24E+02	0.00E+00	2.87E-06	7.13E-10	0.00E+00	0.00E+00	0.00E+00	1.13E+00	1.02E-05	1.34E-04
I-132	0.00E+00	1.07E-10	0.00E+00	1.37E-18	3.42E-22	0.00E+00	0.00E+00	0.00E+00	2.05E-13	1.79E-15	9.64E-15
I-133	0.00E+00	2.55E+01	0.00E+00	3.26E-07	8.11E-11	0.00E+00	0.00E+00	0.00E+00	3.13E-02	2.77E-06	4.88E-05
I-134	0.00E+00	3.38E-31	0.00E+00	4.32E-39	1.08E-42	0.00E+00	0.00E+00	0.00E+00	1.87E-31	1.01E-32	5.12E-32
I-135	0.00E+00	2.76E-02	0.00E+00	3.54E-10	8.80E-14	0.00E+00	0.00E+00	0.00E+00	1.54E-05	1.60E-08	1.01E-07
PARTICULATE											
I-131	0.00E+00	1.23E+01	0.00E+00	1.57E-07	3.92E-11	0.00E+00	0.00E+00	0.00E+00	6.22E-02	5.59E-07	7.38E-06
I-132	0.00E+00	5.90E-12	0.00E+00	7.54E-20	1.88E-23	0.00E+00	0.00E+00	0.00E+00	1.12E-14	9.86E-17	5.30E-16
I-133	0.00E+00	1.40E+00	0.00E+00	1.79E-08	4.46E-12	0.00E+00	0.00E+00	0.00E+00	1.72E-03	1.52E-07	2.68E-06
I-134	0.00E+00	1.86E-32	0.00E+00	2.37E-40	5.91E-44	0.00E+00	0.00E+00	0.00E+00	1.03E-32	5.54E-34	2.81E-33
I-135	0.00E+00	1.52E-03	0.00E+00	1.94E-11	4.84E-15	0.00E+00	0.00E+00	0.00E+00	8.46E-07	8.81E-10	5.57E-09
ORGANIC											
I-131	0.00E+00	9.85E+00	0.00E+00	1.26E-07	3.14E-11	0.00E+00	0.00E+00	0.00E+00	4.97E-02	4.47E-07	5.90E-06
I-132	0.00E+00	4.72E-12	0.00E+00	6.03E-20	1.50E-23	0.00E+00	0.00E+00	0.00E+00	8.99E-15	7.89E-17	4.24E-16
I-133	0.00E+00	1.12E+00	0.00E+00	1.43E-08	3.56E-12	0.00E+00	0.00E+00	0.00E+00	1.38E-03	1.22E-07	2.14E-06
I-134	0.00E+00	1.48E-32	0.00E+00	1.90E-40	4.73E-44	0.00E+00	0.00E+00	0.00E+00	8.21E-33	4.43E-34	2.25E-33
I-135	0.00E+00	1.22E-03	0.00E+00	1.55E-11	3.87E-15	0.00E+00	0.00E+00	0.00E+00	6.77E-07	7.05E-10	4.46E-09
NOBLE GASES											
XE-131M	0.00E+00	1.73E+02	0.00E+00	2.21E-06	5.51E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-06	7.00E-05
XE-133M	0.00E+00	4.96E+02	0.00E+00	6.34E-06	1.58E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-06	2.65E-04
XE-133	0.00E+00	3.94E+04	0.00E+00	5.04E-04	1.25E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-04	1.79E-02
XE-135M	0.00E+00	1.53-107	0.00E+00	1.96-115	4.87-119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-97	1.74E-96
XE-135	0.00E+00	4.27E+01	0.00E+00	5.46E-07	1.36E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E-06	1.12E-04
XE-138	0.00E+00	5.11E-95	0.00E+00	6.53-103	1.63-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-86	5.26E-85
KR-83M	0.00E+00	1.80E-12	0.00E+00	2.30E-20	5.72E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-18	3.38E-17
KR-85M	0.00E+00	3.45E-03	0.00E+00	4.41E-11	1.10E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-10	2.05E-08
KR-85	0.00E+00	1.30E+03	0.00E+00	1.67E-05	4.15E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-07	8.42E-04
KR-87	0.00E+00	3.82E-19	0.00E+00	4.88E-27	1.22E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-23	3.02E-21
KR-88	0.00E+00	1.67E-06	0.00E+00	2.14E-14	5.32E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.26E-12	5.26E-11
						0.00E+00	0.00E+00	0.00E+00	1.28E+00	4.94E-04	1.94E-02

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

NEDC 99-032 ATTACH 1
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1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.73E+02	0.00E+00	3.64E-18	9.06E-22	0.00E+00	0.00E+00	0.00E+00	2.58E-03	2.32E-08	3.06E-07
I-132	0.00E+00	4.06E-20	0.00E+00	8.55E-40	2.13E-43	0.00E+00	0.00E+00	0.00E+00	3.97E-18	3.48E-20	1.87E-19
I-133	0.00E+00	2.36E+00	0.00E+00	4.97E-20	1.24E-23	0.00E+00	0.00E+00	0.00E+00	4.45E-05	3.94E-09	6.93E-08
I-134	0.00E+00	3.45E-56	0.00E+00	7.27E-76	1.81E-79	0.00E+00	0.00E+00	0.00E+00	1.26E-39	6.78E-41	3.44E-40
I-135	0.00E+00	1.63E-05	0.00E+00	3.42E-25	8.51E-29	0.00E+00	0.00E+00	0.00E+00	7.10E-09	7.39E-12	4.67E-11
PARTICULATE											
I-131	0.00E+00	9.51E+00	0.00E+00	2.00E-19	4.98E-23	0.00E+00	0.00E+00	0.00E+00	1.42E-04	1.27E-09	1.68E-08
I-132	0.00E+00	2.23E-21	0.00E+00	4.70E-41	1.17E-44	0.00E+00	0.00E+00	0.00E+00	2.18E-19	1.91E-21	1.03E-20
I-133	0.00E+00	1.30E-01	0.00E+00	2.73E-21	6.80E-25	0.00E+00	0.00E+00	0.00E+00	2.44E-06	2.16E-10	3.81E-09
I-134	0.00E+00	1.90E-57	0.00E+00	3.99E-77	9.94E-81	0.00E+00	0.00E+00	0.00E+00	6.90E-41	3.73E-42	1.89E-41
I-135	0.00E+00	8.93E-07	0.00E+00	1.88E-26	4.68E-30	0.00E+00	0.00E+00	0.00E+00	3.90E-10	4.06E-13	2.57E-12
ORGANIC											
I-131	0.00E+00	7.61E+00	0.00E+00	1.60E-19	3.98E-23	0.00E+00	0.00E+00	0.00E+00	1.13E-04	1.02E-09	1.34E-08
I-132	0.00E+00	1.79E-21	0.00E+00	3.76E-41	9.35E-45	0.00E+00	0.00E+00	0.00E+00	1.74E-19	1.53E-21	8.22E-21
I-133	0.00E+00	1.04E-01	0.00E+00	2.19E-21	5.44E-25	0.00E+00	0.00E+00	0.00E+00	1.96E-06	1.73E-10	3.05E-09
I-134	0.00E+00	1.52E-57	0.00E+00	3.19E-77	7.95E-81	0.00E+00	0.00E+00	0.00E+00	5.52E-41	2.98E-42	1.51E-41
I-135	0.00E+00	7.14E-07	0.00E+00	1.50E-26	3.74E-30	0.00E+00	0.00E+00	0.00E+00	3.12E-10	3.25E-13	2.05E-12
NOBLE GASES											
XE-131M	0.00E+00	1.45E+02	0.00E+00	3.06E-18	7.61E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-09	1.62E-07
XE-133M	0.00E+00	1.98E+02	0.00E+00	4.16E-18	1.04E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.74E-09	5.20E-07
XE-133	0.00E+00	2.66E+04	0.00E+00	5.59E-16	1.39E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-06	3.96E-05
XE-135M	0.00E+00	7.65-191	0.00E+00	1.61-210	4.01-214	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.31-118	1.29-117
XE-135	0.00E+00	1.80E-01	0.00E+00	3.79E-21	9.42E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.46E-09	8.00E-08
XE-138	0.00E+00	2.58-169	0.00E+00	5.44-189	1.35-192	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50-105	3.91-104
KR-83M	0.00E+00	4.57E-24	0.00E+00	9.62E-44	2.39E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-23	2.15E-22
KR-85M	0.00E+00	4.05E-08	0.00E+00	8.52E-28	2.12E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-13	3.96E-12
KR-85	0.00E+00	1.30E+03	0.00E+00	2.74E-17	6.82E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.87E-10	2.03E-06
KR-87	0.00E+00	2.96E-36	0.00E+00	6.23E-56	1.55E-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-29	1.14E-27
KR-88	0.00E+00	3.01E-14	0.00E+00	6.33E-34	1.58E-37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-16	2.41E-15

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0.00E+00 0.00E+00 0.00E+00 2.88E-03 1.08E-06 4.28E-05

1 FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.84E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.27E-15	2.94E-20	3.89E-19
I-132	0.00E+00	8.94-102	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-39	2.17E-41	1.16E-40
I-133	0.00E+00	2.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.79E-18	6.01E-22	1.06E-20
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	2.11E-76	1.14E-77	5.79E-77
I-135	0.00E+00	1.63E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.86E-24	7.15E-27	4.52E-26
PARTICULATE											
I-131	0.00E+00	1.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-16	1.62E-21	2.13E-20
I-132	0.00E+00	4.91-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-40	1.19E-42	6.39E-42
I-133	0.00E+00	1.47E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-19	3.30E-23	5.81E-22
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	1.16E-77	6.27E-79	3.18E-78
I-135	0.00E+00	8.94E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E-25	3.93E-28	2.48E-27
ORGANIC											
I-131	0.00E+00	8.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-16	1.29E-21	1.71E-20
I-132	0.00E+00	3.93-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-40	9.52E-43	5.11E-42
I-133	0.00E+00	1.18E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-19	2.64E-23	4.65E-22
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	9.29E-78	5.01E-79	2.55E-78
I-135	0.00E+00	7.15E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-25	3.14E-28	1.99E-27
NOBLE GASES											
XE-131M	0.00E+00	3.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.41E-21	2.24E-19
XE-133M	0.00E+00	6.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-21	3.41E-19
XE-133	0.00E+00	8.74E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-18	4.40E-17
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	1.90-213	1.06-212
XE-135	0.00E+00	4.68E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-23	5.55E-22
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	1.25-191	3.26-190

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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	7.92E-47	9.01E-46
KR-85M	0.00E+00	7.52E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-30	7.65E-29
KR-85	0.00E+00	1.30E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-21	3.34E-18
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	3.83E-58	1.46E-56
KR-88	0.00E+00	2.28E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-35	7.12E-35
						0.00E+00	0.00E+00	0.00E+00	3.60E-15	1.20E-18	4.83E-17
					TOTAL DOSES 0-30 DAYS	6.83E+00	2.52E-02	1.05E-01	2.70E+01	1.06E-02	4.15E-01

1

FHA - CR, LPZ, 0-60 sec, CR, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	4.90E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.90E+01
I-132	2.97E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-08
I-133	1.13E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E+01
I-134	1.44E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-23
I-135	6.62E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.62E-02
PARTICULATE						
I-131	2.69E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E+00
I-132	1.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-09
I-133	6.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.20E-01
I-134	7.91E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.91E-25
I-135	3.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-03
ORGANIC						
I-131	2.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E+00
I-132	1.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-09
I-133	4.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-01
I-134	6.33E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.33E-25
I-135	2.91E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-03
NOBLE GASES						
XE-131M	3.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E+01
XE-133M	1.35E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E+02
XE-133	9.01E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.01E+03
XE-135M	1.76E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-80
XE-135	5.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E+01
XE-138	5.85E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-71
KR-83M	2.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-09
KR-85M	3.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-02
KR-85	2.61E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E+02
KR-87	3.86E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-14
KR-88	1.28E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-04

END EXECUTION DATE: 12/02/1999
END EXECUTION TIME: 20:44:36.37

Appendix D

Not Used.

Appendix E

This Appendix contains the AXIDENT results (fha3) for the control room and LPZ dose for the case of no secondary containment isolation. The control room is isolated (70 to 90 sec).

```
AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  22:52:37.92



                     1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated
                     2 10 2 0.0 1.0
                     3 -1 1.0E7 1.4186E5 6.46E4
                     4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                     5 45.0 70.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
                     6 10*1.0
                     7 0 0 3.10E-3 7*0
                     8 10*1.0
                     9 2*3316 8*891
                    10 2.9E-4 2.9E-4 2.9E-4 1.40E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
                    11 3*3.051E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
                    12 10*0.0
                    13 10*0.0
                    14 10*0.0
                    15 10*0.0
                    16 10*0.0
                    17 10*0.0
                    18 10*0.0
                    19 10*0.0
                    20 10*0.0
                    21 1.0 1.0 1.0 0.122 0.122 0.122
                    22 1.0 1.0 1.0
                    23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                    24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

               FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

                                    INITIAL CONTAINMENT INVENTORY

                                    ISOTOPE    ACTIVITY (CURIES)

                                    I-131           1.289E+03
                                    I-132           7.833E-07
                                    I-133           2.969E+02
                                    I-134           3.813E-22
                                    I-135           1.742E+00
                                    XE-131M         2.205E+02
                                    XE-133M         8.096E+02
                                    XE-133          5.392E+04
                                    XE-135M         1.075E-79
                                    XE-135          3.174E+02
                                    XE-138          3.570E-70
                                    KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	8.39E-18	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	5.08E-27	1.78E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.93E-18	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	2.46E-42	8.59E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.13E-20	3.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	4.61E-19	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.79E-28	9.75E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.06E-19	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.35E-43	4.72E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	6.23E-22	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	3.69E-19	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.23E-28	7.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	8.50E-20	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.08E-43	3.78E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	4.98E-22	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	6.31E-18	2.20E+02	0.00E+00	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	2.32E-17	8.09E+02	0.00E+00	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	1.54E-15	5.39E+04	0.00E+00	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	2.98E-99	1.04E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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XE-135	9.08E-18	3.17E+02	0.00E+00	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	9.92E-90	3.47E-70	0.00E+00	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	4.50E-28	1.57E-08	0.00E+00	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	5.21E-21	1.82E-01	0.00E+00	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	4.48E-17	1.56E+03	0.00E+00	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	6.59E-33	2.30E-13	0.00E+00	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	2.19E-23	7.63E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .019 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	1.17E-28	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	7.04E-38	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	2.68E-29	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.40E-53	8.54E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.57E-31	3.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	6.40E-30	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	3.87E-39	9.73E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.47E-30	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.87E-54	4.69E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	8.64E-33	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	5.12E-30	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	3.10E-39	7.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.18E-30	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.49E-54	3.75E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

I-135	6.91E-33	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	8.77E-29	2.20E+02	0.00E+00	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	3.22E-28	8.09E+02	0.00E+00	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	2.14E-26	5.39E+04	0.00E+00	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	4.06-110	1.02E-79	0.00E+00	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	1.26E-28	3.17E+02	0.00E+00	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	1.36-100	3.41E-70	0.00E+00	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	6.24E-39	1.57E-08	0.00E+00	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	7.23E-32	1.82E-01	0.00E+00	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	6.22E-28	1.56E+03	0.00E+00	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	9.11E-44	2.29E-13	0.00E+00	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	3.03E-34	7.62E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	2.40E-37	2.76E+02	1.76E+01	2.76E-04	6.86E-08	1.95E+00	4.74E-04	2.32E-04	2.65E-04	2.38E-09	3.14E-08
I-132	1.45E-46	1.66E-07	1.06E-08	1.66E-13	4.14E-17	6.75E-12	1.85E-12	3.18E-13	9.15E-16	8.03E-18	4.31E-17
I-133	5.53E-38	6.34E+01	4.06E+00	6.34E-05	1.58E-08	7.35E-02	1.40E-04	1.14E-04	9.97E-06	8.82E-10	1.55E-08
I-134	6.97E-62	7.99E-23	5.12E-24	7.99E-29	1.99E-32	5.67E-28	7.20E-28	1.55E-28	7.69E-32	4.15E-33	2.11E-32
I-135	3.24E-40	3.72E-01	2.38E-02	3.72E-07	9.25E-11	7.42E-05	3.07E-06	4.88E-07	1.01E-08	1.05E-11	6.62E-11
PARTICULATE											
I-131	1.32E-38	1.51E+01	9.69E-01	1.51E-05	3.77E-09	1.07E-01	2.61E-05	1.27E-05	1.45E-05	1.31E-10	1.73E-09
I-132	7.96E-48	9.13E-09	5.85E-10	9.13E-15	2.27E-18	3.71E-13	1.02E-13	1.75E-14	5.03E-17	4.41E-19	2.37E-18
I-133	3.04E-39	3.49E+00	2.23E-01	3.49E-06	8.68E-10	4.04E-03	7.71E-06	6.29E-06	5.48E-07	4.85E-11	8.53E-10
I-134	3.83E-63	4.39E-24	2.81E-25	4.39E-30	1.09E-33	3.12E-29	3.96E-29	8.54E-30	4.22E-33	2.28E-34	1.16E-33

I-135	1.78E-41	2.04E-02	1.31E-03	2.04E-08	5.08E-12	4.07E-06	1.68E-07	2.68E-08	5.53E-10	5.75E-13	3.64E-12
ORGANIC											
I-131	1.06E-38	1.21E+01	7.75E-01	1.21E-05	3.02E-09	8.58E-02	2.08E-05	1.02E-05	1.16E-05	1.05E-10	1.38E-09
I-132	6.37E-48	7.31E-09	4.68E-10	7.31E-15	1.82E-18	2.97E-13	8.14E-14	1.40E-14	4.02E-17	3.53E-19	1.90E-18
I-133	2.43E-39	2.79E+00	1.78E-01	2.79E-06	6.94E-10	3.23E-03	6.17E-06	5.03E-06	4.38E-07	3.88E-11	6.83E-10
I-134	3.06E-63	3.51E-24	2.25E-25	3.51E-30	8.75E-34	2.49E-29	3.17E-29	6.83E-30	3.38E-33	1.82E-34	9.26E-34
I-135	1.42E-41	1.63E-02	1.04E-03	1.63E-08	4.07E-12	3.26E-06	1.35E-07	2.15E-08	4.42E-10	4.60E-13	2.91E-12
NOBLE GASES											
XE-131M	1.81E-37	2.07E+02	1.33E+01	1.70E-03	4.23E-07	0.00E+00	2.11E-05	1.19E-04	0.00E+00	3.80E-09	1.33E-07
XE-133M	6.63E-37	7.61E+02	4.87E+01	6.24E-03	1.55E-06	0.00E+00	1.16E-04	5.03E-04	0.00E+00	6.17E-09	5.59E-07
XE-133	4.42E-35	5.07E+04	3.24E+03	4.15E-01	1.03E-04	0.00E+00	7.05E-03	3.16E-02	0.00E+00	9.22E-07	3.51E-05
XE-135M	8.24-119	9.45E-80	6.09E-81	7.75E-85	1.93E-88	0.00E+00	1.86E-85	3.94E-86	0.00E+00	7.86E-90	4.37E-89
XE-135	2.60E-37	2.98E+02	1.90E+01	2.44E-03	6.08E-07	0.00E+00	3.40E-04	4.09E-04	0.00E+00	1.40E-08	4.55E-07
XE-138	2.76-109	3.16E-70	2.04E-71	2.59E-75	6.45E-79	0.00E+00	4.24E-75	1.09E-75	0.00E+00	4.61E-80	1.21E-78
KR-83M	1.28E-47	1.47E-08	9.43E-10	1.21E-13	3.00E-17	0.00E+00	3.42E-16	2.14E-15	0.00E+00	2.09E-19	2.38E-18
KR-85M	1.49E-40	1.71E-01	1.09E-02	1.40E-06	3.48E-10	0.00E+00	1.24E-07	1.70E-07	0.00E+00	5.47E-12	1.89E-10
KR-85	1.28E-36	1.47E+03	9.40E+01	1.21E-02	3.00E-06	0.00E+00	1.43E-05	1.40E-03	0.00E+00	6.03E-10	1.56E-06
KR-87	1.87E-52	2.15E-13	1.38E-14	1.76E-18	4.38E-22	0.00E+00	1.37E-18	9.64E-19	0.00E+00	2.81E-23	1.07E-21
KR-88	6.24E-43	7.15E-04	4.58E-05	5.86E-09	1.46E-12	0.00E+00	5.79E-09	1.04E-09	0.00E+00	2.04E-13	1.16E-12
						2.23E+00	8.22E-03	3.44E-02	3.02E-04	9.50E-07	3.78E-05

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .14E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	2.75E+02	0.00E+00	2.30E-04	5.73E-08	0.00E+00	0.00E+00	0.00E+00	4.10E-02	3.68E-07	4.86E-06
I-132	0.00E+00	1.44E-07	0.00E+00	1.20E-13	3.00E-17	0.00E+00	0.00E+00	0.00E+00	1.32E-13	1.16E-15	6.23E-15
I-133	0.00E+00	6.24E+01	0.00E+00	5.22E-05	1.30E-08	0.00E+00	0.00E+00	0.00E+00	1.53E-03	1.36E-07	2.39E-06
I-134	0.00E+00	5.47E-23	0.00E+00	4.57E-29	1.14E-32	0.00E+00	0.00E+00	0.00E+00	9.95E-30	5.37E-31	2.73E-30

I-135	0.00E+00	3.54E-01	0.00E+00	2.96E-07	7.36E-11	0.00E+00	0.00E+00	0.00E+00	1.52E-06	1.58E-09	1.00E-08
PARTICULATE											
I-131	0.00E+00	1.51E+01	0.00E+00	1.26E-05	3.15E-09	0.00E+00	0.00E+00	0.00E+00	2.25E-03	2.02E-08	2.67E-07
I-132	0.00E+00	7.92E-09	0.00E+00	6.62E-15	1.65E-18	0.00E+00	0.00E+00	0.00E+00	7.27E-15	6.38E-17	3.43E-16
I-133	0.00E+00	3.43E+00	0.00E+00	2.87E-06	7.14E-10	0.00E+00	0.00E+00	0.00E+00	8.42E-05	7.45E-09	1.31E-07
I-134	0.00E+00	3.00E-24	0.00E+00	2.51E-30	6.25E-34	0.00E+00	0.00E+00	0.00E+00	5.47E-31	2.95E-32	1.50E-31
I-135	0.00E+00	1.94E-02	0.00E+00	1.63E-08	4.05E-12	0.00E+00	0.00E+00	0.00E+00	8.36E-08	8.70E-11	5.50E-10
ORGANIC											
I-131	0.00E+00	1.21E+01	0.00E+00	1.01E-05	2.52E-09	0.00E+00	0.00E+00	0.00E+00	1.80E-03	1.62E-08	2.14E-07
I-132	0.00E+00	6.33E-09	0.00E+00	5.30E-15	1.32E-18	0.00E+00	0.00E+00	0.00E+00	5.81E-15	5.10E-17	2.74E-16
I-133	0.00E+00	2.74E+00	0.00E+00	2.30E-06	5.71E-10	0.00E+00	0.00E+00	0.00E+00	6.74E-05	5.96E-09	1.05E-07
I-134	0.00E+00	2.40E-24	0.00E+00	2.01E-30	5.00E-34	0.00E+00	0.00E+00	0.00E+00	4.37E-31	2.36E-32	1.20E-31
I-135	0.00E+00	1.55E-02	0.00E+00	1.30E-08	3.24E-12	0.00E+00	0.00E+00	0.00E+00	6.69E-08	6.96E-11	4.40E-10
NOBLE GASES											
XE-131M	0.00E+00	2.07E+02	0.00E+00	1.42E-03	3.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-07	2.05E-05
XE-133M	0.00E+00	7.56E+02	0.00E+00	5.18E-03	1.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.53E-07	8.64E-05
XE-133	0.00E+00	5.05E+04	0.00E+00	3.46E-01	8.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-04	5.43E-03
XE-135M	0.00E+00	2.67E-80	0.00E+00	1.83E-85	4.55E-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E-88	3.89E-87
XE-135	0.00E+00	2.87E+02	0.00E+00	1.97E-03	4.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-06	6.92E-05
XE-138	0.00E+00	1.02E-70	0.00E+00	7.01E-76	1.75E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33E-78	1.13E-76
KR-83M	0.00E+00	1.23E-08	0.00E+00	8.46E-14	2.11E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-17	3.38E-16
KR-85M	0.00E+00	1.58E-01	0.00E+00	1.09E-06	2.70E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.17E-10	2.82E-08
KR-85	0.00E+00	1.47E+03	0.00E+00	1.01E-02	2.51E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.34E-08	2.41E-04
KR-87	0.00E+00	1.66E-13	0.00E+00	1.14E-18	2.83E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-21	1.47E-19
KR-88	0.00E+00	6.36E-04	0.00E+00	4.36E-09	1.09E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-11	1.69E-10
						0.00E+00	0.00E+00	0.00E+00	4.67E-02	1.47E-04	5.85E-03

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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

NEDC 99-032 ATTACH 1
SHEET 49 OF 161

ELEMENTAL											
I-131	0.00E+00	2.75E+02	0.00E+00	1.90E-04	4.73E-08	0.00E+00	0.00E+00	0.00E+00	3.58E-02	3.22E-07	4.25E-06
I-132	0.00E+00	1.24E-07	0.00E+00	8.58E-14	2.14E-17	0.00E+00	0.00E+00	0.00E+00	1.00E-13	8.78E-16	4.72E-15
I-133	0.00E+00	6.14E+01	0.00E+00	4.25E-05	1.06E-08	0.00E+00	0.00E+00	0.00E+00	1.32E-03	1.17E-07	2.06E-06
I-134	0.00E+00	3.67E-23	0.00E+00	2.54E-29	6.32E-33	0.00E+00	0.00E+00	0.00E+00	5.91E-30	3.19E-31	1.62E-30
I-135	0.00E+00	3.36E-01	0.00E+00	2.33E-07	5.79E-11	0.00E+00	0.00E+00	0.00E+00	1.27E-06	1.32E-09	8.35E-09
PARTICULATE											
I-131	0.00E+00	1.51E+01	0.00E+00	1.05E-05	2.60E-09	0.00E+00	0.00E+00	0.00E+00	1.97E-03	1.77E-08	2.34E-07
I-132	0.00E+00	6.81E-09	0.00E+00	4.72E-15	1.17E-18	0.00E+00	0.00E+00	0.00E+00	5.50E-15	4.83E-17	2.59E-16
I-133	0.00E+00	3.37E+00	0.00E+00	2.34E-06	5.82E-10	0.00E+00	0.00E+00	0.00E+00	7.26E-05	6.43E-09	1.13E-07
I-134	0.00E+00	2.01E-24	0.00E+00	1.40E-30	3.47E-34	0.00E+00	0.00E+00	0.00E+00	3.25E-31	1.75E-32	8.91E-32
I-135	0.00E+00	1.85E-02	0.00E+00	1.28E-08	3.18E-12	0.00E+00	0.00E+00	0.00E+00	6.96E-08	7.25E-11	4.59E-10
ORGANIC											
I-131	0.00E+00	1.21E+01	0.00E+00	8.36E-06	2.08E-09	0.00E+00	0.00E+00	0.00E+00	1.58E-03	1.42E-08	1.87E-07
I-132	0.00E+00	5.45E-09	0.00E+00	3.77E-15	9.39E-19	0.00E+00	0.00E+00	0.00E+00	4.40E-15	3.86E-17	2.07E-16
I-133	0.00E+00	2.70E+00	0.00E+00	1.87E-06	4.65E-10	0.00E+00	0.00E+00	0.00E+00	5.81E-05	5.14E-09	9.05E-08
I-134	0.00E+00	1.61E-24	0.00E+00	1.12E-30	2.78E-34	0.00E+00	0.00E+00	0.00E+00	2.60E-31	1.40E-32	7.12E-32
I-135	0.00E+00	1.48E-02	0.00E+00	1.02E-08	2.55E-12	0.00E+00	0.00E+00	0.00E+00	5.57E-08	5.80E-11	3.67E-10
NOBLE GASES											
XE-131M	0.00E+00	2.07E+02	0.00E+00	1.17E-03	2.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.14E-07	1.80E-05
XE-133M	0.00E+00	7.51E+02	0.00E+00	4.26E-03	1.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-07	7.52E-05
XE-133	0.00E+00	5.04E+04	0.00E+00	2.86E-01	7.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-04	4.74E-03
XE-135M	0.00E+00	7.04E-81	0.00E+00	4.00E-86	9.95E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E-88	9.39E-88
XE-135	0.00E+00	2.76E+02	0.00E+00	1.57E-03	3.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-06	5.85E-05
XE-138	0.00E+00	3.12E-71	0.00E+00	1.77E-76	4.41E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-78	3.14E-77
KR-83M	0.00E+00	1.03E-08	0.00E+00	5.82E-14	1.45E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-17	2.47E-16
KR-85M	0.00E+00	1.46E-01	0.00E+00	8.31E-07	2.07E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-10	2.29E-08
KR-85	0.00E+00	1.47E+03	0.00E+00	8.34E-03	2.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.18E-08	2.11E-04
KR-87	0.00E+00	1.26E-13	0.00E+00	7.15E-19	1.78E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.58E-21	9.84E-20
KR-88	0.00E+00	5.62E-04	0.00E+00	3.19E-09	7.94E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-11	1.32E-10
						0.00E+00	0.00E+00	0.00E+00	4.08E-02	1.28E-04	5.11E-03

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122

PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	2.74E+02	0.00E+00	1.30E-04	3.24E-08	0.00E+00	0.00E+00	0.00E+00	5.41E-02	4.87E-07	6.42E-06
I-132	0.00E+00	9.17E-08	0.00E+00	4.36E-14	1.08E-17	0.00E+00	0.00E+00	0.00E+00	1.22E-13	1.07E-15	5.75E-15
I-133	0.00E+00	5.94E+01	0.00E+00	2.82E-05	7.03E-09	0.00E+00	0.00E+00	0.00E+00	1.95E-03	1.73E-07	3.04E-06
I-134	0.00E+00	1.65E-23	0.00E+00	7.83E-30	1.95E-33	0.00E+00	0.00E+00	0.00E+00	5.11E-30	2.76E-31	1.40E-30
I-135	0.00E+00	3.03E-01	0.00E+00	1.44E-07	3.58E-11	0.00E+00	0.00E+00	0.00E+00	1.78E-06	1.85E-09	1.17E-08
PARTICULATE											
I-131	0.00E+00	1.50E+01	0.00E+00	7.14E-06	1.78E-09	0.00E+00	0.00E+00	0.00E+00	2.97E-03	2.67E-08	3.53E-07
I-132	0.00E+00	5.04E-09	0.00E+00	2.39E-15	5.96E-19	0.00E+00	0.00E+00	0.00E+00	6.71E-15	5.89E-17	3.16E-16
I-133	0.00E+00	3.27E+00	0.00E+00	1.55E-06	3.86E-10	0.00E+00	0.00E+00	0.00E+00	1.07E-04	9.50E-09	1.67E-07
I-134	0.00E+00	9.06E-25	0.00E+00	4.30E-31	1.07E-34	0.00E+00	0.00E+00	0.00E+00	2.81E-31	1.51E-32	7.69E-32
I-135	0.00E+00	1.66E-02	0.00E+00	7.91E-09	1.97E-12	0.00E+00	0.00E+00	0.00E+00	9.79E-08	1.02E-10	6.44E-10
ORGANIC											
I-131	0.00E+00	1.20E+01	0.00E+00	5.71E-06	1.42E-09	0.00E+00	0.00E+00	0.00E+00	2.38E-03	2.14E-08	2.82E-07
I-132	0.00E+00	4.03E-09	0.00E+00	1.91E-15	4.77E-19	0.00E+00	0.00E+00	0.00E+00	5.37E-15	4.71E-17	2.53E-16
I-133	0.00E+00	2.61E+00	0.00E+00	1.24E-06	3.09E-10	0.00E+00	0.00E+00	0.00E+00	8.59E-05	7.60E-09	1.34E-07
I-134	0.00E+00	7.25E-25	0.00E+00	3.44E-31	8.57E-35	0.00E+00	0.00E+00	0.00E+00	2.24E-31	1.21E-32	6.15E-32
I-135	0.00E+00	1.33E-02	0.00E+00	6.33E-09	1.57E-12	0.00E+00	0.00E+00	0.00E+00	7.83E-08	8.15E-11	5.16E-10
NOBLE GASES											
XE-131M	0.00E+00	2.06E+02	0.00E+00	8.03E-04	2.00E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.77E-07	2.72E-05
XE-133M	0.00E+00	7.42E+02	0.00E+00	2.89E-03	7.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-06	1.13E-04
XE-133	0.00E+00	5.01E+04	0.00E+00	1.95E-01	4.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-04	7.16E-03
XE-135M	0.00E+00	4.90E-82	0.00E+00	1.91E-87	4.75E-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-89	2.50E-88
XE-135	0.00E+00	2.56E+02	0.00E+00	9.98E-04	2.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.58E-06	8.38E-05
XE-138	0.00E+00	2.90E-72	0.00E+00	1.13E-77	2.81E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.80E-79	9.93E-78
KR-83M	0.00E+00	7.08E-09	0.00E+00	2.76E-14	6.86E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-17	2.87E-16
KR-85M	0.00E+00	1.25E-01	0.00E+00	4.87E-07	1.21E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E-10	3.09E-08
KR-85	0.00E+00	1.47E+03	0.00E+00	5.72E-03	1.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-07	3.20E-04
KR-87	0.00E+00	7.29E-14	0.00E+00	2.84E-19	7.07E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-21	1.01E-19
KR-88	0.00E+00	4.39E-04	0.00E+00	1.71E-09	4.25E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-11	1.67E-10
						0.00E+00	0.00E+00	0.00E+00	6.16E-02	1.93E-04	7.71E-03

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS
1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM
X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

NEDC 99-032 ATTACH 1
SHEET 51 OF 161

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	2.68E+02	0.00E+00	1.33E-05	3.30E-09	0.00E+00	0.00E+00	0.00E+00	1.05E-01	9.44E-07	1.25E-05
I-132	0.00E+00	1.50E-08	0.00E+00	7.45E-16	1.85E-19	0.00E+00	0.00E+00	0.00E+00	1.24E-13	1.09E-15	5.83E-15
I-133	0.00E+00	4.87E+01	0.00E+00	2.41E-06	6.01E-10	0.00E+00	0.00E+00	0.00E+00	3.53E-03	3.12E-07	5.49E-06
I-134	0.00E+00	1.36E-25	0.00E+00	6.75E-33	1.68E-36	0.00E+00	0.00E+00	0.00E+00	2.28E-30	1.23E-31	6.24E-31
I-135	0.00E+00	1.63E-01	0.00E+00	8.07E-09	2.01E-12	0.00E+00	0.00E+00	0.00E+00	2.73E-06	2.84E-09	1.80E-08
PARTICULATE											
I-131	0.00E+00	1.47E+01	0.00E+00	7.29E-07	1.81E-10	0.00E+00	0.00E+00	0.00E+00	5.77E-03	5.19E-08	6.85E-07
I-132	0.00E+00	8.26E-10	0.00E+00	4.09E-17	1.02E-20	0.00E+00	0.00E+00	0.00E+00	6.80E-15	5.96E-17	3.20E-16
I-133	0.00E+00	2.68E+00	0.00E+00	1.33E-07	3.30E-11	0.00E+00	0.00E+00	0.00E+00	1.94E-04	1.71E-08	3.02E-07
I-134	0.00E+00	7.49E-27	0.00E+00	3.71E-34	9.24E-38	0.00E+00	0.00E+00	0.00E+00	1.25E-31	6.75E-33	3.43E-32
I-135	0.00E+00	8.95E-03	0.00E+00	4.43E-10	1.10E-13	0.00E+00	0.00E+00	0.00E+00	1.50E-07	1.56E-10	9.87E-10
ORGANIC											
I-131	0.00E+00	1.18E+01	0.00E+00	5.83E-07	1.45E-10	0.00E+00	0.00E+00	0.00E+00	4.61E-03	4.15E-08	5.48E-07
I-132	0.00E+00	6.61E-10	0.00E+00	3.27E-17	8.15E-21	0.00E+00	0.00E+00	0.00E+00	5.44E-15	4.77E-17	2.56E-16
I-133	0.00E+00	2.14E+00	0.00E+00	1.06E-07	2.64E-11	0.00E+00	0.00E+00	0.00E+00	1.55E-04	1.37E-08	2.41E-07
I-134	0.00E+00	5.99E-27	0.00E+00	2.97E-34	7.39E-38	0.00E+00	0.00E+00	0.00E+00	1.00E-31	5.40E-33	2.74E-32
I-135	0.00E+00	7.16E-03	0.00E+00	3.55E-10	8.83E-14	0.00E+00	0.00E+00	0.00E+00	1.20E-07	1.25E-10	7.90E-10
NOBLE GASES											
XE-131M	0.00E+00	2.03E+02	0.00E+00	8.25E-05	2.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-06	5.29E-05
XE-133M	0.00E+00	6.87E+02	0.00E+00	2.79E-04	6.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-06	2.14E-04
XE-133	0.00E+00	4.85E+04	0.00E+00	1.97E-02	4.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-04	1.38E-02
XE-135M	0.00E+00	5.61E-89	0.00E+00	2.28E-95	5.67E-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-90	1.26E-89
XE-135	0.00E+00	1.62E+02	0.00E+00	6.60E-05	1.64E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20E-06	1.37E-04
XE-138	0.00E+00	1.86E-78	0.00E+00	7.57E-85	1.88E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-80	6.76E-79
KR-83M	0.00E+00	7.65E-10	0.00E+00	3.11E-16	7.73E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-17	2.55E-16
KR-85M	0.00E+00	4.85E-02	0.00E+00	1.97E-08	4.90E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-09	4.20E-08
KR-85	0.00E+00	1.47E+03	0.00E+00	5.97E-04	1.49E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-07	6.25E-04
KR-87	0.00E+00	2.73E-15	0.00E+00	1.11E-21	2.76E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-21	6.62E-20
KR-88	0.00E+00	9.92E-05	0.00E+00	4.03E-11	1.00E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-11	1.88E-10
						0.00E+00	0.00E+00	0.00E+00	1.19E-01	3.73E-04	1.49E-02

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	2.53E+02	0.00E+00	3.01E-08	7.50E-12	0.00E+00	0.00E+00	0.00E+00	1.19E-02	1.07E-07	1.41E-06
I-132	0.00E+00	1.21E-10	0.00E+00	1.44E-20	3.59E-24	0.00E+00	0.00E+00	0.00E+00	2.15E-15	1.89E-17	1.01E-16
I-133	0.00E+00	2.87E+01	0.00E+00	3.43E-09	8.53E-13	0.00E+00	0.00E+00	0.00E+00	3.29E-04	2.91E-08	5.13E-07
I-134	0.00E+00	3.81E-31	0.00E+00	4.54E-41	1.13E-44	0.00E+00	0.00E+00	0.00E+00	1.96E-33	1.06E-34	5.38E-34
I-135	0.00E+00	3.12E-02	0.00E+00	3.72E-12	9.26E-16	0.00E+00	0.00E+00	0.00E+00	1.62E-07	1.69E-10	1.07E-09
PARTICULATE											
I-131	0.00E+00	1.39E+01	0.00E+00	1.66E-09	4.12E-13	0.00E+00	0.00E+00	0.00E+00	6.54E-04	5.88E-09	7.76E-08
I-132	0.00E+00	6.66E-12	0.00E+00	7.93E-22	1.97E-25	0.00E+00	0.00E+00	0.00E+00	1.18E-16	1.04E-18	5.57E-18
I-133	0.00E+00	1.58E+00	0.00E+00	1.88E-10	4.69E-14	0.00E+00	0.00E+00	0.00E+00	1.81E-05	1.60E-09	2.82E-08
I-134	0.00E+00	2.09E-32	0.00E+00	2.50E-42	6.21E-46	0.00E+00	0.00E+00	0.00E+00	1.08E-34	5.82E-36	2.96E-35
I-135	0.00E+00	1.71E-03	0.00E+00	2.04E-13	5.09E-17	0.00E+00	0.00E+00	0.00E+00	8.90E-09	9.27E-12	5.86E-11
ORGANIC											
I-131	0.00E+00	1.11E+01	0.00E+00	1.32E-09	3.30E-13	0.00E+00	0.00E+00	0.00E+00	5.23E-04	4.70E-09	6.21E-08
I-132	0.00E+00	5.33E-12	0.00E+00	6.35E-22	1.58E-25	0.00E+00	0.00E+00	0.00E+00	9.45E-17	8.30E-19	4.46E-18
I-133	0.00E+00	1.26E+00	0.00E+00	1.51E-10	3.75E-14	0.00E+00	0.00E+00	0.00E+00	1.45E-05	1.28E-09	2.25E-08
I-134	0.00E+00	1.68E-32	0.00E+00	2.00E-42	4.97E-46	0.00E+00	0.00E+00	0.00E+00	8.63E-35	4.66E-36	2.37E-35
I-135	0.00E+00	1.37E-03	0.00E+00	1.63E-13	4.07E-17	0.00E+00	0.00E+00	0.00E+00	7.12E-09	7.41E-12	4.69E-11
NOBLE GASES											
XE-131M	0.00E+00	1.95E+02	0.00E+00	1.91E-07	4.75E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-07	6.04E-06
XE-133M	0.00E+00	5.60E+02	0.00E+00	5.47E-07	1.36E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-07	2.28E-05
XE-133	0.00E+00	4.44E+04	0.00E+00	4.34E-05	1.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E-05	1.55E-03
XE-135M	0.00E+00	1.73-107	0.00E+00	1.69-116	4.20-120	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-98	1.50E-97
XE-135	0.00E+00	4.82E+01	0.00E+00	4.71E-08	1.17E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-07	9.66E-06
XE-138	0.00E+00	5.76E-95	0.00E+00	5.63-104	1.40-107	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-87	4.53E-86
KR-83M	0.00E+00	2.03E-12	0.00E+00	1.98E-21	4.93E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-19	2.91E-18
KR-85M	0.00E+00	3.89E-03	0.00E+00	3.80E-12	9.47E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.13E-11	1.77E-09
KR-85	0.00E+00	1.47E+03	0.00E+00	1.44E-06	3.57E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-08	7.26E-05
KR-87	0.00E+00	4.31E-19	0.00E+00	4.21E-28	1.05E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-24	2.60E-22
KR-88	0.00E+00	1.89E-06	0.00E+00	1.84E-15	4.59E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.98E-13	4.53E-12
						0.00E+00	0.00E+00	0.00E+00	1.34E-02	4.15E-05	1.66E-03

NEDC 99-032 ATTACH 1
SHEET 53 OF 161

1 FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	1.95E+02	0.00E+00	3.83E-20	9.53E-24	0.00E+00	0.00E+00	0.00E+00	2.71E-05	2.44E-10	3.22E-09
I-132	0.00E+00	4.58E-20	0.00E+00	8.99E-42	2.24E-45	0.00E+00	0.00E+00	0.00E+00	4.17E-20	3.66E-22	1.97E-21
I-133	0.00E+00	2.67E+00	0.00E+00	5.23E-22	1.30E-25	0.00E+00	0.00E+00	0.00E+00	4.68E-07	4.14E-11	7.29E-10
I-134	0.00E+00	3.90E-56	0.00E+00	7.64E-78	1.90E-81	0.00E+00	0.00E+00	0.00E+00	1.32E-41	7.13E-43	3.62E-42
I-135	0.00E+00	1.83E-05	0.00E+00	3.60E-27	8.95E-31	0.00E+00	0.00E+00	0.00E+00	7.47E-11	7.77E-14	4.92E-13
PARTICULATE											
I-131	0.00E+00	1.07E+01	0.00E+00	2.10E-21	5.24E-25	0.00E+00	0.00E+00	0.00E+00	1.49E-06	1.34E-11	1.77E-10
I-132	0.00E+00	2.52E-21	0.00E+00	4.94E-43	1.23E-46	0.00E+00	0.00E+00	0.00E+00	2.29E-21	2.01E-23	1.08E-22
I-133	0.00E+00	1.47E-01	0.00E+00	2.87E-23	7.16E-27	0.00E+00	0.00E+00	0.00E+00	2.57E-08	2.28E-12	4.00E-11
I-134	0.00E+00	2.14E-57	0.00E+00	4.20E-79	1.05E-82	0.00E+00	0.00E+00	0.00E+00	7.26E-43	3.92E-44	1.99E-43
I-135	0.00E+00	1.01E-06	0.00E+00	1.98E-28	4.92E-32	0.00E+00	0.00E+00	0.00E+00	4.10E-12	4.27E-15	2.70E-14
ORGANIC											
I-131	0.00E+00	8.58E+00	0.00E+00	1.68E-21	4.19E-25	0.00E+00	0.00E+00	0.00E+00	1.19E-06	1.07E-11	1.41E-10
I-132	0.00E+00	2.02E-21	0.00E+00	3.95E-43	9.83E-47	0.00E+00	0.00E+00	0.00E+00	1.83E-21	1.61E-23	8.64E-23
I-133	0.00E+00	1.17E-01	0.00E+00	2.30E-23	5.73E-27	0.00E+00	0.00E+00	0.00E+00	2.06E-08	1.82E-12	3.20E-11
I-134	0.00E+00	1.71E-57	0.00E+00	3.36E-79	8.36E-83	0.00E+00	0.00E+00	0.00E+00	5.81E-43	3.14E-44	1.59E-43
I-135	0.00E+00	8.06E-07	0.00E+00	1.58E-28	3.94E-32	0.00E+00	0.00E+00	0.00E+00	3.28E-12	3.42E-15	2.16E-14
NOBLE GASES											
XE-131M	0.00E+00	1.64E+02	0.00E+00	2.63E-19	6.56E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.01E-10	1.40E-08
XE-133M	0.00E+00	2.23E+02	0.00E+00	3.59E-19	8.93E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-10	4.49E-08
XE-133	0.00E+00	3.00E+04	0.00E+00	4.82E-17	1.20E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.98E-08	3.42E-06
XE-135M	0.00E+00	8.64-191	0.00E+00	1.39-211	3.45-215	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99-119	1.11-118
XE-135	0.00E+00	2.03E-01	0.00E+00	3.26E-22	8.13E-26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-10	6.90E-09
XE-138	0.00E+00	2.92-169	0.00E+00	4.69-190	1.17-193	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29-106	3.37-105
KR-83M	0.00E+00	5.16E-24	0.00E+00	8.29E-45	2.06E-48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-24	1.86E-23
KR-85M	0.00E+00	4.57E-08	0.00E+00	7.34E-29	1.83E-32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.91E-15	3.42E-13

KR-85	0.00E+00	1.47E+03	0.00E+00	2.36E-18	5.88E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.79E-11	1.75E-07
KR-87	0.00E+00	3.34E-36	0.00E+00	5.37E-57	1.34E-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-30	9.86E-29
KR-88	0.00E+00	3.40E-14	0.00E+00	5.46E-35	1.36E-38	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-17	2.07E-16
						0.00E+00	0.00E+00	0.00E+00	3.03E-05	9.12E-08	3.66E-06

1 FHA - CR, LP2, 70-90 sec, Sec not isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	.122
PARTICULATE	.000	.000	.000	.000	1.000	.122
ORGANIC	.000	.000	.000	.000	1.000	.122

	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	0.00E+00	2.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-17	3.10E-22	4.09E-21
I-132	0.00E+00	1.01-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-41	2.28E-43	1.22E-42
I-133	0.00E+00	3.02E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.15E-20	6.32E-24	1.11E-22
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	2.22E-78	1.20E-79	6.09E-79
I-135	0.00E+00	1.84E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.22E-26	7.52E-29	4.75E-28
PARTICULATE											
I-131	0.00E+00	1.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-18	1.70E-23	2.25E-22
I-132	0.00E+00	5.54-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-42	1.25E-44	6.72E-44
I-133	0.00E+00	1.66E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-21	3.47E-25	6.12E-24
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	1.22E-79	6.59E-81	3.35E-80
I-135	0.00E+00	1.01E-34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-27	4.13E-30	2.61E-29
ORGANIC											
I-131	0.00E+00	9.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-18	1.36E-23	1.80E-22
I-132	0.00E+00	4.43-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-42	1.00E-44	5.38E-44
I-133	0.00E+00	1.33E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-21	2.78E-25	4.89E-24
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	9.77E-80	5.27E-81	2.68E-80
I-135	0.00E+00	8.07E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-27	3.30E-30	2.09E-29
NOBLE GASES											
XE-131M	0.00E+00	3.57E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-22	1.93E-20
XE-133M	0.00E+00	7.68E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-22	2.94E-20

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XE-133	0.00E+00	9.86E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.96E-20	3.79E-18
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	1.64-214	9.12-214
XE-135	0.00E+00	5.28E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-24	4.78E-23
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	1.07-192	2.81-191
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	6.83E-48	7.77E-47
KR-85M	0.00E+00	8.48E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-31	6.60E-30
KR-85	0.00E+00	1.46E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-22	2.88E-19
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	3.30E-59	1.26E-57
KR-88	0.00E+00	2.57E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-36	6.14E-36
						0.00E+00	0.00E+00	0.00E+00	3.79E-17	1.01E-19	4.13E-18
TOTAL DOSES 0-30 DAYS						2.23E+00	8.22E-03	3.44E-02	2.82E-01	8.84E-04	3.52E-02

1

FHA - CR, LPZ, 70-90 sec, Sec not isolated, CR isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	1.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E+01
I-132	1.06E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-08
I-133	4.06E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E+00
I-134	5.12E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-24
I-135	2.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-02
PARTICULATE						
I-131	9.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.69E-01
I-132	5.85E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.85E-10
I-133	2.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-01
I-134	2.81E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-25
I-135	1.31E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-03
ORGANIC						
I-131	7.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.75E-01
I-132	4.68E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-10
I-133	1.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-01
I-134	2.25E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-25
I-135	1.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-03
NOBLE GASES						
XE-131M	1.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E+01
XE-133M	4.87E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.87E+01
XE-133	3.24E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E+03
XE-135M	6.09E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.09E-81
XE-135	1.90E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E+01
XE-138	2.04E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-71
KR-83M	9.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.43E-10
KR-85M	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-02
KR-85	9.40E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.40E+01
KR-87	1.38E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-14
KR-88	4.58E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.58E-05

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END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 22:52:38.36

Appendix F

This Appendix contains the AXIDENT results (fha4) for the control room and LPZ dose for the case where both the secondary containment and control room are isolated (90 sec to 30 days).

```
AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  22:27:51.30



                     1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated
                     2 10 2 0.0 1.0
                     3 -1 1.0E7 1.4186E5 6.46E4
                     4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                     5 45.0 60.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
                     6 10*1.0
                     7 0 0 0 2*1.25E-4 5*7.46E-5
                     8 10*1.0
                     9 2*3316 8*891
                    10 3*2.9E-4 1.40E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
                    11 4.47E-4 1.98E-3 1.98E-3 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
                    12 10*0.0
                    13 10*0.0
                    14 10*0.0
                    15 10*0.0
                    16 10*0.0
                    17 10*0.0
                    18 10*0.0
                    19 10*0.0
                    20 10*0.0
                    21 0.075 0.05 0.375 0.122 0.122 0.122
                    22 1.0 1.0 1.0
                    23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                    24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

                FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

                                        INITIAL CONTAINMENT INVENTORY

                                        ISOTOPE    ACTIVITY (CURIES)

                                        I-131           1.289E+03
                                        I-132           7.833E-07
                                        I-133           2.969E+02
                                        I-134           3.813E-22
                                        I-135           1.742E+00
                                        XE-131M         2.205E+02
                                        XE-133M         8.096E+02
                                        XE-133          5.392E+04
                                        XE-135M         1.075E-79
                                        XE-135          3.174E+02
                                        XE-138          3.570E-70
                                        KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .45E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	8.39E-18	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	5.08E-27	1.78E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.93E-18	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	2.46E-42	8.59E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.13E-20	3.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	4.61E-19	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.79E-28	9.75E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.06E-19	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.35E-43	4.72E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	6.23E-22	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	3.69E-19	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.23E-28	7.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	8.50E-20	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.08E-43	3.78E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	4.98E-22	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	6.31E-18	2.20E+02	0.00E+00	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	2.32E-17	8.09E+02	0.00E+00	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	1.54E-15	5.39E+04	0.00E+00	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	2.98E-99	1.04E-79	0.00E+00	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	9.08E-18	3.17E+02	0.00E+00	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	9.92E-90	3.47E-70	0.00E+00	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	4.50E-28	1.57E-08	0.00E+00	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	5.21E-21	1.82E-01	0.00E+00	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	4.48E-17	1.56E+03	0.00E+00	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	6.59E-33	2.30E-13	0.00E+00	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	2.19E-23	7.63E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .017 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .20E-02 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	2.57E-24	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	1.55E-33	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	5.91E-25	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	7.50E-49	8.56E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	3.46E-27	3.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	1.41E-25	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	8.53E-35	9.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	3.25E-26	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	4.12E-50	4.70E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.90E-28	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	1.13E-25	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	6.82E-35	7.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	2.60E-26	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.29E-50	3.76E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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I-135	1.52E-28	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	1.93E-24	2.20E+02	0.00E+00	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	7.09E-24	8.09E+02	0.00E+00	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	4.72E-22	5.39E+04	0.00E+00	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	9.00-106	1.03E-79	0.00E+00	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	2.78E-24	3.17E+02	0.00E+00	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	3.00E-96	3.43E-70	0.00E+00	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	1.38E-34	1.57E-08	0.00E+00	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	1.59E-27	1.82E-01	0.00E+00	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	1.37E-23	1.56E+03	0.00E+00	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	2.01E-39	2.30E-13	0.00E+00	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	6.68E-30	7.63E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .20E-02 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	2.40E-37	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	1.45E-46	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	5.53E-38	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	6.97E-62	8.50E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	3.24E-40	3.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	1.32E-38	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	7.96E-48	9.72E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	3.04E-39	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.83E-63	4.67E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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I-135	1.78E-41	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	1.06E-38	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	6.37E-48	7.77E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	2.43E-39	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.06E-63	3.74E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.42E-41	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	1.81E-37	2.20E+02	0.00E+00	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	6.63E-37	8.09E+02	0.00E+00	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	4.42E-35	5.39E+04	0.00E+00	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	8.24-119	1.01E-79	0.00E+00	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	2.60E-37	3.17E+02	0.00E+00	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	2.76-109	3.36E-70	0.00E+00	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	1.28E-47	1.57E-08	0.00E+00	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	1.49E-40	1.82E-01	0.00E+00	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	1.28E-36	1.56E+03	0.00E+00	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	1.87E-52	2.29E-13	0.00E+00	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	6.24E-43	7.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .14E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .11E+02 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	0.00E+00	2.36E+02	4.23E+00	1.98E-10	4.92E-14	2.26E-01	5.49E-05	2.68E-05	1.72E-08	1.55E-13	2.04E-12
I-132	0.00E+00	1.24E-07	2.38E-09	1.04E-19	2.58E-23	7.30E-13	2.00E-13	3.44E-14	5.41E-20	4.75E-22	2.55E-21
I-133	0.00E+00	5.37E+01	9.67E-01	4.49E-11	1.12E-14	8.45E-03	1.61E-05	1.32E-05	6.41E-10	5.68E-14	9.99E-13
I-134	0.00E+00	4.70E-23	1.03E-24	3.93E-35	9.79E-39	5.49E-29	6.98E-29	1.51E-29	3.91E-36	2.11E-37	1.07E-36

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I-135	0.00E+00	3.04E-01	5.57E-03	2.54E-13	6.33E-17	8.39E-06	3.47E-07	5.53E-08	6.33E-13	6.59E-16	4.17E-15
PARTICULATE											
I-131	0.00E+00	1.30E+01	1.55E-01	7.25E-12	1.80E-15	8.28E-03	2.01E-06	9.83E-07	6.30E-10	5.66E-15	7.47E-14
I-132	0.00E+00	6.80E-09	8.73E-11	3.79E-21	9.45E-25	2.67E-14	7.34E-15	1.26E-15	1.98E-21	1.74E-23	9.35E-23
I-133	0.00E+00	2.95E+00	3.54E-02	1.64E-12	4.09E-16	3.10E-04	5.91E-07	4.82E-07	2.35E-11	2.08E-15	3.66E-14
I-134	0.00E+00	2.58E-24	3.77E-26	1.44E-36	3.58E-40	2.01E-30	2.56E-30	5.52E-31	1.43E-37	7.72E-39	3.92E-38
I-135	0.00E+00	1.67E-02	2.04E-04	9.32E-15	2.32E-18	3.07E-07	1.27E-08	2.02E-09	2.32E-14	2.41E-17	1.53E-16
ORGANIC											
I-131	0.00E+00	1.04E+01	9.29E-01	4.35E-11	1.08E-14	4.97E-02	1.21E-05	5.90E-06	3.78E-09	3.40E-14	4.48E-13
I-132	0.00E+00	5.44E-09	5.24E-10	2.28E-20	5.67E-24	1.60E-13	4.40E-14	7.56E-15	1.19E-20	1.04E-22	5.61E-22
I-133	0.00E+00	2.36E+00	2.12E-01	9.87E-12	2.46E-15	1.86E-03	3.55E-06	2.89E-06	1.41E-10	1.25E-14	2.20E-13
I-134	0.00E+00	2.06E-24	2.26E-25	8.64E-36	2.15E-39	1.21E-29	1.53E-29	3.31E-30	8.59E-37	4.63E-38	2.35E-37
I-135	0.00E+00	1.34E-02	1.22E-03	5.59E-14	1.39E-17	1.84E-06	7.63E-08	1.21E-08	1.39E-13	1.45E-16	9.16E-16
NOBLE GASES											
XE-131M	0.00E+00	1.78E+02	4.24E+01	1.63E-08	4.05E-12	0.00E+00	3.27E-05	1.84E-04	0.00E+00	3.29E-12	1.15E-10
XE-133M	0.00E+00	6.50E+02	1.55E+02	5.94E-08	1.48E-11	0.00E+00	1.79E-04	7.75E-04	0.00E+00	5.33E-12	4.83E-10
XE-133	0.00E+00	4.34E+04	1.04E+04	3.97E-06	9.89E-10	0.00E+00	1.09E-02	4.87E-02	0.00E+00	7.98E-10	3.04E-08
XE-135M	0.00E+00	2.29E-80	1.12E-80	2.10E-90	5.22E-94	0.00E+00	1.66E-85	3.51E-86	0.00E+00	3.10E-93	1.72E-92
XE-135	0.00E+00	2.47E+02	5.99E+01	2.26E-08	5.62E-12	0.00E+00	5.16E-04	6.21E-04	0.00E+00	1.18E-11	3.85E-10
XE-138	0.00E+00	8.79E-71	3.96E-71	8.04E-81	2.00E-84	0.00E+00	3.98E-75	1.02E-75	0.00E+00	1.97E-83	5.15E-82
KR-83M	0.00E+00	1.06E-08	2.77E-09	9.70E-19	2.42E-22	0.00E+00	4.85E-16	3.04E-15	0.00E+00	1.61E-22	1.84E-21
KR-85M	0.00E+00	1.36E-01	3.37E-02	1.24E-11	3.10E-15	0.00E+00	1.84E-07	2.53E-07	0.00E+00	4.51E-15	1.56E-13
KR-85	0.00E+00	1.26E+03	3.01E+02	1.16E-07	2.88E-11	0.00E+00	2.21E-05	2.16E-03	0.00E+00	5.22E-13	1.35E-09
KR-87	0.00E+00	1.42E-13	3.89E-14	1.30E-23	3.24E-27	0.00E+00	1.87E-18	1.32E-18	0.00E+00	2.06E-26	7.84E-25
KR-88	0.00E+00	5.46E-04	1.38E-04	5.00E-14	1.24E-17	0.00E+00	8.45E-09	1.52E-09	0.00E+00	1.64E-16	9.29E-16
						2.95E-01	1.17E-02	5.25E-02	2.24E-08	8.19E-10	3.27E-08

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .11E+02 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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

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ELEMENTAL											
I-131	0.00E+00	1.88E+02	3.57E+00	3.30E-10	8.21E-14	5.45E-02	1.32E-05	6.47E-06	4.61E-08	4.14E-13	5.47E-12
I-132	0.00E+00	8.50E-08	1.74E-09	1.49E-19	3.70E-23	1.52E-13	4.18E-14	7.18E-15	1.28E-19	1.12E-21	6.01E-21
I-133	0.00E+00	4.21E+01	8.04E-01	7.37E-11	1.84E-14	2.01E-03	3.84E-06	3.13E-06	1.70E-09	1.50E-13	2.64E-12
I-134	0.00E+00	2.52E-23	5.90E-25	4.40E-35	1.10E-38	9.00E-30	1.14E-29	2.47E-30	7.43E-36	4.01E-37	2.04E-36
I-135	0.00E+00	2.30E-01	4.48E-03	4.03E-13	1.00E-16	1.93E-06	7.97E-08	1.27E-08	1.62E-12	1.69E-15	1.07E-14
PARTICULATE											
I-131	0.00E+00	1.04E+01	1.31E-01	1.21E-11	3.01E-15	2.00E-03	4.85E-07	2.37E-07	1.69E-09	1.52E-14	2.00E-13
I-132	0.00E+00	4.67E-09	6.38E-11	5.45E-21	1.36E-24	5.58E-15	1.53E-15	2.63E-16	4.67E-21	4.10E-23	2.20E-22
I-133	0.00E+00	2.32E+00	2.95E-02	2.70E-12	6.72E-16	7.36E-05	1.41E-07	1.15E-07	6.22E-11	5.50E-15	9.68E-14
I-134	0.00E+00	1.38E-24	2.16E-26	1.61E-36	4.01E-40	3.30E-31	4.19E-31	9.04E-32	2.72E-37	1.47E-38	7.46E-38
I-135	0.00E+00	1.27E-02	1.64E-04	1.48E-14	3.68E-18	7.06E-08	2.92E-09	4.65E-10	5.95E-14	6.20E-17	3.92E-16
ORGANIC											
I-131	0.00E+00	8.28E+00	7.84E-01	7.25E-11	1.80E-14	1.20E-02	2.91E-06	1.42E-06	1.01E-08	9.10E-14	1.20E-12
I-132	0.00E+00	3.74E-09	3.83E-10	3.27E-20	8.14E-24	3.35E-14	9.18E-15	1.58E-15	2.80E-20	2.46E-22	1.32E-21
I-133	0.00E+00	1.85E+00	1.77E-01	1.62E-11	4.03E-15	4.42E-04	8.43E-07	6.88E-07	3.73E-10	3.30E-14	5.81E-13
I-134	0.00E+00	1.11E-24	1.30E-25	9.67E-36	2.41E-39	1.98E-30	2.51E-30	5.42E-31	1.63E-36	8.81E-38	4.48E-37
I-135	0.00E+00	1.01E-02	9.85E-04	8.86E-14	2.21E-17	4.24E-07	1.75E-08	2.79E-09	3.57E-13	3.72E-16	2.35E-15
NOBLE GASES											
XE-131M	0.00E+00	1.42E+02	3.58E+01	2.71E-08	6.75E-12	0.00E+00	7.88E-06	4.45E-05	0.00E+00	8.81E-12	3.08E-10
XE-133M	0.00E+00	5.15E+02	1.30E+02	9.86E-08	2.45E-11	0.00E+00	4.31E-05	1.86E-04	0.00E+00	1.42E-11	1.29E-09
XE-133	0.00E+00	3.46E+04	8.74E+03	6.61E-06	1.65E-09	0.00E+00	2.62E-03	1.17E-02	0.00E+00	2.14E-09	8.13E-08
XE-135M	0.00E+00	4.83E-81	2.61E-81	9.24E-91	2.30E-94	0.00E+00	1.10E-86	2.33E-87	0.00E+00	2.68E-93	1.49E-92
XE-135	0.00E+00	1.90E+02	4.88E+01	3.63E-08	9.03E-12	0.00E+00	1.20E-04	1.45E-04	0.00E+00	3.08E-11	1.00E-09
XE-138	0.00E+00	2.14E-71	1.06E-71	4.09E-81	1.02E-84	0.00E+00	3.04E-76	7.79E-77	0.00E+00	1.92E-83	5.03E-82
KR-83M	0.00E+00	7.04E-09	1.96E-09	1.35E-18	3.35E-22	0.00E+00	9.79E-17	6.12E-16	0.00E+00	3.69E-22	4.20E-21
KR-85M	0.00E+00	1.00E-01	2.64E-02	1.92E-11	4.78E-15	0.00E+00	4.12E-08	5.66E-08	0.00E+00	1.13E-14	3.90E-13
KR-85	0.00E+00	1.01E+03	2.54E+02	1.93E-07	4.80E-11	0.00E+00	5.34E-06	5.22E-04	0.00E+00	1.40E-12	3.62E-09
KR-87	0.00E+00	8.64E-14	2.52E-14	1.65E-23	4.12E-27	0.00E+00	3.47E-19	2.44E-19	0.00E+00	4.36E-26	1.66E-24
KR-88	0.00E+00	3.85E-04	1.04E-04	7.37E-14	1.84E-17	0.00E+00	1.81E-09	3.26E-10	0.00E+00	3.94E-16	2.24E-15
						7.10E-02	2.82E-03	1.26E-02	6.00E-08	2.19E-09	8.75E-08

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS
1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM
X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122

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PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

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	0.00E+00	1.44E+02	3.32E+00	3.66E-10	9.11E-14	5.07E-02	1.23E-05	6.02E-06	1.21E-07	1.09E-12	1.43E-11
I-132	0.00E+00	4.81E-08	1.31E-09	1.23E-19	3.05E-23	1.14E-13	3.13E-14	5.38E-15	2.69E-19	2.36E-21	1.27E-20
I-133	0.00E+00	3.12E+01	7.33E-01	7.95E-11	1.98E-14	1.83E-03	3.50E-06	2.85E-06	4.35E-09	3.85E-13	6.78E-12
I-134	0.00E+00	8.65E-24	3.11E-25	2.20E-35	5.49E-39	4.75E-30	6.04E-30	1.30E-30	1.10E-35	5.96E-37	3.03E-36
I-135	0.00E+00	1.59E-01	3.88E-03	4.05E-13	1.01E-16	1.67E-06	6.90E-08	1.10E-08	3.96E-12	4.12E-15	2.61E-14
PARTICULATE											
I-131	0.00E+00	7.89E+00	1.22E-01	1.34E-11	3.34E-15	1.86E-03	4.52E-07	2.21E-07	4.42E-09	3.97E-14	5.25E-13
I-132	0.00E+00	2.64E-09	4.78E-11	4.49E-21	1.12E-24	4.18E-15	1.15E-15	1.97E-16	9.86E-21	8.65E-23	4.65E-22
I-133	0.00E+00	1.71E+00	2.68E-02	2.91E-12	7.25E-16	6.71E-05	1.28E-07	1.04E-07	1.59E-10	1.41E-14	2.48E-13
I-134	0.00E+00	4.75E-25	1.14E-26	8.08E-37	2.01E-40	1.74E-31	2.21E-31	4.77E-32	4.04E-37	2.18E-38	1.11E-37
I-135	0.00E+00	8.73E-03	1.42E-04	1.48E-14	3.69E-18	6.11E-08	2.53E-09	4.02E-10	1.45E-13	1.51E-16	9.54E-16
ORGANIC											
I-131	0.00E+00	6.31E+00	7.30E-01	8.04E-11	2.00E-14	1.11E-02	2.71E-06	1.32E-06	2.65E-08	2.38E-13	3.15E-12
I-132	0.00E+00	2.11E-09	2.87E-10	2.69E-20	6.71E-24	2.51E-14	6.89E-15	1.18E-15	5.91E-20	5.19E-22	2.79E-21
I-133	0.00E+00	1.37E+00	1.61E-01	1.75E-11	4.35E-15	4.02E-04	7.68E-07	6.27E-07	9.56E-10	8.46E-14	1.49E-12
I-134	0.00E+00	3.80E-25	6.84E-26	4.85E-36	1.21E-39	1.04E-30	1.33E-30	2.86E-31	2.43E-36	1.31E-37	6.65E-37
I-135	0.00E+00	6.98E-03	8.52E-04	8.90E-14	2.22E-17	3.67E-07	1.52E-08	2.41E-09	8.69E-13	9.05E-16	5.73E-15
NOBLE GASES											
XE-131M	0.00E+00	1.08E+02	3.34E+01	3.01E-08	7.50E-12	0.00E+00	7.34E-06	4.14E-05	0.00E+00	2.31E-11	8.08E-10
XE-133M	0.00E+00	3.89E+02	1.21E+02	1.08E-07	2.70E-11	0.00E+00	3.98E-05	1.72E-04	0.00E+00	3.70E-11	3.35E-09
XE-133	0.00E+00	2.63E+04	8.12E+03	7.33E-06	1.82E-09	0.00E+00	2.44E-03	1.09E-02	0.00E+00	5.59E-09	2.13E-07
XE-135M	0.00E+00	2.57E-82	4.19E-82	7.17E-92	1.78E-95	0.00E+00	1.77E-87	3.74E-88	0.00E+00	1.21E-93	6.76E-93
XE-135	0.00E+00	1.34E+02	4.31E+01	3.75E-08	9.32E-12	0.00E+00	1.06E-04	1.28E-04	0.00E+00	7.64E-11	2.48E-09
XE-138	0.00E+00	1.52E-72	2.02E-72	4.23E-82	1.05E-85	0.00E+00	5.79E-77	1.49E-77	0.00E+00	1.03E-83	2.71E-82
KR-83M	0.00E+00	3.71E-09	1.40E-09	1.03E-18	2.58E-22	0.00E+00	6.98E-17	4.37E-16	0.00E+00	7.40E-22	8.42E-21
KR-85M	0.00E+00	6.56E-02	2.20E-02	1.83E-11	4.55E-15	0.00E+00	3.42E-08	4.71E-08	0.00E+00	2.65E-14	9.13E-13
KR-85	0.00E+00	7.71E+02	2.38E+02	2.15E-07	5.35E-11	0.00E+00	4.99E-06	4.87E-04	0.00E+00	3.68E-12	9.50E-09
KR-87	0.00E+00	3.82E-14	1.59E-14	1.07E-23	2.65E-27	0.00E+00	2.18E-19	1.53E-19	0.00E+00	7.72E-26	2.94E-24
KR-88	0.00E+00	2.30E-04	8.09E-05	6.41E-14	1.60E-17	0.00E+00	1.41E-09	2.54E-10	0.00E+00	8.65E-16	4.91E-15
						6.60E-02	2.62E-03	1.18E-02	1.57E-07	5.73E-09	2.29E-07

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

NEDC 99-032 ATTACH 1
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	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	0.00E+00	2.80E+01	8.55E+00	3.76E-10	9.36E-14	1.31E-01	3.17E-05	1.55E-05	1.04E-06	9.31E-12	1.23E-10
I-132	0.00E+00	1.57E-09	1.64E-09	2.11E-20	5.26E-24	1.44E-13	3.95E-14	6.78E-15	9.39E-19	8.24E-21	4.42E-20
I-133	0.00E+00	5.10E+00	1.74E+00	6.85E-11	1.70E-14	4.35E-03	8.30E-06	6.78E-06	3.38E-08	2.99E-12	5.27E-11
I-134	0.00E+00	1.43E-26	1.63E-25	1.91E-37	4.77E-41	2.49E-30	3.16E-30	6.82E-31	1.28E-35	6.91E-37	3.51E-36
I-135	0.00E+00	1.71E-02	7.68E-03	2.29E-13	5.70E-17	3.31E-06	1.37E-07	2.18E-08	2.45E-11	2.55E-14	1.61E-13
PARTICULATE											
I-131	0.00E+00	1.54E+00	3.13E-01	1.38E-11	3.43E-15	4.78E-03	1.16E-06	5.67E-07	3.79E-08	3.41E-13	4.50E-12
I-132	0.00E+00	8.65E-11	6.02E-11	7.73E-22	1.93E-25	5.27E-15	1.45E-15	2.48E-16	3.44E-20	3.02E-22	1.62E-21
I-133	0.00E+00	2.80E-01	6.38E-02	2.51E-12	6.24E-16	1.59E-04	3.04E-07	2.48E-07	1.24E-09	1.10E-13	1.93E-12
I-134	0.00E+00	7.84E-28	5.97E-27	7.01E-39	1.75E-42	9.11E-32	1.16E-31	2.50E-32	4.69E-37	2.53E-38	1.29E-37
I-135	0.00E+00	9.38E-04	2.81E-04	8.38E-15	2.09E-18	1.21E-07	5.01E-09	7.97E-10	8.98E-13	9.35E-16	5.91E-15
ORGANIC											
I-131	0.00E+00	1.23E+00	1.88E+00	8.27E-11	2.06E-14	2.87E-02	6.97E-06	3.40E-06	2.28E-07	2.05E-12	2.70E-11
I-132	0.00E+00	6.92E-11	3.61E-10	4.64E-21	1.16E-24	3.16E-14	8.67E-15	1.49E-15	2.06E-19	1.81E-21	9.72E-21
I-133	0.00E+00	2.24E-01	3.83E-01	1.50E-11	3.75E-15	9.56E-04	1.83E-06	1.49E-06	7.43E-09	6.58E-13	1.16E-11
I-134	0.00E+00	6.27E-28	3.58E-26	4.21E-38	1.05E-41	5.46E-31	6.94E-31	1.50E-31	2.81E-36	1.52E-37	7.71E-37
I-135	0.00E+00	7.50E-04	1.69E-03	5.03E-14	1.25E-17	7.26E-07	3.00E-08	4.78E-09	5.39E-12	5.61E-15	3.55E-14
NOBLE GASES											
XE-131M	0.00E+00	2.13E+01	8.61E+01	3.12E-08	7.77E-12	0.00E+00	1.89E-05	1.07E-04	0.00E+00	1.99E-10	6.96E-09
XE-133M	0.00E+00	7.19E+01	3.03E+02	1.05E-07	2.62E-11	0.00E+00	9.99E-05	4.32E-04	0.00E+00	3.08E-10	2.79E-08
XE-133	0.00E+00	5.08E+03	2.08E+04	7.45E-06	1.85E-09	0.00E+00	6.24E-03	2.79E-02	0.00E+00	4.76E-08	1.81E-06
XE-135M	0.00E+00	5.87E-90	2.36E-83	8.61E-99	2.14-102	0.00E+00	9.94E-89	2.10E-89	0.00E+00	1.16E-94	6.44E-94
XE-135	0.00E+00	1.70E+01	9.15E+01	2.49E-08	6.21E-12	0.00E+00	2.25E-04	2.71E-04	0.00E+00	5.16E-10	1.68E-08
XE-138	0.00E+00	1.95E-79	1.54E-73	2.86E-88	7.13E-92	0.00E+00	4.43E-78	1.14E-78	0.00E+00	1.36E-84	3.57E-83
KR-83M	0.00E+00	8.01E-11	1.53E-09	1.17E-19	2.92E-23	0.00E+00	7.63E-17	4.77E-16	0.00E+00	2.16E-21	2.45E-20
KR-85M	0.00E+00	5.08E-03	3.81E-02	7.45E-12	1.85E-15	0.00E+00	5.94E-08	8.17E-08	0.00E+00	1.39E-13	4.79E-12
KR-85	0.00E+00	1.54E+02	6.17E+02	2.26E-07	5.62E-11	0.00E+00	1.30E-05	1.27E-03	0.00E+00	3.20E-11	8.26E-08
KR-87	0.00E+00	2.86E-16	1.25E-14	4.20E-25	1.04E-28	0.00E+00	1.72E-19	1.21E-19	0.00E+00	1.49E-25	5.66E-24
KR-88	0.00E+00	1.04E-05	1.14E-04	1.52E-14	3.79E-18	0.00E+00	1.99E-09	3.58E-10	0.00E+00	3.49E-15	1.98E-14
						1.69E-01	6.64E-03	3.00E-02	1.34E-06	4.87E-08	1.95E-06

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	0.00E+00	3.60E-01	2.05E+00	1.82E-10	4.54E-14	6.35E-03	3.04E-06	1.49E-06	6.23E-06	5.60E-11	7.40E-10
I-132	0.00E+00	1.73E-13	5.56E-11	8.73E-23	2.17E-26	9.87E-16	5.34E-16	9.17E-17	5.89E-19	5.17E-21	2.78E-20
I-133	0.00E+00	4.10E-02	3.38E-01	2.07E-11	5.16E-15	1.71E-04	6.45E-07	5.26E-07	1.58E-07	1.40E-11	2.47E-10
I-134	0.00E+00	5.43E-34	2.69E-28	2.75E-43	6.84E-47	8.34E-34	2.09E-33	4.51E-34	3.13E-37	1.69E-38	8.59E-38
I-135	0.00E+00	4.45E-05	9.22E-04	2.25E-14	5.60E-18	8.05E-08	6.56E-09	1.04E-09	6.50E-11	6.77E-14	4.28E-13
PARTICULATE											
I-131	0.00E+00	1.98E-02	7.50E-02	6.68E-12	1.66E-15	2.32E-04	1.11E-07	5.44E-08	2.28E-07	2.05E-12	2.71E-11
I-132	0.00E+00	9.48E-15	2.04E-12	3.20E-24	7.96E-28	3.62E-17	1.96E-17	3.36E-18	2.16E-20	1.89E-22	1.02E-21
I-133	0.00E+00	2.25E-03	1.24E-02	7.59E-13	1.89E-16	6.28E-06	2.36E-08	1.93E-08	5.80E-09	5.13E-13	9.04E-12
I-134	0.00E+00	2.98E-35	9.86E-30	1.01E-44	2.51E-48	3.06E-35	7.65E-35	1.65E-35	1.15E-38	6.19E-40	3.15E-39
I-135	0.00E+00	2.44E-06	3.38E-05	8.24E-16	2.05E-19	2.95E-09	2.40E-10	3.83E-11	2.38E-12	2.48E-15	1.57E-14
ORGANIC											
I-131	0.00E+00	1.58E-02	4.50E-01	4.01E-11	9.97E-15	1.39E-03	6.68E-07	3.26E-07	1.37E-06	1.23E-11	1.63E-10
I-132	0.00E+00	7.59E-15	1.22E-11	1.92E-23	4.78E-27	2.17E-16	1.17E-16	2.02E-17	1.29E-19	1.14E-21	6.10E-21
I-133	0.00E+00	1.80E-03	7.43E-02	4.55E-12	1.13E-15	3.77E-05	1.42E-07	1.16E-07	3.48E-08	3.08E-12	5.42E-11
I-134	0.00E+00	2.39E-35	5.92E-29	6.04E-44	1.50E-47	1.83E-34	4.59E-34	9.91E-35	6.88E-38	3.72E-39	1.89E-38
I-135	0.00E+00	1.95E-06	2.03E-04	4.94E-15	1.23E-18	1.77E-08	1.44E-09	2.30E-10	1.43E-11	1.49E-14	9.41E-14
NOBLE GASES											
XE-131M	0.00E+00	2.78E-01	2.08E+01	1.54E-08	3.83E-12	0.00E+00	1.83E-06	1.03E-05	0.00E+00	1.21E-09	4.23E-08
XE-133M	0.00E+00	7.98E-01	6.79E+01	4.41E-08	1.10E-11	0.00E+00	8.96E-06	3.87E-05	0.00E+00	1.71E-09	1.55E-07
XE-133	0.00E+00	6.33E+01	4.92E+03	3.50E-06	8.72E-10	0.00E+00	5.90E-04	2.64E-03	0.00E+00	2.82E-07	1.07E-05
XE-135M	0.00E+00	2.46-110	5.38E-91	1.36-117	3.39-121	0.00E+00	9.08E-97	1.92E-97	0.00E+00	2.73-101	1.52-100
XE-135	0.00E+00	6.87E-02	1.32E+01	3.80E-09	9.45E-13	0.00E+00	1.30E-05	1.56E-05	0.00E+00	1.70E-09	5.53E-08
XE-138	0.00E+00	8.21E-98	1.98E-80	4.54-105	1.13-108	0.00E+00	2.28E-85	5.84E-86	0.00E+00	1.88E-90	4.92E-89
KR-83M	0.00E+00	2.89E-15	3.36E-11	1.60E-22	3.98E-26	0.00E+00	6.73E-19	4.21E-18	0.00E+00	8.44E-22	9.60E-21
KR-85M	0.00E+00	5.55E-06	3.20E-03	3.07E-13	7.64E-17	0.00E+00	2.00E-09	2.74E-09	0.00E+00	2.43E-13	8.39E-12
KR-85	0.00E+00	2.09E+00	1.52E+02	1.16E-07	2.88E-11	0.00E+00	1.28E-06	1.25E-04	0.00E+00	1.99E-10	5.12E-07
KR-87	0.00E+00	6.14E-22	9.42E-17	3.40E-29	8.45E-33	0.00E+00	5.18E-22	3.64E-22	0.00E+00	1.82E-26	6.93E-25
KR-88	0.00E+00	2.69E-09	5.40E-06	1.49E-16	3.70E-20	0.00E+00	3.77E-11	6.78E-12	0.00E+00	3.19E-15	1.81E-14
						8.19E-03	6.20E-04	2.83E-03	8.03E-06	2.87E-07	1.15E-05

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1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	0.00E+00	1.11E-09	2.67E-02	1.28E-19	3.18E-23	3.95E-05	1.43E-08	7.01E-09	1.79E-07	1.61E-12	2.12E-11
I-132	0.00E+00	2.61E-31	6.10E-15	3.00E-41	7.46E-45	5.17E-20	2.12E-20	3.65E-21	2.63E-22	2.31E-24	1.24E-23
I-133	0.00E+00	1.52E-11	2.74E-03	1.75E-21	4.34E-25	6.63E-07	1.89E-09	1.54E-09	3.06E-09	2.71E-13	4.77E-12
I-134	0.00E+00	2.22E-67	1.02E-35	2.55E-77	6.35E-81	1.52E-41	2.88E-41	6.22E-42	8.18E-44	4.41E-45	2.24E-44
I-135	0.00E+00	1.05E-16	2.41E-06	1.20E-26	2.99E-30	1.00E-10	6.21E-12	9.89E-13	4.81E-13	5.01E-16	3.17E-15
PARTICULATE											
I-131	0.00E+00	6.12E-11	9.77E-04	4.68E-21	1.16E-24	1.45E-06	5.25E-10	2.57E-10	6.54E-09	5.88E-14	7.77E-13
I-132	0.00E+00	1.44E-32	2.23E-16	1.10E-42	2.73E-46	1.89E-21	7.78E-22	1.34E-22	9.64E-24	8.46E-26	4.54E-25
I-133	0.00E+00	8.36E-13	1.00E-04	6.39E-23	1.59E-26	2.43E-08	6.93E-11	5.65E-11	1.12E-10	9.92E-15	1.75E-13
I-134	0.00E+00	1.22E-68	3.75E-37	9.34E-79	2.32E-82	5.56E-43	1.06E-42	2.28E-43	3.00E-45	1.62E-46	8.21E-46
I-135	0.00E+00	5.75E-18	8.82E-08	4.39E-28	1.09E-31	3.68E-12	2.28E-13	3.62E-14	1.76E-14	1.84E-17	1.16E-16
ORGANIC											
I-131	0.00E+00	4.90E-11	5.86E-03	2.81E-20	6.99E-24	8.68E-06	3.15E-09	1.54E-09	3.93E-08	3.53E-13	4.66E-12
I-132	0.00E+00	1.15E-32	1.34E-15	6.59E-42	1.64E-45	1.14E-20	4.67E-21	8.01E-22	5.78E-23	5.08E-25	2.73E-24
I-133	0.00E+00	6.69E-13	6.01E-04	3.84E-22	9.55E-26	1.46E-07	4.16E-10	3.39E-10	6.73E-10	5.95E-14	1.05E-12
I-134	0.00E+00	9.77E-69	2.25E-36	5.60E-78	1.39E-81	3.33E-42	6.33E-42	1.37E-42	1.80E-44	9.70E-46	4.93E-45
I-135	0.00E+00	4.60E-18	5.29E-07	2.64E-27	6.56E-31	2.21E-11	1.37E-12	2.17E-13	1.06E-13	1.10E-16	6.97E-16
NOBLE GASES											
XE-131M	0.00E+00	9.35E-10	2.76E-01	1.17E-17	2.92E-21	0.00E+00	8.80E-09	4.97E-08	0.00E+00	3.52E-11	1.23E-09
XE-133M	0.00E+00	1.27E-09	7.62E-01	1.59E-17	3.97E-21	0.00E+00	3.64E-08	1.57E-07	0.00E+00	4.34E-11	3.93E-09
XE-133	0.00E+00	1.71E-07	6.21E+01	2.14E-15	5.33E-19	0.00E+00	2.70E-06	1.21E-05	0.00E+00	7.89E-09	3.00E-07
XE-135M	0.00E+00	4.93-202	2.25-111	6.17-210	1.54-213	0.00E+00	1.38-117	2.92-118	0.00E+00	1.62-120	9.02-120
KE-135	0.00E+00	1.16E-12	5.35E-02	1.45E-20	3.61E-24	0.00E+00	1.91E-08	2.30E-08	0.00E+00	1.83E-11	5.96E-10
XE-138	0.00E+00	1.66-180	8.34E-99	2.08-188	5.19-192	0.00E+00	3.47-104	8.90-105	0.00E+00	1.05-107	2.74-106
KR-83M	0.00E+00	2.94E-35	1.21E-15	3.69E-43	9.18E-47	0.00E+00	8.80E-24	5.51E-23	0.00E+00	1.37E-25	1.56E-24
KR-85M	0.00E+00	2.61E-19	3.50E-06	3.27E-27	8.13E-31	0.00E+00	7.91E-13	1.09E-12	0.00E+00	8.45E-16	2.91E-14

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KR-85	0.00E+00	8.38E-09	2.09E+00	1.05E-16	2.61E-20	0.00E+00	6.38E-09	6.23E-07	0.00E+00	5.97E-12	1.54E-08
KR-87	0.00E+00	1.91E-47	2.02E-22	2.39E-55	5.95E-59	0.00E+00	4.03E-28	2.83E-28	0.00E+00	2.15E-31	8.19E-30
KR-88	0.00E+00	1.94E-25	1.40E-09	2.43E-33	6.04E-37	0.00E+00	3.53E-15	6.36E-16	0.00E+00	3.09E-18	1.75E-17
						5.04E-05	2.79E-06	1.30E-05	2.28E-07	7.99E-09	3.21E-07

1 FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	.122
PARTICULATE	.000	.000	.000	.000	.050	.122
ORGANIC	.000	.000	.000	.000	.375	.122

	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	0.00E+00	1.97E-83	8.24E-11	1.25E-93	3.11E-97	3.58E-14	1.30E-17	6.35E-18	1.40E-16	1.26E-21	1.66E-20
I-132	0.00E+00	0.00E+00	9.24E-33	0.00E+00	0.00E+00	2.30E-38	9.43E-39	1.62E-39	9.57E-41	8.40E-43	4.51E-42
I-133	0.00E+00	2.86E-93	1.02E-12	1.81-103	4.51-107	7.22E-17	2.06E-19	1.68E-19	2.86E-19	2.53E-23	4.45E-22
I-134	0.00E+00	0.00E+00	4.19E-69	0.00E+00	0.00E+00	1.82E-75	3.46E-75	7.46E-76	7.83E-78	4.23E-79	2.15E-78
I-135	0.00E+00	0.00E+00	5.67E-18	0.00E+00	0.00E+00	6.93E-23	4.28E-24	6.82E-25	2.80E-25	2.91E-28	1.84E-27
PARTICULATE											
I-131	0.00E+00	1.08E-84	3.02E-12	4.57E-95	1.14E-98	1.31E-15	4.76E-19	2.33E-19	5.13E-18	4.61E-23	6.09E-22
I-132	0.00E+00	0.00E+00	3.39E-34	0.00E+00	0.00E+00	8.41E-40	3.45E-40	5.93E-41	3.51E-42	3.08E-44	1.65E-43
I-133	0.00E+00	1.57E-94	3.72E-14	6.64-105	1.65-108	2.64E-18	7.55E-21	6.16E-21	1.05E-20	9.26E-25	1.63E-23
I-134	0.00E+00	0.00E+00	1.54E-70	0.00E+00	0.00E+00	6.66E-77	1.27E-76	2.73E-77	2.87E-79	1.55E-80	7.86E-80
I-135	0.00E+00	0.00E+00	2.08E-19	0.00E+00	0.00E+00	2.54E-24	1.57E-25	2.50E-26	1.02E-26	1.07E-29	6.74E-29
ORGANIC											
I-131	0.00E+00	8.66E-85	1.81E-11	2.74E-94	6.83E-98	7.86E-15	2.86E-18	1.40E-18	3.08E-17	2.77E-22	3.65E-21
I-132	0.00E+00	0.00E+00	2.03E-33	0.00E+00	0.00E+00	5.05E-39	2.07E-39	3.56E-40	2.10E-41	1.85E-43	9.91E-43
I-133	0.00E+00	1.26E-94	2.23E-13	3.98-104	9.92-108	1.59E-17	4.53E-20	3.70E-20	6.28E-20	5.56E-24	9.78E-23
I-134	0.00E+00	0.00E+00	9.22E-70	0.00E+00	0.00E+00	4.00E-76	7.60E-76	1.64E-76	1.72E-78	9.29E-80	4.72E-79
I-135	0.00E+00	0.00E+00	1.25E-18	0.00E+00	0.00E+00	1.52E-23	9.42E-25	1.50E-25	6.14E-26	6.40E-29	4.05E-28
NOBLE GASES											
XE-131M	0.00E+00	3.38E-83	9.26E-10	2.34E-91	5.82E-95	0.00E+00	8.66E-18	4.89E-17	0.00E+00	3.00E-20	1.05E-18
XE-133M	0.00E+00	7.27E-86	1.21E-09	5.03E-94	1.25E-97	0.00E+00	1.70E-17	7.36E-17	0.00E+00	1.75E-20	1.59E-18

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XE-133	0.00E+00	9.34E-82	1.68E-07	6.47E-90	1.61E-93	0.00E+00	2.14E-15	9.56E-15	0.00E+00	5.40E-18	2.05E-16
XE-135M	0.00E+00	0.00E+00	4.51-203	0.00E+00	0.00E+00	0.00E+00	8.09-210	1.71-210	0.00E+00	7.44-213	4.14-212
XE-135	0.00E+00	5.00-106	9.03E-13	3.46-114	8.62-118	0.00E+00	9.44E-20	1.14E-19	0.00E+00	7.68E-23	2.50E-21
XE-138	0.00E+00	0.00E+00	1.69-181	0.00E+00	0.00E+00	0.00E+00	2.06-187	5.28-188	0.00E+00	4.89-191	1.28-189
KR-83M	0.00E+00	0.00E+00	1.24E-35	0.00E+00	0.00E+00	0.00E+00	2.63E-44	1.64E-43	0.00E+00	3.32E-46	3.78E-45
KR-85M	0.00E+00	0.00E+00	1.64E-19	0.00E+00	0.00E+00	0.00E+00	1.09E-26	1.50E-26	0.00E+00	9.70E-30	3.35E-28
KR-85	0.00E+00	1.39E-81	8.38E-09	9.59E-90	2.39E-93	0.00E+00	7.48E-18	7.30E-16	0.00E+00	6.07E-21	1.57E-17
KR-87	0.00E+00	0.00E+00	6.27E-48	0.00E+00	0.00E+00	0.00E+00	3.67E-54	2.58E-54	0.00E+00	1.58E-57	6.00E-56
KR-88	0.00E+00	0.00E+00	1.01E-25	0.00E+00	0.00E+00	0.00E+00	7.46E-32	1.34E-32	0.00E+00	5.37E-35	3.05E-34
						4.50E-14	2.19E-15	1.04E-14	1.76E-16	5.45E-18	2.24E-16
				TOTAL DOSES 0-30 DAYS		6.09E-01	2.44E-02	1.10E-01	9.84E-06	3.52E-07	1.41E-05

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FHA - CR, LPZ, 90 sec - 30 d, Sec isolated, CR isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	1.11E+01	8.55E+00	2.05E+00	2.67E-02	8.24E-11	2.17E+01
I-132	5.43E-09	1.64E-09	5.56E-11	6.10E-15	9.24E-33	7.13E-09
I-133	2.50E+00	1.74E+00	3.38E-01	2.74E-03	1.02E-12	4.59E+00
I-134	1.93E-24	1.63E-25	2.69E-28	1.02E-35	4.19E-69	2.09E-24
I-135	1.39E-02	7.68E-03	9.22E-04	2.41E-06	5.67E-18	2.25E-02
PARTICULATE						
I-131	4.07E-01	3.13E-01	7.50E-02	9.77E-04	3.02E-12	7.96E-01
I-132	1.99E-10	6.02E-11	2.04E-12	2.23E-16	3.39E-34	2.61E-10
I-133	9.17E-02	6.38E-02	1.24E-02	1.00E-04	3.72E-14	1.68E-01
I-134	7.07E-26	5.97E-27	9.86E-30	3.75E-37	1.54E-70	7.66E-26
I-135	5.10E-04	2.81E-04	3.38E-05	8.82E-08	2.08E-19	8.25E-04
ORGANIC						
I-131	2.44E+00	1.88E+00	4.50E-01	5.86E-03	1.81E-11	4.78E+00
I-132	1.19E-09	3.61E-10	1.22E-11	1.34E-15	2.03E-33	1.57E-09
I-133	5.50E-01	3.83E-01	7.43E-02	6.01E-04	2.23E-13	1.01E+00
I-134	4.24E-25	3.58E-26	5.92E-29	2.25E-36	9.22E-70	4.60E-25
I-135	3.06E-03	1.69E-03	2.03E-04	5.29E-07	1.25E-18	4.95E-03
NOBLE GASES						
XE-131M	1.12E+02	8.61E+01	2.08E+01	2.76E-01	9.26E-10	2.19E+02
XE-133M	4.06E+02	3.03E+02	6.79E+01	7.62E-01	1.21E-09	7.78E+02
XE-133	2.72E+04	2.08E+04	4.92E+03	6.21E+01	1.68E-07	5.30E+04
XE-135M	1.43E-80	2.36E-83	5.38E-91	2.25-111	4.51-203	1.43E-80
XE-135	1.52E+02	9.15E+01	1.32E+01	5.35E-02	9.03E-13	2.57E+02
XE-138	5.22E-71	1.54E-73	1.98E-80	8.34E-99	1.69-181	5.23E-71
KR-83M	6.13E-09	1.53E-09	3.36E-11	1.21E-15	1.24E-35	7.69E-09
KR-85M	8.21E-02	3.81E-02	3.20E-03	3.50E-06	1.64E-19	1.23E-01
KR-85	7.93E+02	6.17E+02	1.52E+02	2.09E+00	8.38E-09	1.56E+03
KR-87	8.00E-14	1.25E-14	9.42E-17	2.02E-22	6.27E-48	9.26E-14
KR-88	3.23E-04	1.14E-04	5.40E-06	1.40E-09	1.01E-25	4.43E-04

END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 22:27:51.69

Appendix G

This Appendix contains the AXIDENT results (fha5) for the EAB dose for the case of no secondary containment isolation (0 to 90 sec).

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AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  16:46:11.02



                     1 FHA - EAB, 0-90 sec, Sec not isolated
                     2 5 2 0.0 1.0
                     3 -1 1.0E7 1.4186E5 6.46E4
                     4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                     5 45.0 90.0 1.8E3 3.6E3 7.2E3
                     6 5*1.0
                     7 2*3.10E-3 3*0
                     8 5*1.0
                     9 2*3316 4*1071
                    10 5.2E-4 5.2E-4 1.2E-4 1.6E-5 1.6E-5
                    11 5*0.0
                    12 5*0.0
                    13 5*0.0
                    14 5*0.0
                    15 5*0.0
                    16 5*0.0
                    17 5*0.0
                    18 5*0.0
                    19 5*0.0
                    20 5*0.0
                    21 1.0 1.0 1.0 1.0 1.0 1.0
                    22 1.0 1.0 1.0
                    23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                    24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

              FHA - EAB, 0-90 sec, Sec not isolated

                                    INITIAL CONTAINMENT INVENTORY

                                    ISOTOPE    ACTIVITY (CURIES)

                                    I-131           1.289E+03
                                    I-132           7.833E-07
                                    I-133           2.969E+02
                                    I-134           3.813E-22
                                    I-135           1.742E+00
                                    XE-131M         2.205E+02
                                    XE-133M         8.096E+02
                                    XE-133          5.392E+04
                                    XE-135M         1.075E-79
                                    XE-135          3.174E+02
                                    XE-138          3.570E-70
                                    KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - EAB, 0-90 sec, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .52E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	0.00E+00	0.00E+00	7.42E+00	1.80E-03	8.81E-04	0.00E+00	0.00E+00	0.00E+00
I-132	5.08E-27	1.55E-07	2.27E-08	0.00E+00	0.00E+00	2.58E-11	7.08E-12	1.22E-12	0.00E+00	0.00E+00	0.00E+00
I-133	1.93E-18	5.89E+01	8.61E+00	0.00E+00	0.00E+00	2.80E-01	5.34E-04	4.36E-04	0.00E+00	0.00E+00	0.00E+00
I-134	2.46E-42	7.49E-23	1.10E-23	0.00E+00	0.00E+00	2.18E-27	2.77E-27	5.99E-28	0.00E+00	0.00E+00	0.00E+00
I-135	1.13E-20	3.45E-01	5.05E-02	0.00E+00	0.00E+00	2.82E-04	1.17E-05	1.86E-06	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	0.00E+00	0.00E+00	4.08E-01	9.91E-05	4.84E-05	0.00E+00	0.00E+00	0.00E+00
I-132	2.79E-28	8.51E-09	1.25E-09	0.00E+00	0.00E+00	1.42E-12	3.89E-13	6.68E-14	0.00E+00	0.00E+00	0.00E+00
I-133	1.06E-19	3.24E+00	4.73E-01	0.00E+00	0.00E+00	1.54E-02	2.93E-05	2.39E-05	0.00E+00	0.00E+00	0.00E+00
I-134	1.35E-43	4.12E-24	6.05E-25	0.00E+00	0.00E+00	1.20E-28	1.52E-28	3.29E-29	0.00E+00	0.00E+00	0.00E+00
I-135	6.23E-22	1.90E-02	2.77E-03	0.00E+00	0.00E+00	1.55E-05	6.42E-07	1.02E-07	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	0.00E+00	0.00E+00	3.26E-01	7.93E-05	3.87E-05	0.00E+00	0.00E+00	0.00E+00
I-132	2.23E-28	6.81E-09	9.97E-10	0.00E+00	0.00E+00	1.13E-12	3.11E-13	5.34E-14	0.00E+00	0.00E+00	0.00E+00
I-133	8.50E-20	2.59E+00	3.78E-01	0.00E+00	0.00E+00	1.23E-02	2.35E-05	1.91E-05	0.00E+00	0.00E+00	0.00E+00
I-134	1.08E-43	3.29E-24	4.84E-25	0.00E+00	0.00E+00	9.60E-29	1.22E-28	2.63E-29	0.00E+00	0.00E+00	0.00E+00
I-135	4.98E-22	1.52E-02	2.22E-03	0.00E+00	0.00E+00	1.24E-05	5.13E-07	8.18E-08	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	0.00E+00	0.00E+00	0.00E+00	8.04E-05	4.54E-04	0.00E+00	0.00E+00	0.00E+00
XE-133M	2.32E-17	7.06E+02	1.03E+02	0.00E+00	0.00E+00	0.00E+00	4.43E-04	1.91E-03	0.00E+00	0.00E+00	0.00E+00
XE-133	1.54E-15	4.70E+04	6.87E+03	0.00E+00	0.00E+00	0.00E+00	2.68E-02	1.20E-01	0.00E+00	0.00E+00	0.00E+00
XE-135M	2.98E-99	9.07E-80	1.35E-80	0.00E+00	0.00E+00	0.00E+00	7.40E-85	1.56E-85	0.00E+00	0.00E+00	0.00E+00

XE-135	9.08E-18	2.77E+02	4.05E+01	0.00E+00	0.00E+00	0.00E+00	1.29E-03	1.56E-03	0.00E+00	0.00E+00	0.00E+00
XE-138	9.92E-90	3.02E-70	4.48E-71	0.00E+00	0.00E+00	0.00E+00	1.67E-74	4.29E-75	0.00E+00	0.00E+00	0.00E+00
KR-83M	4.50E-28	1.37E-08	2.01E-09	0.00E+00	0.00E+00	0.00E+00	1.31E-15	8.18E-15	0.00E+00	0.00E+00	0.00E+00
KR-85M	5.21E-21	1.59E-01	2.32E-02	0.00E+00	0.00E+00	0.00E+00	4.71E-07	6.47E-07	0.00E+00	0.00E+00	0.00E+00
KR-85	4.48E-17	1.36E+03	1.99E+02	0.00E+00	0.00E+00	0.00E+00	5.44E-05	5.32E-03	0.00E+00	0.00E+00	0.00E+00
KR-87	6.59E-33	2.01E-13	2.94E-14	0.00E+00	0.00E+00	0.00E+00	5.26E-18	3.70E-18	0.00E+00	0.00E+00	0.00E+00
KR-88	2.19E-23	6.66E-04	9.75E-05	0.00E+00	0.00E+00	0.00E+00	2.21E-08	3.98E-09	0.00E+00	0.00E+00	0.00E+00
						8.46E+00	3.13E-02	1.31E-01	0.00E+00	0.00E+00	0.00E+00

1 FHA - EAB, 0-90 sec, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .52E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.23E+02	3.33E+01	0.00E+00	0.00E+00	6.61E+00	1.61E-03	7.85E-04	0.00E+00	0.00E+00	0.00E+00
I-132	1.45E-46	1.34E-07	2.01E-08	0.00E+00	0.00E+00	2.29E-11	6.28E-12	1.08E-12	0.00E+00	0.00E+00	0.00E+00
I-133	5.53E-38	5.12E+01	7.67E+00	0.00E+00	0.00E+00	2.49E-01	4.76E-04	3.88E-04	0.00E+00	0.00E+00	0.00E+00
I-134	6.97E-62	6.45E-23	9.71E-24	0.00E+00	0.00E+00	1.93E-27	2.45E-27	5.28E-28	0.00E+00	0.00E+00	0.00E+00
I-135	3.24E-40	3.00E-01	4.49E-02	0.00E+00	0.00E+00	2.51E-04	1.04E-05	1.66E-06	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	1.32E-38	1.22E+01	1.83E+00	0.00E+00	0.00E+00	3.63E-01	8.83E-05	4.31E-05	0.00E+00	0.00E+00	0.00E+00
I-132	7.96E-48	7.37E-09	1.11E-09	0.00E+00	0.00E+00	1.26E-12	3.45E-13	5.93E-14	0.00E+00	0.00E+00	0.00E+00
I-133	3.04E-39	2.81E+00	4.21E-01	0.00E+00	0.00E+00	1.37E-02	2.61E-05	2.13E-05	0.00E+00	0.00E+00	0.00E+00
I-134	3.83E-63	3.55E-24	5.33E-25	0.00E+00	0.00E+00	1.06E-28	1.34E-28	2.90E-29	0.00E+00	0.00E+00	0.00E+00
I-135	1.78E-41	1.65E-02	2.47E-03	0.00E+00	0.00E+00	1.38E-05	5.71E-07	9.10E-08	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	1.06E-38	9.78E+00	1.46E+00	0.00E+00	0.00E+00	2.91E-01	7.06E-05	3.45E-05	0.00E+00	0.00E+00	0.00E+00
I-132	6.37E-48	5.90E-09	8.85E-10	0.00E+00	0.00E+00	1.01E-12	2.76E-13	4.74E-14	0.00E+00	0.00E+00	0.00E+00
I-133	2.43E-39	2.25E+00	3.37E-01	0.00E+00	0.00E+00	1.09E-02	2.09E-05	1.71E-05	0.00E+00	0.00E+00	0.00E+00
I-134	3.06E-63	2.84E-24	4.27E-25	0.00E+00	0.00E+00	8.47E-29	1.08E-28	2.32E-29	0.00E+00	0.00E+00	0.00E+00

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I-135	1.42E-41	1.32E-02	1.98E-03	0.00E+00	0.00E+00	1.10E-05	4.57E-07	7.28E-08	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	1.81E-37	1.67E+02	2.50E+01	0.00E+00	0.00E+00	0.00E+00	7.16E-05	4.04E-04	0.00E+00	0.00E+00	0.00E+00
XE-133M	6.63E-37	6.14E+02	9.20E+01	0.00E+00	0.00E+00	0.00E+00	3.94E-04	1.70E-03	0.00E+00	0.00E+00	0.00E+00
XE-133	4.42E-35	4.09E+04	6.12E+03	0.00E+00	0.00E+00	0.00E+00	2.39E-02	1.07E-01	0.00E+00	0.00E+00	0.00E+00
XE-135M	8.24-119	7.63E-80	1.16E-80	0.00E+00	0.00E+00	0.00E+00	6.38E-85	1.35E-85	0.00E+00	0.00E+00	0.00E+00
XE-135	2.60E-37	2.40E+02	3.60E+01	0.00E+00	0.00E+00	0.00E+00	1.15E-03	1.39E-03	0.00E+00	0.00E+00	0.00E+00
XE-138	2.76-109	2.55E-70	3.88E-71	0.00E+00	0.00E+00	0.00E+00	1.45E-74	3.71E-75	0.00E+00	0.00E+00	0.00E+00
KR-83M	1.28E-47	1.19E-08	1.78E-09	0.00E+00	0.00E+00	0.00E+00	1.16E-15	7.25E-15	0.00E+00	0.00E+00	0.00E+00
KR-85M	1.49E-40	1.38E-01	2.06E-02	0.00E+00	0.00E+00	0.00E+00	4.19E-07	5.75E-07	0.00E+00	0.00E+00	0.00E+00
KR-85	1.28E-36	1.19E+03	1.78E+02	0.00E+00	0.00E+00	0.00E+00	4.85E-05	4.74E-03	0.00E+00	0.00E+00	0.00E+00
KR-87	1.87E-52	1.73E-13	2.61E-14	0.00E+00	0.00E+00	0.00E+00	4.66E-18	3.27E-18	0.00E+00	0.00E+00	0.00E+00
KR-88	6.24E-43	5.78E-04	8.66E-05	0.00E+00	0.00E+00	0.00E+00	1.96E-08	3.53E-09	0.00E+00	0.00E+00	0.00E+00
						7.54E+00	2.79E-02	1.16E-01	0.00E+00	0.00E+00	0.00E+00

1 FHA - EAB, 0-90 sec, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .12E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.22E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	1.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	5.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	4.41E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	2.86E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	6.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	2.43E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

I-135	0.00E+00	1.57E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	9.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	5.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.22E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.94E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.26E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	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	6.10E+02	0.00E+00	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	4.08E+04	0.00E+00	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	2.15E-80	0.00E+00	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	2.32E+02	0.00E+00	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	8.26E-71	0.00E+00	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	9.97E-09	0.00E+00	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	1.28E-01	0.00E+00	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	1.19E+03	0.00E+00	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	1.34E-13	0.00E+00	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	5.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - EAB, 0-90 sec, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.22E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	1.00E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	4.96E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	2.96E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

I-135	0.00E+00	2.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	5.50E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.72E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.63E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.49E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	9.75E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	4.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.18E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.30E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	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	6.07E+02	0.00E+00	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	4.07E+04	0.00E+00	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	5.68E-81	0.00E+00	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	2.23E+02	0.00E+00	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	2.52E-71	0.00E+00	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	8.28E-09	0.00E+00	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	1.18E-01	0.00E+00	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	1.19E+03	0.00E+00	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	1.02E-13	0.00E+00	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	4.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - EAB, 0-90 sec, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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

NEDC 99-032-ATTACH 1
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ELEMENTAL											
I-131	0.00E+00	2.21E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	7.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	4.80E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.33E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	2.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	1.21E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	4.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	7.31E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	9.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	3.25E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	5.85E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.08E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	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	5.99E+02	0.00E+00	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	4.05E+04	0.00E+00	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	3.96E-82	0.00E+00	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	2.07E+02	0.00E+00	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	2.34E-72	0.00E+00	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	5.72E-09	0.00E+00	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	1.01E-01	0.00E+00	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	1.19E+03	0.00E+00	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	5.89E-14	0.00E+00	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	3.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
						0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL DOSES 0-30 DAYS						1.60E+01	5.91E-02	2.47E-01	0.00E+00	0.00E+00	0.00E+00

1

FHA - EAB, 0-90 sec, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)	
	2. HRS	
ELEMENTAL		
I-131	7.07E+01	7.07E+01
I-132	4.28E-08	4.28E-08
I-133	1.63E+01	1.63E+01
I-134	2.07E-23	2.07E-23
I-135	9.54E-02	9.54E-02
PARTICULATE		
I-131	3.88E+00	3.88E+00
I-132	2.35E-09	2.35E-09
I-133	8.94E-01	8.94E-01

I-134	1.14E-24	1.14E-24
I-135	5.24E-03	5.24E-03
ORGANIC		
I-131	3.11E+00	3.11E+00
I-132	1.88E-09	1.88E-09
I-133	7.16E-01	7.16E-01
I-134	9.11E-25	9.11E-25
I-135	4.19E-03	4.19E-03
NOBLE GASES		
XE-131M	5.32E+01	5.32E+01
XE-133M	1.95E+02	1.95E+02
XE-133	1.30E+04	1.30E+04
XE-135M	2.51E-80	2.51E-80
XE-135	7.65E+01	7.65E+01
XE-138	8.37E-71	8.37E-71
KR-83M	3.79E-09	3.79E-09
KR-85M	4.39E-02	4.39E-02
KR-85	3.77E+02	3.77E+02
KR-87	5.55E-14	5.55E-14
KR-88	1.84E-04	1.84E-04

END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 16:46:11.24

NEDC 99-032 ATTACH 1
SHEET 81 OF 161

Appendix H

Not Used

Appendix I

This Appendix contains the AXIDENT results (fha7) for the EAB dose for the case of secondary containment isolation (90 sec to 2 hours).

```
AXIDENT VER 2 MOD 4
                  PRODUCTION DATE 02/18/92
                  BEGIN EXECUTION DATE:  12/03/1999
                  BEGIN EXECUTION TIME:  16:49:18.54



                   1 FHA - EAB, 90 sec - 2 hours (secondary isolated)
                   2 5 2 0.0 1.0
                   3 -1 1.0E7 1.4186E5 6.46E4
                   4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                   5 45.0 90.0 1.8E3 3.6E3 7.2E3
                   6 5*1.0
                   7 2*0 2*1.25E-4 7.46E-5
                   8 5*1.0
                   9 2*3316 4*1071
                  10 5.2E-4 5.2E-4 1.2E-4 1.6E-5 1.6E-5
                  11 5*0.0
                  12 5*0.0
                  13 5*0.0
                  14 5*0.0
                  15 5*0.0
                  16 5*0.0
                  17 5*0.0
                  18 5*0.0
                  19 5*0.0
                  20 5*0.0
                  21 0.075 0.05 0.375 1.0 1.0 1.0
                  22 1.0 1.0 1.0
                  23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                  24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

            FHA - EAB, 90 sec - 2 hours (secondary isolated)

                                    INITIAL CONTAINMENT INVENTORY

                                    ISOTOPE    ACTIVITY (CURIES)

                                    I-131           1.289E+03
                                    I-132           7.833E-07
                                    I-133           2.969E+02
                                    I-134           3.813E-22
                                    I-135           1.742E+00
                                    XE-131M         2.205E+02
                                    XE-133M         8.096E+02
                                    XE-133          5.392E+04
                                    XE-135M         1.075E-79
                                    XE-135          3.174E+02
                                    XE-138          3.570E-70
                                    KR-83M          1.581E-08
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NEDC 99-032 ATTACH 1
SHEET 84 OF 161

KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - EAB, 90 sec - 2 hours (secondary isolated)

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .52E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	1.000
PARTICULATE	.000	.000	.000	.000	.050	1.000
ORGANIC	.000	.000	.000	.000	.375	1.000

	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	8.39E-18	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	5.08E-27	1.78E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.93E-18	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	2.46E-42	8.59E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.13E-20	3.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	4.61E-19	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.79E-28	9.75E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	1.06E-19	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.35E-43	4.72E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	6.23E-22	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	3.69E-19	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	2.23E-28	7.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	8.50E-20	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	1.08E-43	3.78E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	4.98E-22	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	6.31E-18	2.20E+02	0.00E+00	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	2.32E-17	8.09E+02	0.00E+00	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	1.54E-15	5.39E+04	0.00E+00	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	2.98E-99	1.04E-79	0.00E+00	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	9.08E-18	3.17E+02	0.00E+00	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	9.92E-90	3.47E-70	0.00E+00	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	4.50E-28	1.57E-08	0.00E+00	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	5.21E-21	1.82E-01	0.00E+00	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	4.48E-17	1.56E+03	0.00E+00	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	6.59E-33	2.30E-13	0.00E+00	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	2.19E-23	7.63E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - EAB, 90 sec - 2 hours (secondary isolated)

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .52E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	1.000
PARTICULATE	.000	.000	.000	.000	.050	1.000
ORGANIC	.000	.000	.000	.000	.375	1.000

	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	2.40E-37	2.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	1.45E-46	1.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	5.53E-38	6.75E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	6.97E-62	8.50E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	3.24E-40	3.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	1.32E-38	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	7.96E-48	9.72E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	3.04E-39	3.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.83E-63	4.67E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	1.78E-41	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	1.06E-38	1.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	6.37E-48	7.77E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	2.43E-39	2.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	3.06E-63	3.74E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

I-135	1.42E-41	1.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	1.81E-37	2.20E+02	0.00E+00	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	6.63E-37	8.09E+02	0.00E+00	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	4.42E-35	5.39E+04	0.00E+00	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	8.24-119	1.01E-79	0.00E+00	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	2.60E-37	3.17E+02	0.00E+00	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	2.76-109	3.36E-70	0.00E+00	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	1.28E-47	1.57E-08	0.00E+00	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	1.49E-40	1.82E-01	0.00E+00	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	1.28E-36	1.56E+03	0.00E+00	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	1.87E-52	2.29E-13	0.00E+00	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	6.24E-43	7.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 FHA - EAB, 90 sec - 2 hours (secondary isolated)

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .12E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .11E+02 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	1.000
PARTICULATE	.000	.000	.000	.000	.050	1.000
ORGANIC	.000	.000	.000	.000	.375	1.000

	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	0.00E+00	2.36E+02	4.23E+00	0.00E+00	0.00E+00	1.94E-01	4.71E-05	2.30E-05	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	1.24E-07	2.38E-09	0.00E+00	0.00E+00	6.26E-13	1.72E-13	2.95E-14	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	5.37E+01	9.67E-01	0.00E+00	0.00E+00	7.25E-03	1.38E-05	1.13E-05	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	4.70E-23	1.03E-24	0.00E+00	0.00E+00	4.71E-29	5.98E-29	1.29E-29	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	3.04E-01	5.57E-03	0.00E+00	0.00E+00	7.19E-06	2.97E-07	4.74E-08	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	1.30E+01	1.55E-01	0.00E+00	0.00E+00	7.10E-03	1.72E-06	8.42E-07	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	6.80E-09	8.73E-11	0.00E+00	0.00E+00	2.29E-14	6.29E-15	1.08E-15	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.95E+00	3.54E-02	0.00E+00	0.00E+00	2.65E-04	5.07E-07	4.13E-07	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	2.58E-24	3.77E-26	0.00E+00	0.00E+00	1.72E-30	2.19E-30	4.73E-31	0.00E+00	0.00E+00	0.00E+00

I-135	0.00E+00	1.67E-02	2.04E-04	0.00E+00	0.00E+00	2.63E-07	1.09E-08	1.74E-09	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	1.04E+01	9.29E-01	0.00E+00	0.00E+00	4.26E-02	1.03E-05	5.05E-06	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	5.44E-09	5.24E-10	0.00E+00	0.00E+00	1.37E-13	3.77E-14	6.48E-15	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.36E+00	2.12E-01	0.00E+00	0.00E+00	1.59E-03	3.04E-06	2.48E-06	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	2.06E-24	2.26E-25	0.00E+00	0.00E+00	1.03E-29	1.31E-29	2.84E-30	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.34E-02	1.22E-03	0.00E+00	0.00E+00	1.58E-06	6.54E-08	1.04E-08	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.78E+02	4.24E+01	0.00E+00	0.00E+00	0.00E+00	2.80E-05	1.58E-04	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	6.50E+02	1.55E+02	0.00E+00	0.00E+00	0.00E+00	1.54E-04	6.64E-04	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	4.34E+04	1.04E+04	0.00E+00	0.00E+00	0.00E+00	9.33E-03	4.18E-02	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	2.29E-80	1.12E-80	0.00E+00	0.00E+00	0.00E+00	1.42E-85	3.00E-86	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	2.47E+02	5.99E+01	0.00E+00	0.00E+00	0.00E+00	4.42E-04	5.33E-04	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	8.79E-71	3.96E-71	0.00E+00	0.00E+00	0.00E+00	3.41E-75	8.74E-76	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	1.06E-08	2.77E-09	0.00E+00	0.00E+00	0.00E+00	4.16E-16	2.60E-15	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	1.36E-01	3.37E-02	0.00E+00	0.00E+00	0.00E+00	1.58E-07	2.17E-07	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	1.26E+03	3.01E+02	0.00E+00	0.00E+00	0.00E+00	1.90E-05	1.85E-03	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	1.42E-13	3.89E-14	0.00E+00	0.00E+00	0.00E+00	1.61E-18	1.13E-18	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	5.46E-04	1.38E-04	0.00E+00	0.00E+00	0.00E+00	7.24E-09	1.30E-09	0.00E+00	0.00E+00	0.00E+00
						2.52E-01	1.00E-02	4.50E-02	0.00E+00	0.00E+00	0.00E+00

1 FHA - EAB, 90 sec - 2 hours (secondary isolated)

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .11E+02 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	1.000
PARTICULATE	.000	.000	.000	.000	.050	1.000
ORGANIC	.000	.000	.000	.000	.375	1.000

	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	0.00E+00	1.88E+02	3.57E+00	0.00E+00	0.00E+00	2.18E-02	5.30E-06	2.59E-06	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	8.50E-08	1.74E-09	0.00E+00	0.00E+00	6.09E-14	1.67E-14	2.87E-15	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	4.21E+01	8.04E-01	0.00E+00	0.00E+00	8.04E-04	1.53E-06	1.25E-06	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	2.52E-23	5.90E-25	0.00E+00	0.00E+00	3.60E-30	4.57E-30	9.87E-31	0.00E+00	0.00E+00	0.00E+00

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I-135	0.00E+00	2.30E-01	4.48E-03	0.00E+00	0.00E+00	7.71E-07	3.19E-08	5.08E-09	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	1.04E+01	1.31E-01	0.00E+00	0.00E+00	7.98E-04	1.94E-07	9.48E-08	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	4.67E-09	6.38E-11	0.00E+00	0.00E+00	2.23E-15	6.12E-16	1.05E-16	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	2.32E+00	2.95E-02	0.00E+00	0.00E+00	2.94E-05	5.62E-08	4.59E-08	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.38E-24	2.16E-26	0.00E+00	0.00E+00	1.32E-31	1.67E-31	3.62E-32	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.27E-02	1.64E-04	0.00E+00	0.00E+00	2.82E-08	1.17E-09	1.86E-10	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	8.28E+00	7.84E-01	0.00E+00	0.00E+00	4.79E-03	1.16E-06	5.69E-07	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	3.74E-09	3.83E-10	0.00E+00	0.00E+00	1.34E-14	3.67E-15	6.31E-16	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	1.85E+00	1.77E-01	0.00E+00	0.00E+00	1.77E-04	3.37E-07	2.75E-07	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	1.11E-24	1.30E-25	0.00E+00	0.00E+00	7.91E-31	1.00E-30	2.17E-31	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.01E-02	9.85E-04	0.00E+00	0.00E+00	1.69E-07	7.01E-09	1.12E-09	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.42E+02	3.58E+01	0.00E+00	0.00E+00	0.00E+00	3.15E-06	1.78E-05	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	5.15E+02	1.30E+02	0.00E+00	0.00E+00	0.00E+00	1.72E-05	7.44E-05	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	3.46E+04	8.74E+03	0.00E+00	0.00E+00	0.00E+00	1.05E-03	4.69E-03	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	4.83E-81	2.61E-81	0.00E+00	0.00E+00	0.00E+00	4.41E-87	9.33E-88	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	1.90E+02	4.88E+01	0.00E+00	0.00E+00	0.00E+00	4.80E-05	5.79E-05	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	2.14E-71	1.06E-71	0.00E+00	0.00E+00	0.00E+00	1.22E-76	3.12E-77	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	7.04E-09	1.96E-09	0.00E+00	0.00E+00	0.00E+00	3.91E-17	2.45E-16	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	1.00E-01	2.64E-02	0.00E+00	0.00E+00	0.00E+00	1.65E-08	2.26E-08	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	1.01E+03	2.54E+02	0.00E+00	0.00E+00	0.00E+00	2.14E-06	2.09E-04	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	8.64E-14	2.52E-14	0.00E+00	0.00E+00	0.00E+00	1.39E-19	9.74E-20	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	3.85E-04	1.04E-04	0.00E+00	0.00E+00	0.00E+00	7.24E-10	1.30E-10	0.00E+00	0.00E+00	0.00E+00
						2.84E-02	1.13E-03	5.06E-03	0.00E+00	0.00E+00	0.00E+00

1 FHA - EAB, 90 sec - 2 hours (secondary isolated)

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=1071.0 CFM

X/Q CONT ROOM= .00E+00 SEC/M3 SEC RELEASE RATE= .64E+01 VOL/DAY PCT PRI LKG TO ATM = 00.00

	CLEANUP RATES (HR-1)				FILTER NON-REMOVAL FACTORS	
	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	.075	1.000
PARTICULATE	.000	.000	.000	.000	.050	1.000
ORGANIC	.000	.000	.000	.000	.375	1.000

	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

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ELEMENTAL											
I-131	0.00E+00	1.44E+02	3.32E+00	0.00E+00	0.00E+00	2.03E-02	4.93E-06	2.41E-06	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	4.81E-08	1.31E-09	0.00E+00	0.00E+00	4.57E-14	1.25E-14	2.15E-15	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	3.12E+01	7.33E-01	0.00E+00	0.00E+00	7.32E-04	1.40E-06	1.14E-06	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	8.65E-24	3.11E-25	0.00E+00	0.00E+00	1.90E-30	2.42E-30	5.21E-31	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	1.59E-01	3.88E-03	0.00E+00	0.00E+00	6.67E-07	2.76E-08	4.39E-09	0.00E+00	0.00E+00	0.00E+00
PARTICULATE											
I-131	0.00E+00	7.89E+00	1.22E-01	0.00E+00	0.00E+00	7.43E-04	1.81E-07	8.82E-08	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	2.64E-09	4.78E-11	0.00E+00	0.00E+00	1.67E-15	4.59E-16	7.88E-17	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	1.71E+00	2.68E-02	0.00E+00	0.00E+00	2.68E-05	5.12E-08	4.18E-08	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	4.75E-25	1.14E-26	0.00E+00	0.00E+00	6.97E-32	8.85E-32	1.91E-32	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	8.73E-03	1.42E-04	0.00E+00	0.00E+00	2.44E-08	1.01E-09	1.61E-10	0.00E+00	0.00E+00	0.00E+00
ORGANIC											
I-131	0.00E+00	6.31E+00	7.30E-01	0.00E+00	0.00E+00	4.46E-03	1.08E-06	5.29E-07	0.00E+00	0.00E+00	0.00E+00
I-132	0.00E+00	2.11E-09	2.87E-10	0.00E+00	0.00E+00	1.00E-14	2.75E-15	4.73E-16	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	1.37E+00	1.61E-01	0.00E+00	0.00E+00	1.61E-04	3.07E-07	2.51E-07	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	3.80E-25	6.84E-26	0.00E+00	0.00E+00	4.18E-31	5.31E-31	1.15E-31	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	6.98E-03	8.52E-04	0.00E+00	0.00E+00	1.47E-07	6.06E-09	9.66E-10	0.00E+00	0.00E+00	0.00E+00
NOBLE GASES											
XE-131M	0.00E+00	1.08E+02	3.34E+01	0.00E+00	0.00E+00	0.00E+00	2.94E-06	1.66E-05	0.00E+00	0.00E+00	0.00E+00
XE-133M	0.00E+00	3.89E+02	1.21E+02	0.00E+00	0.00E+00	0.00E+00	1.59E-05	6.88E-05	0.00E+00	0.00E+00	0.00E+00
XE-133	0.00E+00	2.63E+04	8.12E+03	0.00E+00	0.00E+00	0.00E+00	9.75E-04	4.36E-03	0.00E+00	0.00E+00	0.00E+00
XE-135M	0.00E+00	2.57E-82	4.19E-82	0.00E+00	0.00E+00	0.00E+00	7.07E-88	1.49E-88	0.00E+00	0.00E+00	0.00E+00
XE-135	0.00E+00	1.34E+02	4.31E+01	0.00E+00	0.00E+00	0.00E+00	4.24E-05	5.11E-05	0.00E+00	0.00E+00	0.00E+00
XE-138	0.00E+00	1.52E-72	2.02E-72	0.00E+00	0.00E+00	0.00E+00	2.32E-77	5.94E-78	0.00E+00	0.00E+00	0.00E+00
KR-83M	0.00E+00	3.71E-09	1.40E-09	0.00E+00	0.00E+00	0.00E+00	2.79E-17	1.75E-16	0.00E+00	0.00E+00	0.00E+00
KR-85M	0.00E+00	6.56E-02	2.20E-02	0.00E+00	0.00E+00	0.00E+00	1.37E-08	1.88E-08	0.00E+00	0.00E+00	0.00E+00
KR-85	0.00E+00	7.71E+02	2.38E+02	0.00E+00	0.00E+00	0.00E+00	2.00E-06	1.95E-04	0.00E+00	0.00E+00	0.00E+00
KR-87	0.00E+00	3.82E-14	1.59E-14	0.00E+00	0.00E+00	0.00E+00	8.73E-20	6.13E-20	0.00E+00	0.00E+00	0.00E+00
KR-88	0.00E+00	2.30E-04	8.09E-05	0.00E+00	0.00E+00	0.00E+00	5.64E-10	1.01E-10	0.00E+00	0.00E+00	0.00E+00
						2.64E-02	1.05E-03	4.70E-03	0.00E+00	0.00E+00	0.00E+00
TOTAL DOSES 0-30 DAYS						3.07E-01	1.22E-02	5.48E-02	0.00E+00	0.00E+00	0.00E+00

1

FHA - EAB, 90 sec - 2 hours (secondary isolated)

ISOTOPE	ACTIVITY RELEASED (CURIES)	
	2. HRS	
ELEMENTAL		
I-131	1.11E+01	1.11E+01
I-132	5.43E-09	5.43E-09
I-133	2.50E+00	2.50E+00
I-134	1.93E-24	1.93E-24
I-135	1.39E-02	1.39E-02
PARTICULATE		
I-131	4.07E-01	4.07E-01
I-132	1.99E-10	1.99E-10
I-133	9.17E-02	9.17E-02

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I-134	7.07E-26	7.07E-26
I-135	5.10E-04	5.10E-04
ORGANIC		
I-131	2.44E+00	2.44E+00
I-132	1.19E-09	1.19E-09
I-133	5.50E-01	5.50E-01
I-134	4.24E-25	4.24E-25
I-135	3.06E-03	3.06E-03
NOBLE GASES		
XE-131M	1.12E+02	1.12E+02
XE-133M	4.06E+02	4.06E+02
XE-133	2.72E+04	2.72E+04
XE-135M	1.43E-80	1.43E-80
XE-135	1.52E+02	1.52E+02
XE-138	5.22E-71	5.22E-71
KR-83M	6.13E-09	6.13E-09
KR-85M	8.21E-02	8.21E-02
KR-85	7.93E+02	7.93E+02
KR-87	8.00E-14	8.00E-14
KR-88	3.23E-04	3.23E-04

END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 16:49:18.81

Appendix J

Not Used

Appendix K

Analysis with 90 second isolation

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AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/02/1999
                    BEGIN EXECUTION TIME:  21:20:36.15



 1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated
 2 10 2 0.0 1.0
 3 -1 1.0E7 1.4186E5 6.46E4
 4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
 5 45.0 60.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 10*1.0
 7 3*3.10E-3 7*0
 8 10*1.0
 9 3*3316 7*891
10 3.20E-4 3.20E-4 3.20E-4 1.10E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
11 3*2.396E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
12 10*0.0
13 10*0.0
14 10*0.0
15 10*0.0
16 10*0.0
17 10*0.0
18 10*0.0
19 10*0.0
20 10*0.0
21 1.0 1.0 1.0 1.0 1.0 1.0
22 1.0 1.0 1.0
23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
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1

FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

INITIAL CONTAINMENT INVENTORY

ISOTOPE	ACTIVITY (CURIES)
I-131	1.289E+03
I-132	7.833E-07
I-133	2.969E+02
I-134	3.813E-22
I-135	1.742E+00
XE-131M	2.205E+02
XE-133M	8.096E+02
XE-133	5.392E+04
XE-135M	1.075E-79
XE-135	3.174E+02
XE-138	3.570E-70
KR-83M	1.581E-08
KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

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1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .24E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	1.39E-02	3.46E-06	4.57E+00	1.11E-03	5.42E-04	2.98E-02	2.68E-07	3.54E-06
I-132	5.08E-27	1.55E-07	2.27E-08	8.41E-12	2.09E-15	1.59E-11	4.35E-12	7.48E-13	1.04E-13	9.09E-16	4.88E-15
I-133	1.93E-18	5.89E+01	8.61E+00	3.20E-03	7.97E-07	1.72E-01	3.29E-04	2.68E-04	1.12E-03	9.94E-08	1.75E-06
I-134	2.46E-42	7.49E-23	1.10E-23	4.07E-27	1.01E-30	1.34E-27	1.71E-27	3.69E-28	8.76E-30	4.73E-31	2.40E-30
I-135	1.13E-20	3.45E-01	5.05E-02	1.88E-05	4.67E-09	1.74E-04	7.19E-06	1.14E-06	1.13E-06	1.18E-09	7.47E-09
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	7.64E-04	1.90E-07	2.51E-01	6.10E-05	2.98E-05	1.64E-03	1.47E-08	1.94E-07
I-132	2.79E-28	8.51E-09	1.25E-09	4.62E-13	1.15E-16	8.72E-13	2.39E-13	4.11E-14	5.69E-15	4.99E-17	2.68E-16
I-133	1.06E-19	3.24E+00	4.73E-01	1.76E-04	4.38E-08	9.46E-03	1.81E-05	1.47E-05	6.17E-05	5.46E-09	9.62E-08
I-134	1.35E-43	4.12E-24	6.05E-25	2.24E-28	5.57E-32	7.39E-29	9.38E-29	2.02E-29	4.81E-31	2.60E-32	1.32E-31
I-135	6.23E-22	1.90E-02	2.77E-03	1.03E-06	2.57E-10	9.55E-06	3.95E-07	6.29E-08	6.23E-08	6.49E-11	4.11E-10
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	6.11E-04	1.52E-07	2.01E-01	4.88E-05	2.38E-05	1.31E-03	1.18E-08	1.56E-07
I-132	2.23E-28	6.81E-09	9.97E-10	3.70E-13	9.21E-17	6.97E-13	1.91E-13	3.29E-14	4.55E-15	3.99E-17	2.14E-16
I-133	8.50E-20	2.59E+00	3.78E-01	1.41E-04	3.50E-08	7.56E-03	1.44E-05	1.18E-05	4.94E-05	4.37E-09	7.69E-08
I-134	1.08E-43	3.29E-24	4.84E-25	1.79E-28	4.45E-32	5.91E-29	7.50E-29	1.62E-29	3.85E-31	2.08E-32	1.06E-31
I-135	4.98E-22	1.52E-02	2.22E-03	8.25E-07	2.05E-10	7.64E-06	3.16E-07	5.03E-08	4.99E-08	5.19E-11	3.28E-10
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	1.04E-02	2.60E-06	0.00E+00	4.95E-05	2.79E-04	0.00E+00	5.22E-08	1.82E-06
XE-133M	2.32E-17	7.06E+02	1.03E+02	3.84E-02	9.55E-06	0.00E+00	2.72E-04	1.18E-03	0.00E+00	8.48E-08	7.69E-06
XE-133	1.54E-15	4.70E+04	6.87E+03	2.56E+00	6.36E-04	0.00E+00	1.65E-02	7.39E-02	0.00E+00	1.27E-05	4.82E-04
XE-135M	2.98E-99	9.07E-80	1.35E-80	4.93E-84	1.23E-87	0.00E+00	4.55E-85	9.62E-86	0.00E+00	1.12E-88	6.25E-88
XE-135	9.08E-18	2.77E+02	4.05E+01	1.50E-02	3.74E-06	0.00E+00	7.96E-04	9.59E-04	0.00E+00	1.93E-07	6.26E-06
XE-138	9.92E-90	3.02E-70	4.48E-71	1.64E-74	4.09E-78	0.00E+00	1.03E-74	2.64E-75	0.00E+00	6.56E-79	1.72E-77
KR-83M	4.50E-28	1.37E-08	2.01E-09	7.46E-13	1.86E-16	0.00E+00	8.04E-16	5.03E-15	0.00E+00	2.89E-18	3.28E-17
KR-85M	5.21E-21	1.59E-01	2.32E-02	8.62E-06	2.15E-09	0.00E+00	2.90E-07	3.98E-07	0.00E+00	7.53E-11	2.60E-09

KR-85	4.48E-17	1.36E+03	1.99E+02	7.41E-02	1.85E-05	0.00E+00	3.35E-05	3.27E-03	0.00E+00	8.28E-09	2.14E-05
KR-87	6.59E-33	2.01E-13	2.94E-14	1.09E-17	2.71E-21	0.00E+00	3.24E-18	2.28E-18	0.00E+00	3.90E-22	1.48E-20
KR-88	2.19E-23	6.66E-04	9.75E-05	3.62E-08	9.01E-12	0.00E+00	1.36E-08	2.45E-09	0.00E+00	2.81E-12	1.60E-11
						5.21E+00	1.92E-02	8.05E-02	3.40E-02	1.34E-05	5.25E-04

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .017 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .24E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.57E-24	2.44E+02	1.16E+01	1.82E-02	4.52E-06	1.42E+00	3.45E-04	1.69E-04	2.29E-02	2.06E-07	2.72E-06
I-132	1.55E-33	1.48E-07	7.03E-09	1.10E-11	2.73E-15	4.92E-12	1.35E-12	2.32E-13	7.93E-14	6.96E-16	3.74E-15
I-133	5.91E-25	5.62E+01	2.68E+00	4.18E-03	1.04E-06	5.35E-02	1.02E-04	8.33E-05	8.62E-04	7.63E-08	1.34E-06
I-134	7.50E-49	7.13E-23	3.40E-24	5.30E-27	1.32E-30	4.15E-28	5.27E-28	1.14E-28	6.69E-30	3.61E-31	1.83E-30
I-135	3.46E-27	3.29E-01	1.57E-02	2.45E-05	6.10E-09	5.40E-05	2.23E-06	3.56E-07	8.70E-07	9.06E-10	5.73E-09
PARTICULATE											
I-131	1.41E-25	1.34E+01	6.39E-01	9.98E-04	2.48E-07	7.80E-02	1.90E-05	9.26E-06	1.26E-03	1.13E-08	1.49E-07
I-132	8.53E-35	8.11E-09	3.86E-10	6.03E-13	1.50E-16	2.70E-13	7.42E-14	1.27E-14	4.36E-15	3.82E-17	2.05E-16
I-133	3.25E-26	3.09E+00	1.47E-01	2.30E-04	5.72E-08	2.94E-03	5.61E-06	4.58E-06	4.74E-05	4.19E-09	7.38E-08
I-134	4.12E-50	3.92E-24	1.87E-25	2.91E-28	7.25E-32	2.28E-29	2.90E-29	6.25E-30	3.67E-31	1.98E-32	1.01E-31
I-135	1.90E-28	1.81E-02	8.62E-04	1.35E-06	3.35E-10	2.97E-06	1.23E-07	1.95E-08	4.78E-08	4.98E-11	3.15E-10
ORGANIC											
I-131	1.13E-25	1.07E+01	5.11E-01	7.98E-04	1.99E-07	6.24E-02	1.52E-05	7.41E-06	1.01E-03	9.04E-09	1.19E-07
I-132	6.82E-35	6.49E-09	3.09E-10	4.83E-13	1.20E-16	2.16E-13	5.94E-14	1.02E-14	3.48E-15	3.06E-17	1.64E-16
I-133	2.60E-26	2.47E+00	1.18E-01	1.84E-04	4.58E-08	2.35E-03	4.49E-06	3.66E-06	3.79E-05	3.35E-09	5.90E-08
I-134	3.29E-50	3.13E-24	1.49E-25	2.33E-28	5.80E-32	1.82E-29	2.32E-29	5.00E-30	2.94E-31	1.59E-32	8.06E-32
I-135	1.52E-28	1.45E-02	6.90E-04	1.08E-06	2.68E-10	2.37E-06	9.81E-08	1.56E-08	3.82E-08	3.98E-11	2.52E-10
NOBLE GASES											
XE-131M	1.93E-24	1.84E+02	8.74E+00	1.37E-02	3.40E-06	0.00E+00	1.54E-05	8.68E-05	0.00E+00	4.00E-08	1.40E-06
XE-133M	7.09E-24	6.74E+02	3.21E+01	5.01E-02	1.25E-05	0.00E+00	8.47E-05	3.66E-04	0.00E+00	6.51E-08	5.90E-06

XE-133	4.72E-22	4.49E+04	2.14E+03	3.34E+00	8.31E-04	0.00E+00	5.13E-03	2.30E-02	0.00E+00	9.72E-06	3.70E-04
XE-135M	9.00-106	8.56E-80	4.10E-81	6.37E-84	1.59E-87	0.00E+00	1.38E-85	2.93E-86	0.00E+00	8.47E-89	4.71E-88
XE-135	2.78E-24	2.64E+02	1.26E+01	1.96E-02	4.89E-06	0.00E+00	2.47E-04	2.98E-04	0.00E+00	1.48E-07	4.80E-06
XE-138	3.00E-96	2.86E-70	1.37E-71	2.13E-74	5.29E-78	0.00E+00	3.14E-75	8.05E-76	0.00E+00	4.96E-79	1.30E-77
KR-83M	1.38E-34	1.31E-08	6.23E-10	9.73E-13	2.42E-16	0.00E+00	2.49E-16	1.56E-15	0.00E+00	2.21E-18	2.51E-17
KR-85M	1.59E-27	1.51E-01	7.21E-03	1.13E-05	2.80E-09	0.00E+00	9.00E-08	1.24E-07	0.00E+00	5.77E-11	1.99E-09
KR-85	1.37E-23	1.30E+03	6.20E+01	9.69E-02	2.41E-05	0.00E+00	1.04E-05	1.02E-03	0.00E+00	6.35E-09	1.64E-05
KR-87	2.01E-39	1.91E-13	9.11E-15	1.42E-17	3.54E-21	0.00E+00	1.00E-18	7.04E-19	0.00E+00	2.98E-22	1.13E-20
KR-88	6.68E-30	6.35E-04	3.02E-05	4.72E-08	1.18E-11	0.00E+00	4.22E-09	7.59E-10	0.00E+00	2.15E-12	1.22E-11
						1.62E+00	5.98E-03	2.50E-02	2.61E-02	1.03E-05	4.03E-04

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .24E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.23E+02	2.17E+01	2.60E-02	6.48E-06	2.65E+00	6.44E-04	3.14E-04	6.32E-02	5.68E-07	7.50E-06
I-132	1.45E-46	1.34E-07	1.31E-08	1.57E-11	3.91E-15	9.16E-12	2.51E-12	4.32E-13	2.19E-13	1.92E-15	1.03E-14
I-133	5.53E-38	5.12E+01	4.99E+00	5.99E-03	1.49E-06	9.98E-02	1.91E-04	1.55E-04	2.38E-03	2.11E-07	3.71E-06
I-134	6.97E-62	6.45E-23	6.31E-24	7.55E-27	1.88E-30	7.71E-28	9.79E-28	2.11E-28	1.84E-29	9.92E-31	5.04E-30
I-135	3.24E-40	3.00E-01	2.92E-02	3.51E-05	8.74E-09	1.01E-04	4.16E-06	6.63E-07	2.40E-06	2.50E-09	1.58E-08
PARTICULATE											
I-131	1.32E-38	1.22E+01	1.19E+00	1.43E-03	3.56E-07	1.46E-01	3.54E-05	1.73E-05	3.47E-03	3.12E-08	4.12E-07
I-132	7.96E-48	7.37E-09	7.20E-10	8.63E-13	2.15E-16	5.03E-13	1.38E-13	2.37E-14	1.20E-14	1.05E-16	5.66E-16
I-133	3.04E-39	2.81E+00	2.74E-01	3.29E-04	8.20E-08	5.48E-03	1.05E-05	8.54E-06	1.31E-04	1.16E-08	2.04E-07
I-134	3.83E-63	3.55E-24	3.47E-25	4.15E-28	1.03E-31	4.24E-29	5.38E-29	1.16E-29	1.01E-30	5.45E-32	2.77E-31
I-135	1.78E-41	1.65E-02	1.61E-03	1.93E-06	4.80E-10	5.53E-06	2.29E-07	3.64E-08	1.32E-07	1.37E-10	8.69E-10
ORGANIC											
I-131	1.06E-38	9.78E+00	9.53E-01	1.14E-03	2.85E-07	1.16E-01	2.83E-05	1.38E-05	2.78E-03	2.50E-08	3.30E-07
I-132	6.37E-48	5.90E-09	5.76E-10	6.90E-13	1.72E-16	4.03E-13	1.11E-13	1.90E-14	9.61E-15	8.43E-17	4.53E-16

I-133	2.43E-39	2.25E+00	2.19E-01	2.63E-04	6.56E-08	4.39E-03	8.37E-06	6.83E-06	1.05E-04	9.26E-09	1.63E-07
I-134	3.06E-63	2.84E-24	2.77E-25	3.32E-28	8.26E-32	3.39E-29	4.30E-29	9.29E-30	8.08E-31	4.36E-32	2.22E-31
I-135	1.42E-41	1.32E-02	1.29E-03	1.54E-06	3.84E-10	4.43E-06	1.83E-07	2.91E-08	1.06E-07	1.10E-10	6.95E-10
NOBLE GASES											
XE-131M	1.81E-37	1.67E+02	1.63E+01	1.96E-02	4.87E-06	0.00E+00	2.87E-05	1.62E-04	0.00E+00	1.11E-07	3.87E-06
XE-133M	6.63E-37	6.14E+02	5.99E+01	7.19E-02	1.79E-05	0.00E+00	1.58E-04	6.83E-04	0.00E+00	1.80E-07	1.63E-05
XE-133	4.42E-35	4.09E+04	3.99E+03	4.79E+00	1.19E-03	0.00E+00	9.57E-03	4.28E-02	0.00E+00	2.68E-05	1.02E-03
XE-135M	8.24-119	7.63E-80	7.52E-81	8.93E-84	2.22E-87	0.00E+00	2.54E-85	5.37E-86	0.00E+00	2.30E-88	1.28E-87
XE-135	2.60E-37	2.40E+02	2.34E+01	2.81E-02	7.00E-06	0.00E+00	4.61E-04	5.55E-04	0.00E+00	4.08E-07	1.33E-05
XE-138	2.76-109	2.55E-70	2.51E-71	2.99E-74	7.44E-78	0.00E+00	5.77E-75	1.48E-75	0.00E+00	1.35E-78	3.53E-77
KR-83M	1.28E-47	1.19E-08	1.16E-09	1.39E-12	3.46E-16	0.00E+00	4.64E-16	2.90E-15	0.00E+00	6.09E-18	6.93E-17
KR-85M	1.49E-40	1.38E-01	1.34E-02	1.61E-05	4.01E-09	0.00E+00	1.68E-07	2.30E-07	0.00E+00	1.59E-10	5.50E-09
KR-85	1.28E-36	1.19E+03	1.16E+02	1.39E-01	3.46E-05	0.00E+00	1.94E-05	1.90E-03	0.00E+00	1.76E-08	4.53E-05
KR-87	1.87E-52	1.73E-13	1.69E-14	2.03E-17	5.05E-21	0.00E+00	1.86E-18	1.31E-18	0.00E+00	8.20E-22	3.12E-20
KR-88	6.24E-43	5.78E-04	5.64E-05	6.76E-08	1.68E-11	0.00E+00	7.86E-09	1.41E-09	0.00E+00	5.94E-12	3.37E-11
						3.02E+00	1.12E-02	4.67E-02	7.21E-02	2.84E-05	1.11E-03

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .11E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.22E+02	0.00E+00	2.17E-02	5.41E-06	0.00E+00	0.00E+00	0.00E+00	3.87E+00	3.48E-05	4.59E-04
I-132	0.00E+00	1.16E-07	0.00E+00	1.14E-11	2.83E-15	0.00E+00	0.00E+00	0.00E+00	1.25E-11	1.10E-13	5.89E-13
I-133	0.00E+00	5.04E+01	0.00E+00	4.93E-03	1.23E-06	0.00E+00	0.00E+00	0.00E+00	1.45E-01	1.28E-05	2.26E-04
I-134	0.00E+00	4.41E-23	0.00E+00	4.32E-27	1.08E-30	0.00E+00	0.00E+00	0.00E+00	9.40E-28	5.07E-29	2.58E-28
I-135	0.00E+00	2.86E-01	0.00E+00	2.79E-05	6.96E-09	0.00E+00	0.00E+00	0.00E+00	1.44E-04	1.50E-07	9.46E-07
PARTICULATE											
I-131	0.00E+00	1.22E+01	0.00E+00	1.19E-03	2.97E-07	0.00E+00	0.00E+00	0.00E+00	2.13E-01	1.91E-06	2.52E-05

I-132	0.00E+00	6.39E-09	0.00E+00	6.25E-13	1.56E-16	0.00E+00	0.00E+00	0.00E+00	6.86E-13	6.02E-15	3.24E-14
I-133	0.00E+00	2.77E+00	0.00E+00	2.71E-04	6.75E-08	0.00E+00	0.00E+00	0.00E+00	7.95E-03	7.04E-07	1.24E-05
I-134	0.00E+00	2.43E-24	0.00E+00	2.37E-28	5.91E-32	0.00E+00	0.00E+00	0.00E+00	5.16E-29	2.79E-30	1.42E-29
I-135	0.00E+00	1.57E-02	0.00E+00	1.54E-06	3.82E-10	0.00E+00	0.00E+00	0.00E+00	7.90E-06	8.22E-09	5.20E-08
ORGANIC											
I-131	0.00E+00	9.76E+00	0.00E+00	9.55E-04	2.38E-07	0.00E+00	0.00E+00	0.00E+00	1.70E-01	1.53E-06	2.02E-05
I-132	0.00E+00	5.11E-09	0.00E+00	5.00E-13	1.25E-16	0.00E+00	0.00E+00	0.00E+00	5.49E-13	4.82E-15	2.59E-14
I-133	0.00E+00	2.22E+00	0.00E+00	2.17E-04	5.40E-08	0.00E+00	0.00E+00	0.00E+00	6.36E-03	5.63E-07	9.91E-06
I-134	0.00E+00	1.94E-24	0.00E+00	1.90E-28	4.73E-32	0.00E+00	0.00E+00	0.00E+00	4.13E-29	2.23E-30	1.13E-29
I-135	0.00E+00	1.26E-02	0.00E+00	1.23E-06	3.06E-10	0.00E+00	0.00E+00	0.00E+00	6.32E-06	6.58E-09	4.16E-08
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	1.63E-02	4.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.77E-06	2.37E-04
XE-133M	0.00E+00	6.10E+02	0.00E+00	5.97E-02	1.49E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-05	9.96E-04
XE-133	0.00E+00	4.08E+04	0.00E+00	3.99E+00	9.94E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03	6.26E-02
XE-135M	0.00E+00	2.15E-80	0.00E+00	2.11E-84	5.24E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.06E-87	4.49E-86
XE-135	0.00E+00	2.32E+02	0.00E+00	2.27E-02	5.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-05	7.98E-04
XE-138	0.00E+00	8.26E-71	0.00E+00	8.08E-75	2.01E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.99E-77	1.31E-75
KR-83M	0.00E+00	9.97E-09	0.00E+00	9.75E-13	2.43E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-16	3.90E-15
KR-85M	0.00E+00	1.28E-01	0.00E+00	1.25E-05	3.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.42E-09	3.25E-07
KR-85	0.00E+00	1.19E+03	0.00E+00	1.16E-01	2.89E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-06	2.78E-03
KR-87	0.00E+00	1.34E-13	0.00E+00	1.31E-17	3.26E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.43E-20	1.69E-18
KR-88	0.00E+00	5.13E-04	0.00E+00	5.02E-08	1.25E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-10	1.95E-09
						0.00E+00	0.00E+00	0.00E+00	4.41E+00	1.74E-03	6.81E-02

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.22E+02	0.00E+00	1.80E-02	4.47E-06	0.00E+00	0.00E+00	0.00E+00	3.38E+00	3.04E-05	4.02E-04

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I-132	0.00E+00	1.00E-07	0.00E+00	8.11E-12	2.02E-15	0.00E+00	0.00E+00	0.00E+00	9.45E-12	8.30E-14	4.46E-13
I-133	0.00E+00	4.96E+01	0.00E+00	4.02E-03	1.00E-06	0.00E+00	0.00E+00	0.00E+00	1.25E-01	1.10E-05	1.94E-04
I-134	0.00E+00	2.96E-23	0.00E+00	2.40E-27	5.97E-31	0.00E+00	0.00E+00	0.00E+00	5.58E-28	3.01E-29	1.53E-28
I-135	0.00E+00	2.71E-01	0.00E+00	2.20E-05	5.47E-09	0.00E+00	0.00E+00	0.00E+00	1.20E-04	1.25E-07	7.88E-07
PARTICULATE											
I-131	0.00E+00	1.22E+01	0.00E+00	9.87E-04	2.46E-07	0.00E+00	0.00E+00	0.00E+00	1.86E-01	1.67E-06	2.21E-05
I-132	0.00E+00	5.50E-09	0.00E+00	4.45E-13	1.11E-16	0.00E+00	0.00E+00	0.00E+00	5.19E-13	4.56E-15	2.45E-14
I-133	0.00E+00	2.72E+00	0.00E+00	2.21E-04	5.50E-08	0.00E+00	0.00E+00	0.00E+00	6.86E-03	6.07E-07	1.07E-05
I-134	0.00E+00	1.63E-24	0.00E+00	1.32E-28	3.28E-32	0.00E+00	0.00E+00	0.00E+00	3.07E-29	1.66E-30	8.41E-30
I-135	0.00E+00	1.49E-02	0.00E+00	1.21E-06	3.01E-10	0.00E+00	0.00E+00	0.00E+00	6.58E-06	6.85E-09	4.33E-08
ORGANIC											
I-131	0.00E+00	9.75E+00	0.00E+00	7.90E-04	1.97E-07	0.00E+00	0.00E+00	0.00E+00	1.49E-01	1.34E-06	1.77E-05
I-132	0.00E+00	4.40E-09	0.00E+00	3.56E-13	8.87E-17	0.00E+00	0.00E+00	0.00E+00	4.16E-13	3.65E-15	1.96E-14
I-133	0.00E+00	2.18E+00	0.00E+00	1.77E-04	4.40E-08	0.00E+00	0.00E+00	0.00E+00	5.49E-03	4.86E-07	8.55E-06
I-134	0.00E+00	1.30E-24	0.00E+00	1.05E-28	2.62E-32	0.00E+00	0.00E+00	0.00E+00	2.45E-29	1.32E-30	6.73E-30
I-135	0.00E+00	1.19E-02	0.00E+00	9.66E-07	2.40E-10	0.00E+00	0.00E+00	0.00E+00	5.26E-06	5.48E-09	3.47E-08
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	1.35E-02	3.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.93E-06	2.07E-04
XE-133M	0.00E+00	6.07E+02	0.00E+00	4.91E-02	1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-06	8.67E-04
XE-133	0.00E+00	4.07E+04	0.00E+00	3.30E+00	8.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-03	5.47E-02
XE-135M	0.00E+00	5.68E-81	0.00E+00	4.60E-85	1.15E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-87	1.08E-86
XE-135	0.00E+00	2.23E+02	0.00E+00	1.81E-02	4.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-05	6.74E-04
XE-138	0.00E+00	2.52E-71	0.00E+00	2.04E-75	5.08E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-77	3.62E-76
KR-83M	0.00E+00	8.28E-09	0.00E+00	6.71E-13	1.67E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-16	2.85E-15
KR-85M	0.00E+00	1.18E-01	0.00E+00	9.57E-06	2.38E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.64E-09	2.64E-07
KR-85	0.00E+00	1.19E+03	0.00E+00	9.62E-02	2.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.43E-07	2.43E-03
KR-87	0.00E+00	1.02E-13	0.00E+00	8.24E-18	2.05E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-20	1.13E-18
KR-88	0.00E+00	4.54E-04	0.00E+00	3.68E-08	9.15E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-10	1.52E-09
						0.00E+00	0.00E+00	0.00E+00	3.86E+00	1.52E-03	5.95E-02

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

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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	0.00E+00	2.21E+02	0.00E+00	1.23E-02	3.06E-06	0.00E+00	0.00E+00	0.00E+00	5.11E+00	4.60E-05	6.07E-04
I-132	0.00E+00	7.40E-08	0.00E+00	4.11E-12	1.02E-15	0.00E+00	0.00E+00	0.00E+00	1.15E-11	1.01E-13	5.44E-13
I-133	0.00E+00	4.80E+01	0.00E+00	2.67E-03	6.64E-07	0.00E+00	0.00E+00	0.00E+00	1.85E-01	1.63E-05	2.87E-04
I-134	0.00E+00	1.33E-23	0.00E+00	7.40E-28	1.84E-31	0.00E+00	0.00E+00	0.00E+00	4.82E-28	2.60E-29	1.32E-28
I-135	0.00E+00	2.45E-01	0.00E+00	1.36E-05	3.38E-09	0.00E+00	0.00E+00	0.00E+00	1.68E-04	1.75E-07	1.11E-06
PARTICULATE											
I-131	0.00E+00	1.21E+01	0.00E+00	6.75E-04	1.68E-07	0.00E+00	0.00E+00	0.00E+00	2.81E-01	2.53E-06	3.33E-05
I-132	0.00E+00	4.07E-09	0.00E+00	2.26E-13	5.63E-17	0.00E+00	0.00E+00	0.00E+00	6.34E-13	5.56E-15	2.99E-14
I-133	0.00E+00	2.64E+00	0.00E+00	1.47E-04	3.65E-08	0.00E+00	0.00E+00	0.00E+00	1.01E-02	8.97E-07	1.58E-05
I-134	0.00E+00	7.31E-25	0.00E+00	4.07E-29	1.01E-32	0.00E+00	0.00E+00	0.00E+00	2.65E-29	1.43E-30	7.27E-30
I-135	0.00E+00	1.34E-02	0.00E+00	7.47E-07	1.86E-10	0.00E+00	0.00E+00	0.00E+00	9.24E-06	9.62E-09	6.09E-08
ORGANIC											
I-131	0.00E+00	9.71E+00	0.00E+00	5.40E-04	1.34E-07	0.00E+00	0.00E+00	0.00E+00	2.25E-01	2.02E-06	2.67E-05
I-132	0.00E+00	3.25E-09	0.00E+00	1.81E-13	4.50E-17	0.00E+00	0.00E+00	0.00E+00	5.07E-13	4.45E-15	2.39E-14
I-133	0.00E+00	2.11E+00	0.00E+00	1.17E-04	2.92E-08	0.00E+00	0.00E+00	0.00E+00	8.11E-03	7.18E-07	1.26E-05
I-134	0.00E+00	5.85E-25	0.00E+00	3.25E-29	8.10E-33	0.00E+00	0.00E+00	0.00E+00	2.12E-29	1.14E-30	5.81E-30
I-135	0.00E+00	1.08E-02	0.00E+00	5.98E-07	1.49E-10	0.00E+00	0.00E+00	0.00E+00	7.40E-06	7.70E-09	4.87E-08
NOBLE GASES											
XE-131M	0.00E+00	1.67E+02	0.00E+00	9.26E-03	2.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E-06	3.13E-04
XE-133M	0.00E+00	5.99E+02	0.00E+00	3.33E-02	8.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	1.30E-03
XE-133	0.00E+00	4.05E+04	0.00E+00	2.25E+00	5.60E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-03	8.25E-02
XE-135M	0.00E+00	3.96E-82	0.00E+00	2.20E-86	5.48E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-88	2.88E-87
XE-135	0.00E+00	2.07E+02	0.00E+00	1.15E-02	2.86E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-05	9.66E-04
XE-138	0.00E+00	2.34E-72	0.00E+00	1.30E-76	3.24E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-78	1.14E-76
KR-83M	0.00E+00	5.72E-09	0.00E+00	3.18E-13	7.91E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E-16	3.31E-15
KR-85M	0.00E+00	1.01E-01	0.00E+00	5.61E-06	1.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-08	3.56E-07
KR-85	0.00E+00	1.19E+03	0.00E+00	6.60E-02	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-06	3.68E-03
KR-87	0.00E+00	5.89E-14	0.00E+00	3.27E-18	8.14E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-20	1.16E-18
KR-88	0.00E+00	3.54E-04	0.00E+00	1.97E-08	4.90E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-10	1.92E-09
						0.00E+00	0.00E+00	0.00E+00	5.82E+00	2.29E-03	8.97E-02

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

CLEANUP RATES (HR-1) FILTER NON-REMOVAL FACTORS

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	SPRAY	PRIMARY	SECONDARY	CONT CENTER	RELEASE	CONT CENTER
ELEMENTAL	.000	.000	.000	.000	1.000	1.000
PARTICULATE	.000	.000	.000	.000	1.000	1.000
ORGANIC	.000	.000	.000	.000	1.000	1.000

	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	0.00E+00	2.16E+02	0.00E+00	1.25E-03	3.12E-07	0.00E+00	0.00E+00	0.00E+00	9.92E+00	8.92E-05	1.18E-03
I-132	0.00E+00	1.21E-08	0.00E+00	7.03E-14	1.75E-17	0.00E+00	0.00E+00	0.00E+00	1.17E-11	1.03E-13	5.51E-13
I-133	0.00E+00	3.94E+01	0.00E+00	2.28E-04	5.68E-08	0.00E+00	0.00E+00	0.00E+00	3.33E-01	2.95E-05	5.19E-04
I-134	0.00E+00	1.10E-25	0.00E+00	6.38E-31	1.59E-34	0.00E+00	0.00E+00	0.00E+00	2.15E-28	1.16E-29	5.90E-29
I-135	0.00E+00	1.32E-01	0.00E+00	7.62E-07	1.90E-10	0.00E+00	0.00E+00	0.00E+00	2.58E-04	2.68E-07	1.70E-06
PARTICULATE											
I-131	0.00E+00	1.19E+01	0.00E+00	6.88E-05	1.71E-08	0.00E+00	0.00E+00	0.00E+00	5.45E-01	4.90E-06	6.47E-05
I-132	0.00E+00	6.67E-10	0.00E+00	3.86E-15	9.62E-19	0.00E+00	0.00E+00	0.00E+00	6.42E-13	5.63E-15	3.03E-14
I-133	0.00E+00	2.16E+00	0.00E+00	1.25E-05	3.12E-09	0.00E+00	0.00E+00	0.00E+00	1.83E-02	1.62E-06	2.85E-05
I-134	0.00E+00	6.05E-27	0.00E+00	3.50E-32	8.72E-36	0.00E+00	0.00E+00	0.00E+00	1.18E-29	6.38E-31	3.24E-30
I-135	0.00E+00	7.23E-03	0.00E+00	4.19E-08	1.04E-11	0.00E+00	0.00E+00	0.00E+00	1.42E-05	1.47E-08	9.32E-08
ORGANIC											
I-131	0.00E+00	9.51E+00	0.00E+00	5.51E-05	1.37E-08	0.00E+00	0.00E+00	0.00E+00	4.36E-01	3.92E-06	5.17E-05
I-132	0.00E+00	5.34E-10	0.00E+00	3.09E-15	7.70E-19	0.00E+00	0.00E+00	0.00E+00	5.14E-13	4.51E-15	2.42E-14
I-133	0.00E+00	1.73E+00	0.00E+00	1.00E-05	2.50E-09	0.00E+00	0.00E+00	0.00E+00	1.46E-02	1.30E-06	2.28E-05
I-134	0.00E+00	4.84E-27	0.00E+00	2.80E-32	6.98E-36	0.00E+00	0.00E+00	0.00E+00	9.45E-30	5.10E-31	2.59E-30
I-135	0.00E+00	5.78E-03	0.00E+00	3.35E-08	8.34E-12	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.18E-08	7.46E-08
NOBLE GASES											
XE-131M	0.00E+00	1.64E+02	0.00E+00	9.51E-04	2.37E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-05	6.09E-04
XE-133M	0.00E+00	5.55E+02	0.00E+00	3.21E-03	8.00E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.72E-05	2.47E-03
XE-133	0.00E+00	3.92E+04	0.00E+00	2.27E-01	5.65E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-03	1.59E-01
XE-135M	0.00E+00	4.53E-89	0.00E+00	2.62E-94	6.53E-98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-89	1.45E-88
XE-135	0.00E+00	1.31E+02	0.00E+00	7.60E-04	1.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.84E-05	1.57E-03
XE-138	0.00E+00	1.51E-78	0.00E+00	8.72E-84	2.17E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-79	7.79E-78
KR-83M	0.00E+00	6.18E-10	0.00E+00	3.58E-15	8.91E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-16	2.94E-15
KR-85M	0.00E+00	3.92E-02	0.00E+00	2.27E-07	5.65E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-08	4.84E-07
KR-85	0.00E+00	1.19E+03	0.00E+00	6.88E-03	1.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-06	7.21E-03
KR-87	0.00E+00	2.21E-15	0.00E+00	1.28E-20	3.18E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-20	7.63E-19
KR-88	0.00E+00	8.01E-05	0.00E+00	4.64E-10	1.16E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.81E-10	2.16E-09
						0.00E+00	0.00E+00	0.00E+00	1.13E+01	4.41E-03	1.73E-01

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

NEDC 99-032 ATTACH 1
SHEET 103 OF 161

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.04E+02	0.00E+00	2.85E-06	7.09E-10	0.00E+00	0.00E+00	0.00E+00	1.12E+00	1.01E-05	1.33E-04
I-132	0.00E+00	9.78E-11	0.00E+00	1.36E-18	3.39E-22	0.00E+00	0.00E+00	0.00E+00	2.03E-13	1.78E-15	9.58E-15
I-133	0.00E+00	2.32E+01	0.00E+00	3.24E-07	8.06E-11	0.00E+00	0.00E+00	0.00E+00	3.11E-02	2.75E-06	4.84E-05
I-134	0.00E+00	3.08E-31	0.00E+00	4.29E-39	1.07E-42	0.00E+00	0.00E+00	0.00E+00	1.86E-31	1.00E-32	5.09E-32
I-135	0.00E+00	2.52E-02	0.00E+00	3.51E-10	8.74E-14	0.00E+00	0.00E+00	0.00E+00	1.53E-05	1.59E-08	1.01E-07
PARTICULATE											
I-131	0.00E+00	1.12E+01	0.00E+00	1.56E-07	3.89E-11	0.00E+00	0.00E+00	0.00E+00	6.18E-02	5.55E-07	7.33E-06
I-132	0.00E+00	5.37E-12	0.00E+00	7.49E-20	1.87E-23	0.00E+00	0.00E+00	0.00E+00	1.12E-14	9.80E-17	5.26E-16
I-133	0.00E+00	1.28E+00	0.00E+00	1.78E-08	4.43E-12	0.00E+00	0.00E+00	0.00E+00	1.71E-03	1.51E-07	2.66E-06
I-134	0.00E+00	1.69E-32	0.00E+00	2.36E-40	5.87E-44	0.00E+00	0.00E+00	0.00E+00	1.02E-32	5.50E-34	2.79E-33
I-135	0.00E+00	1.38E-03	0.00E+00	1.93E-11	4.80E-15	0.00E+00	0.00E+00	0.00E+00	8.41E-07	8.75E-10	5.54E-09
ORGANIC											
I-131	0.00E+00	8.97E+00	0.00E+00	1.25E-07	3.11E-11	0.00E+00	0.00E+00	0.00E+00	4.94E-02	4.44E-07	5.86E-06
I-132	0.00E+00	4.30E-12	0.00E+00	5.99E-20	1.49E-23	0.00E+00	0.00E+00	0.00E+00	8.93E-15	7.84E-17	4.21E-16
I-133	0.00E+00	1.02E+00	0.00E+00	1.42E-08	3.54E-12	0.00E+00	0.00E+00	0.00E+00	1.37E-03	1.21E-07	2.13E-06
I-134	0.00E+00	1.35E-32	0.00E+00	1.89E-40	4.70E-44	0.00E+00	0.00E+00	0.00E+00	8.15E-33	4.40E-34	2.24E-33
I-135	0.00E+00	1.11E-03	0.00E+00	1.54E-11	3.84E-15	0.00E+00	0.00E+00	0.00E+00	6.73E-07	7.00E-10	4.43E-09
NOBLE GASES											
XE-131M	0.00E+00	1.58E+02	0.00E+00	2.20E-06	5.48E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-06	6.96E-05
XE-133M	0.00E+00	4.52E+02	0.00E+00	6.30E-06	1.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-06	2.63E-04
XE-133	0.00E+00	3.59E+04	0.00E+00	5.00E-04	1.25E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-04	1.78E-02
XE-135M	0.00E+00	1.39-107	0.00E+00	1.94-115	4.84-119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-97	1.72E-96
XE-135	0.00E+00	3.89E+01	0.00E+00	5.42E-07	1.35E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-06	1.11E-04
XE-138	0.00E+00	4.65E-95	0.00E+00	6.49-103	1.61-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-86	5.23E-85
KR-83M	0.00E+00	1.64E-12	0.00E+00	2.28E-20	5.68E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-18	3.35E-17
KR-85M	0.00E+00	3.14E-03	0.00E+00	4.38E-11	1.09E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-10	2.04E-08
KR-85	0.00E+00	1.19E+03	0.00E+00	1.65E-05	4.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-07	8.37E-04
KR-87	0.00E+00	3.48E-19	0.00E+00	4.85E-27	1.21E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.87E-23	3.00E-21
KR-88	0.00E+00	1.52E-06	0.00E+00	2.12E-14	5.29E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.20E-12	5.22E-11
						0.00E+00	0.00E+00	0.00E+00	1.27E+00	4.91E-04	1.93E-02

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

NEDC 99-032-ATTACH 1
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ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.58E+02	0.00E+00	3.62E-18	9.00E-22	0.00E+00	0.00E+00	0.00E+00	2.56E-03	2.30E-08	3.04E-07
I-132	0.00E+00	3.70E-20	0.00E+00	8.49E-40	2.11E-43	0.00E+00	0.00E+00	0.00E+00	3.94E-18	3.46E-20	1.86E-19
I-133	0.00E+00	2.15E+00	0.00E+00	4.94E-20	1.23E-23	0.00E+00	0.00E+00	0.00E+00	4.42E-05	3.91E-09	6.88E-08
I-134	0.00E+00	3.15E-56	0.00E+00	7.22E-76	1.80E-79	0.00E+00	0.00E+00	0.00E+00	1.25E-39	6.74E-41	3.42E-40
I-135	0.00E+00	1.48E-05	0.00E+00	3.40E-25	8.46E-29	0.00E+00	0.00E+00	0.00E+00	7.05E-09	7.34E-12	4.64E-11
PARTICULATE											
I-131	0.00E+00	8.66E+00	0.00E+00	1.99E-19	4.95E-23	0.00E+00	0.00E+00	0.00E+00	1.41E-04	1.26E-09	1.67E-08
I-132	0.00E+00	2.03E-21	0.00E+00	4.66E-41	1.16E-44	0.00E+00	0.00E+00	0.00E+00	2.16E-19	1.90E-21	1.02E-20
I-133	0.00E+00	1.18E-01	0.00E+00	2.72E-21	6.76E-25	0.00E+00	0.00E+00	0.00E+00	2.43E-06	2.15E-10	3.78E-09
I-134	0.00E+00	1.73E-57	0.00E+00	3.97E-77	9.87E-81	0.00E+00	0.00E+00	0.00E+00	6.86E-41	3.70E-42	1.88E-41
I-135	0.00E+00	8.14E-07	0.00E+00	1.87E-26	4.65E-30	0.00E+00	0.00E+00	0.00E+00	3.87E-10	4.03E-13	2.55E-12
ORGANIC											
I-131	0.00E+00	6.93E+00	0.00E+00	1.59E-19	3.96E-23	0.00E+00	0.00E+00	0.00E+00	1.13E-04	1.01E-09	1.34E-08
I-132	0.00E+00	1.63E-21	0.00E+00	3.73E-41	9.29E-45	0.00E+00	0.00E+00	0.00E+00	1.73E-19	1.52E-21	8.16E-21
I-133	0.00E+00	9.47E-02	0.00E+00	2.17E-21	5.41E-25	0.00E+00	0.00E+00	0.00E+00	1.94E-06	1.72E-10	3.03E-09
I-134	0.00E+00	1.38E-57	0.00E+00	3.17E-77	7.90E-81	0.00E+00	0.00E+00	0.00E+00	5.49E-41	2.96E-42	1.50E-41
I-135	0.00E+00	6.51E-07	0.00E+00	1.49E-26	3.72E-30	0.00E+00	0.00E+00	0.00E+00	3.10E-10	3.23E-13	2.04E-12
NOBLE GASES											
XE-131M	0.00E+00	1.32E+02	0.00E+00	3.04E-18	7.56E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.62E-09	1.61E-07
XE-133M	0.00E+00	1.80E+02	0.00E+00	4.13E-18	1.03E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-09	5.17E-07
XE-133	0.00E+00	2.42E+04	0.00E+00	5.55E-16	1.38E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-06	3.94E-05
XE-135M	0.00E+00	6.97-191	0.00E+00	1.60-210	3.98-214	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30-118	1.28-117
XE-135	0.00E+00	1.64E-01	0.00E+00	3.76E-21	9.36E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-09	7.95E-08
XE-138	0.00E+00	2.36-169	0.00E+00	5.40-189	1.34-192	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49-105	3.89-104
KR-83M	0.00E+00	4.17E-24	0.00E+00	9.55E-44	2.38E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-23	2.14E-22
KR-85M	0.00E+00	3.69E-08	0.00E+00	8.46E-28	2.11E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-13	3.94E-12
KR-85	0.00E+00	1.19E+03	0.00E+00	2.72E-17	6.77E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.82E-10	2.02E-06
KR-87	0.00E+00	2.70E-36	0.00E+00	6.19E-56	1.54E-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-29	1.14E-27
KR-88	0.00E+00	2.74E-14	0.00E+00	6.29E-34	1.57E-37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-16	2.39E-15

0.00E+00	0.00E+00	0.00E+00	2.86E-03	1.08E-06	4.26E-05	

1 FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

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	0.00E+00	1.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-15	2.92E-20	3.86E-19
I-132	0.00E+00	8.14-102	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-39	2.15E-41	1.16E-40
I-133	0.00E+00	2.44E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-18	5.97E-22	1.05E-20
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	2.10E-76	1.13E-77	5.76E-77
I-135	0.00E+00	1.48E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.82E-24	7.10E-27	4.49E-26
PARTICULATE											
I-131	0.00E+00	9.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-16	1.61E-21	2.12E-20
I-132	0.00E+00	4.47-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-40	1.18E-42	6.35E-42
I-133	0.00E+00	1.34E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-19	3.28E-23	5.78E-22
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	1.15E-77	6.23E-79	3.16E-78
I-135	0.00E+00	8.14E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.75E-25	3.90E-28	2.47E-27
ORGANIC											
I-131	0.00E+00	7.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-16	1.29E-21	1.70E-20
I-132	0.00E+00	3.58-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-40	9.46E-43	5.08E-42
I-133	0.00E+00	1.07E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-19	2.63E-23	4.62E-22
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	9.23E-78	4.98E-79	2.53E-78
I-135	0.00E+00	6.51E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-25	3.12E-28	1.97E-27
NOBLE GASES											
XE-131M	0.00E+00	2.88E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.37E-21	2.23E-19
XE-133M	0.00E+00	6.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.74E-21	3.39E-19
XE-133	0.00E+00	7.96E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-18	4.37E-17
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	1.89-213	1.05-212
XE-135	0.00E+00	4.26E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-23	5.51E-22

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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	1.24-191	3.24-190
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	7.87E-47	8.95E-46
KR-85M	0.00E+00	6.85E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-30	7.60E-29
KR-85	0.00E+00	1.18E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-21	3.32E-18
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	3.81E-58	1.45E-56
KR-88	0.00E+00	2.07E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-35	7.08E-35
						0.00E+00	0.00E+00	0.00E+00	3.58E-15	1.19E-18	4.80E-17
TOTAL DOSES 0-30 DAYS						9.85E+00	3.64E-02	1.52E-01	2.68E+01	1.05E-02	4.12E-01

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FHA - CR, LPZ, 0-90 sec, CR, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	7.07E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.07E+01
I-132	4.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-08
I-133	1.63E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E+01
I-134	2.07E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-23
I-135	9.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.54E-02
PARTICULATE						
I-131	3.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E+00
I-132	2.35E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-09
I-133	8.94E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.94E-01
I-134	1.14E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-24
I-135	5.24E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.24E-03
ORGANIC						
I-131	3.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E+00
I-132	1.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-09
I-133	7.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-01
I-134	9.11E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.11E-25
I-135	4.19E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-03
NOBLE GASES						
XE-131M	5.32E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.32E+01
XE-133M	1.95E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E+02
XE-133	1.30E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E+04
XE-135M	2.51E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-80
XE-135	7.65E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.65E+01
XE-138	8.37E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.37E-71
KR-83M	3.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-09
KR-85M	4.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-02
KR-85	3.77E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E+02
KR-87	5.55E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-14
KR-88	1.84E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-04

END EXECUTION DATE: 12/02/1999
END EXECUTION TIME: 21:20:36.53

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Appendix L

The Reactor Building ventilation system response to the Fuel Handling event includes a trip of the supply and exhaust fans and an isolation signal that initiates closure of the redundant exhaust isolation dampers (one of which is an MOV and one of which is an AOV). The design intent of the isolation dampers, assuming no single failure, is to close before activity passes the dampers thereby minimizing the amount of activity discharged during the FHA (the exhaust ductwork is routed back and forth across the reactor building ceiling to allow for a "6-second" delay). However, during a single failure of the fast-acting AOV, activity will be released via the RB vent due to the closure time of the MOV.

The objective of this appendix is to develop an "effective X/Q" that can be used for the period that the Reactor Building isolation dampers are closing. In lieu of entering different flows/dispersion factors for a number of small time steps, an "effective X/Q" will be developed that results in the same amount of activity at the CR intake for the duration of the closure period. An "effective X/Q" will be calculated that corresponds to a constant RB release rate of 74,000 cfm.

In addition, this appendix includes an assessment to determine the most limiting initial Reactor Building condition. This assessment is necessary since three different parameters are changing; 1) the flow is changing as a function of time, 2) the X/Q is changing as a function of flow/time, and 3) the release rate is changing as a function of flow/time.

In all cases, it is assumed that the closure and coastdown period remain at 90 seconds. Since the combination of dispersion factor and release rate may yield higher results at lower flow, the analysis needs to consider the operation of the Reactor Building Ventilation System at lower flows as could occur during the winter months (CNS Procedure 2.2.47, Step 11.2 allows operation at a minimum of 30,000 cfm for winter). A comparative analysis of three initial Reactor Building flow conditions (30,000 cfm, 50,000 cfm and 74,000 cfm) will be performed.

Both the "effective X/Q" and the assessment of the most conservative initial Reactor Building flow condition is performed by determining the area under a curve that represents the product of the Reactor Building release rate and X/Q as a function of time. The curve that encompasses the most area represents the most conservative initial condition. In addition, the area under the curve can be used to determine an "effective X/Q," i.e.; a X/Q that produces the same integrated concentration at the intake when based on a constant flow. Since the largest contribution to the calculated CR dose occurs when the CR intake is open coincident with an unfiltered Reactor Building release, the comparison will be performed during this 60-second closure period.

Reference 27 calculates the flowrate that leaves the RB after an isolation signal as a function of time. Reference 27 also calculates the time it takes for the "clean air" that was in the exhaust system at the time of the event to traverse the system. The flow leaving the RB exhaust after receiving an isolation signal and the transit time computations from Reference 27 are as follows:

"Q = (Qo/No)N

where

Qo = initial exhaust flow rate prior to fan trip, cfm
No = initial fan speed prior to trip = 587 rpm
N = fan speed as a function of time during coastdown, rpm"....

"Substituting this into equation 12 gives:

$$Vol = Qo/(60*No) \int (N)dt \qquad (14)$$

However, the volume of air exhausted must be increased to account for the 3 second time delay of the radiation monitor prior to fan trip. The exhaust flow rate during this 3 second period is equal to the initial flow rate so that the total volume of air exhausted becomes:

$$Vol = Qo/(60*No) \int (N)dt + 3*Qo/60 \quad (15)$$

.....Substituting equation 8 for the fan speed N into equation 15 and performing the integration gives:

$$Vol = (Qo/60)[3+(2.016E-05*t5 - 4.288E-03*t4 + 0.3633*t3 - 16.77*t2 + 586.1*t)/No] \qquad (16)$$

Therefore, the effective holdup time with fan coastdown can be determined by setting equation 16 equal to the total RB exhaust volume of 7874 ft3 and iteratively solving for time. Table 7 documents these results for the 3 initial flow rates considered. These results give the effective hold up time from fan trip, which occurs at time zero on the time scale used in this calculation."

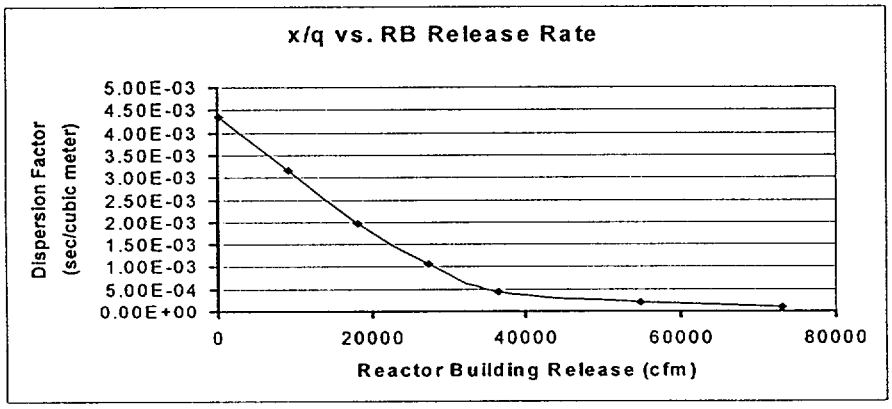
"TABLE 7: EFFECTIVE HOLD UP TIME WITH VARIABLE EXHAUST FLOW RATE

Exhaust Flow Rate (cfm)	*Delay Time (sec)*
30,000	*20.8*
50,000	*8.0*
74,025	*3.8*

TABLE 8: REACTOR BUILDING HVAC EXHAUST FLOW RATE DURING ISOLATION

TIME AFTER FAN TRIP (SEC)	*REACTOR BUILDING EXHAUST FLOW RATE (CFM)*		
	Qo = 30,000 CFM	*Qo = 50,000 CFM*	*Qo = 74,025 CFM*
0	*29954*	*49923*	*73912*
10	*17508*	*29019*	*43338*
20	*11516*	*18486*	*29059*
30	*8600*	*12975*	*18470*
40	*6452*	*8759*	*10736*
50	*4246*	*5084*	*5588*
60	*2356*	*2545*	*2629*
70	*1250*	*1274*	*1284*
80	*548*	*550*	*551*
90	*0*	*0*	*0*

From Reference 9, the dispersion factors (for the 0 to 2 hr release) as a function of reactor Building exhaust flow are plotted in the following graph:



Using the flows from Table 8 of Reference 27 and X/Qs from Reference 9, the release rate, for each initial flow condition, as a function of time is calculated as follows (see section 4.2 for equation for release rate):

Release Rate and Dispersion with 30,000 cfm Initial RB Exhaust Flow

TIME (S)	Q1 (cfm)	Interpolated Using Ref. 9 Values - x/q (sec/m^3)	Release Rate (sec^{-1})	Product of Release Rate and X/Q (m^{-3})
0	29954	1.031E-03	1.256E-03	1.295E-06
10	17508	2.108E-03	7.341E-04	1.547E-06

TIME (S)	Q1 (cfm)	Interpolated Using Ref. 9 Values - x/q (sec/m^3)	Release Rate (sec^{-1})	Product of Release Rate and X/Q (m^{-3})
20	11516	2.878E-03	4.829E-04	1.390E-06
30	8600	3.254E-03	3.606E-04	1.173E-06
40	6452	3.530E-03	2.705E-04	9.549E-07
50	4246	3.814E-03	1.780E-04	6.790E-07
60	2356	4.057E-03	9.878E-05	4.008E-07
70	1250	4.199E-03	5.241E-05	2.201E-07
80	548	4.290E-03	2.298E-05	9.856E-08
90	0	4.360E-03	0.000E+00	0.000E+00

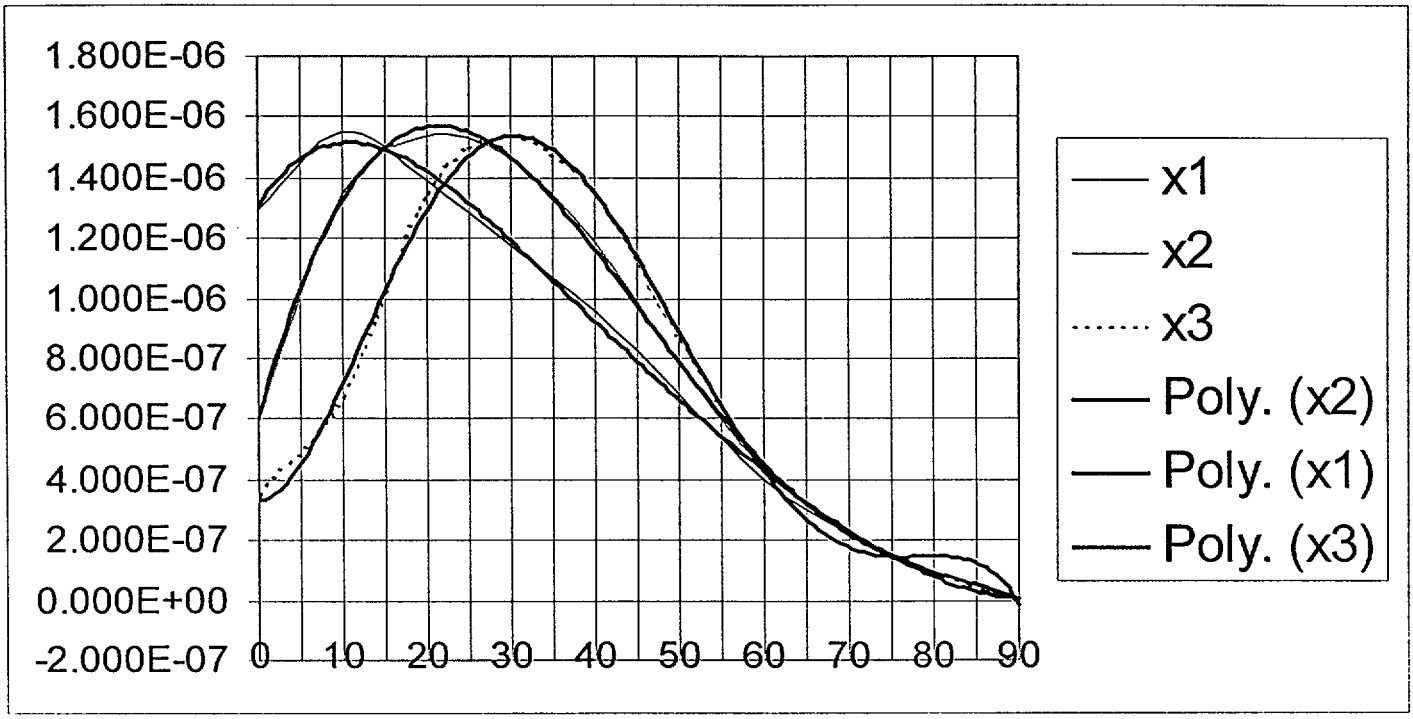
Release Rate and Dispersion with 50,000 cfm Initial RB Exhaust Flow

TIME (S)	Q2 (cfm)	x/q (sec/m^3)	Release Rate (sec^{-1})	Product of Release Rate and X/Q (m^{-3})
0	49923	2.835E-04	2.093E-03	5.935E-07
10	29019	1.108E-03	1.217E-03	1.349E-06
20	18486	1.982E-03	7.751E-04	1.536E-06
30	12975	2.691E-03	5.440E-04	1.464E-06
40	8759	3.233E-03	3.673E-04	1.187E-06
50	5084	3.706E-03	2.132E-04	7.900E-07
60	2545	4.033E-03	1.067E-04	4.303E-07
70	1274	4.196E-03	5.342E-05	2.241E-07
80	550	4.289E-03	2.306E-05	9.891E-08
90	0	4.360E-03	0.000E+00	0.000E+00

Release Rate and Dispersion with 74,000 cfm Initial RB Exhaust Flow

TIME (S)	Q3 (cfm)	x/q (sec/m^3)	Release Rate (sec^{-1})	Product of Release Rate and X/Q (m^{-3})
0	73912	1.115E-04	3.099E-03	3.455E-07
10	43338	3.668E-04	1.817E-03	6.666E-07
20	29059	1.105E-03	1.218E-03	1.346E-06
30	18470	1.984E-03	7.744E-04	1.536E-06
40	10736	2.979E-03	4.501E-04	1.341E-06
50	5588	3.641E-03	2.343E-04	8.531E-07
60	2629	4.022E-03	1.102E-04	4.433E-07
70	1284	4.195E-03	5.384E-05	2.258E-07
80	551	4.289E-03	2.310E-05	9.909E-08
90	0	4.360E-03	0.000E+00	0.000E+00

A plot of the curves for the product of the release rate and the dispersion factors for the three initial conditions are shown in the following graph (where; x1 = 30,000 cfm, x2 = 50,000 cfm, and x3 = 74,000 cfm). The following graph includes overlays of polynomial curves that closely matches each line.



The polynomial equation that closes matches each scenario is as follows:

At 30,000 cfm;
$y = 1.525E\text{-}15t^5 - 4.326E\text{-}13t^4 + 4.967E\text{-}11t^3 - 2.724E\text{-}09t^2 + 4.374E\text{-}08t + 1.304E\text{-}06$

At 50,000 cfm;
$y = -1.451E\text{-}15t^5 + 1.835E\text{-}13t^4 + 1.472E\text{-}11t^3 - 2.939E\text{-}09t^2 + 1.000E\text{-}07t + 5.998E\text{-}07$

At 74,000 cfm;
$y = -1.308E\text{-}14t^5 + 3.060E\text{-}12t^4 - 2.381E\text{-}10t^3 + 6.165E\text{-}09t^2 - 2.503E\text{-}09t + 3.328E\text{-}07$

The above equations are integrated over a 60-second period (the closure time of the CR intake damper) starting from the period that the activity begins to leave the RB exhaust ductwork

The integration for each curve as a function of time yields the following:

At 30,000 cfm:
$F(t) = 2.542E\text{-}16t^6 - 8.652E\text{-}14t^5 + 1.242E\text{-}11t^4 - 9.080E\text{-}10t^3 + 2.187E\text{-}08t^2 + 1.304E\text{-}06t$

At 50,000 cfm:
$F(t) = -2.418E\text{-}16t^6 + 3.670E\text{-}14t^5 + 3.680E\text{-}12t^4 - 9.797E\text{-}10t^3 + 5.000E\text{-}08t^2 + 5.998E\text{-}07t$

At 74,000 cfm:
$F(t) = -2.180E\text{-}15t^6 + 6.120E\text{-}13t^5 - 5.953E\text{-}11t^4 + 2.055E\text{-}09t^3 - 1.252E\text{-}09t^2 + 3.328E\text{-}07t$

"Effective X/Q" for the Analyses That Consider Isolation of the CR Intake 60-seconds After Exposure

For 30,000 cfm, the integral is solved for the period from 20.8 to 80.8 seconds. For 50,000 cfm the integral is solved from 8 to 68 second. For 74,000 cfm, the integral is solved from 3.8 to 63.8 seconds.

The results of the integration yield;

At 30,000 cfm, f(t) = 4.08E-05 sec/m^3
At 50,000 cfm, f(t) = 6.46E-05 sec/m^3
At 74,000 cfm, f(t) = 6.21E-05 sec/m^3

The results show that the 50,000 cfm initial RB exhaust flow yields the most conservative results. An "effective X/Q" over a 60-second period is therefore equal to **3.468E-04** sec/m^3 when used with a release rate corresponding to 74,000 cfm. The CR model utilizes this "effective X/Q" for the entire an entire 90-second period, and conservatively uses a higher weighted release rate for the 30-second period after the CR intake has closed.

"Effective X/Q" for the Analyses That Neglect Isolation of the CR Intake

For 30,000 cfm, the integral is solved for the period from 20.8 to 90 seconds. For 50,000 cfm the integral is solved from 8 to 90 seconds. For 74,000 cfm, the integral is solved from 3.8 to 90 seconds.

The results of the integration yield;

At 30,000 cfm, f(t) = 4.10E-05 sec/m^3
At 50,000 cfm, f(t) = 6.69E-05 sec/m^3
At 74,000 cfm, f(t) = 6.64E-05 sec/m^3

The results show that the 50,000 cfm initial RB exhaust flow yields the most conservative results. An "effective X/Q" over a 90-second period is therefore equal to **2.396E-04** sec/m^3 when used with a release rate corresponding to 74,000 cfm. ~~The CR model utilizes this "effective X/Q" for the entire an entire 90-second period, and conservatively uses a higher weighted release rate for the 30-second period after the CR intake has closed.~~

~~For the case that neglects the isolation of the CR intake, the three integrals are solved~~

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"Effective X/Q" for the Analyses That Consider Isolation of the CR Intake 50-seconds After Exposure

For 30,000 cfm, the integral is solved for the period from 20.8 to 70.8 seconds. For 50,000 cfm the integral is solved from 8 to 58 seconds. For 74,000 cfm, the integral is solved from 3.8 to 53.8 seconds.

The results of the integration yield;

At 30,000 cfm, f(t) = 3.94E-05 sec/m^3
At 50,000 cfm, f(t) = 6.09E-05 sec/m^3
At 74,000 cfm, f(t) = 5.72E-05 sec/m^3

The results show that the 50,000 cfm initial RB exhaust flow yields the most conservative results. An "effective X/Q" over a 90-second period is therefore equal to 3.922E-4 sec/m^3 when used with a release rate corresponding to 74,000 cfm. The CR model utilizes this "effective X/Q" for the entire an entire 90-second period, and conservatively uses a higher weighted release rate for the ~~30~~ 40 second period after the CR intake has closed.

~~For the case that neglects the isolation of the CR intake, the three integrals are solved~~

JD 12/8/99

"Effective X/Q" for the Analyses That Consider Isolation of the CR Intake 70-seconds After Exposure

For 30,000 cfm, the integral is solved for the period from 20.8 to 90 seconds. For 50,000 cfm the integral is solved from 8 to 78 seconds. For 74,000 cfm, the integral is solved from 3.8 to 73.8 seconds.

The results of the integration yield;

At 30,000 cfm, f(t) = 4.11E-05 sec/m^3
At 50,000 cfm, f(t) = 6.63E-05 sec/m^3
At 74,000 cfm, f(t) = 6.42E-05 sec/m^3

The results show that the 50,000 cfm initial RB exhaust flow yields the most conservative results. An "effective X/Q" over a 90-second period is therefore equal to 3.051E-4 sec/m^3 when used with a release rate corresponding to 74,000 cfm. The CR model utilizes this "effective X/Q" for the entire an entire 90-second period, and conservatively uses a higher weighted release rate for the ~~30~~ 20 second period after the CR intake has closed.

~~For the case that neglects the isolation of the CR intake, the three integrals are solved~~

JD 12/8/99

"Effective X/Q" for the Analyses That Consider Isolation of the CR Intake 80-seconds After Exposure

For 30,000 cfm, the integral is solved for the period from 20.8 to 90 seconds. For 50,000 cfm the integral is solved from 8 to 88 seconds. For 74,000 cfm, the integral is solved from 3.8 to 83.8 seconds.

The results of the integration yield;

At 30,000 cfm, f(t) = 4.11E-05 m-3
At 50,000 cfm, f(t) = 6.69E-05 m-3
At 74,000 cfm, f(t) = 6.58E-05 m-3

The results show that the 50,000 cfm initial RB exhaust flow yields the most conservative results. An "effective X/Q" over a 90-second period is therefore equal to 2.695E-4 sec/m^3 when used with a release rate corresponding to 74,000 cfm. The CR model utilizes this "effective X/Q" for the entire 90-second period, and conservatively uses a higher weighted release rate for the ~~30~~ 10-second period after the CR intake has closed.

~~For the case that neglects the isolation of the CR intake, the three integrals are solved~~

12/8/99

APPENDIX M

Analysis with 50 second isolation (FHA9)

```
AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  09:24:03.27

 1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated
 2 10 2 0.0 1.0
 3 -1 1.0E7 1.4186E5 6.46E4
 4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
 5 45.0 50.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
 6 10*1.0
 7 2*3.10E-3 8*0
 8 10*1.0
 9 2*3316 8*891
10 3.20E-4 3.20E-4 3.20E-4 1.10E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
11 3*3.922E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
12 10*0.0
13 10*0.0
14 10*0.0
15 10*0.0
16 10*0.0
17 10*0.0
18 10*0.0
19 10*0.0
20 10*0.0
21 1.0 1.0 1.0 1.0 1.0 1.0
22 1.0 1.0 1.0
23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

                                INITIAL CONTAINMENT INVENTORY

                                ISOTOPE    ACTIVITY (CURIES)

                                I-131           1.289E+03
                                I-132           7.833E-07
                                I-133           2.969E+02
                                I-134           3.813E-22
                                I-135           1.742E+00
                                XE-131M         2.205E+02
                                XE-133M         8.096E+02
                                XE-133          5.392E+04
                                XE-135M         1.075E-79
                                XE-135          3.174E+02
                                XE-138          3.570E-70
                                KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1' FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .39E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	2.27E-02	5.66E-06	4.57E+00	1.11E-03	5.42E-04	4.88E-02	4.39E-07	5.79E-06
I-132	5.08E-27	1.55E-07	2.27E-08	1.38E-11	3.43E-15	1.59E-11	4.35E-12	7.48E-13	1.69E-13	1.49E-15	7.99E-15
I-133	1.93E-18	5.89E+01	8.61E+00	5.24E-03	1.30E-06	1.72E-01	3.29E-04	2.68E-04	1.84E-03	1.63E-07	2.86E-06
I-134	2.46E-42	7.49E-23	1.10E-23	6.66E-27	1.66E-30	1.34E-27	1.71E-27	3.69E-28	1.43E-29	7.74E-31	3.93E-30
I-135	1.13E-20	3.45E-01	5.05E-02	3.07E-05	7.64E-09	1.74E-04	7.19E-06	1.14E-06	1.86E-06	1.93E-09	1.22E-08
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	1.25E-03	3.11E-07	2.51E-01	6.10E-05	2.98E-05	2.68E-03	2.41E-08	3.18E-07
I-132	2.79E-28	8.51E-09	1.25E-09	7.57E-13	1.88E-16	8.72E-13	2.39E-13	4.11E-14	9.31E-15	8.17E-17	4.39E-16
I-133	1.06E-19	3.24E+00	4.73E-01	2.88E-04	7.16E-08	9.46E-03	1.81E-05	1.47E-05	1.01E-04	8.94E-09	1.57E-07
I-134	1.35E-43	4.12E-24	6.05E-25	3.66E-28	9.11E-32	7.39E-29	9.38E-29	2.02E-29	7.88E-31	4.25E-32	2.16E-31
I-135	6.23E-22	1.90E-02	2.77E-03	1.69E-06	4.20E-10	9.55E-06	3.95E-07	6.29E-08	1.02E-07	1.06E-10	6.72E-10
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	1.00E-03	2.49E-07	2.01E-01	4.88E-05	2.38E-05	2.15E-03	1.93E-08	2.55E-07
I-132	2.23E-28	6.81E-09	9.97E-10	6.05E-13	1.51E-16	6.97E-13	1.91E-13	3.29E-14	7.45E-15	6.54E-17	3.51E-16
I-133	8.50E-20	2.59E+00	3.78E-01	2.30E-04	5.73E-08	7.56E-03	1.44E-05	1.18E-05	8.08E-05	7.15E-09	1.26E-07
I-134	1.08E-43	3.29E-24	4.84E-25	2.93E-28	7.29E-32	5.91E-29	7.50E-29	1.62E-29	6.30E-31	3.40E-32	1.73E-31
I-135	4.98E-22	1.52E-02	2.22E-03	1.35E-06	3.36E-10	7.64E-06	3.16E-07	5.03E-08	8.16E-08	8.50E-11	5.38E-10
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	1.71E-02	4.26E-06	0.00E+00	4.95E-05	2.79E-04	0.00E+00	8.54E-08	2.99E-06
XE-133M	2.32E-17	7.06E+02	1.03E+02	6.28E-02	1.56E-05	0.00E+00	2.72E-04	1.18E-03	0.00E+00	1.39E-07	1.26E-05
XE-133	1.54E-15	4.70E+04	6.87E+03	4.18E+00	1.04E-03	0.00E+00	1.65E-02	7.39E-02	0.00E+00	2.07E-05	7.89E-04
XE-135M	2.98E-99	9.07E-80	1.35E-80	8.07E-84	2.01E-87	0.00E+00	4.55E-85	9.62E-86	0.00E+00	1.84E-88	1.02E-87

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XE-135	9.08E-18	2.77E+02	4.05E+01	2.46E-02	6.12E-06	0.00E+00	7.96E-04	9.59E-04	0.00E+00	3.15E-07	1.02E-05
XE-138	9.92E-90	3.02E-70	4.48E-71	2.69E-74	6.69E-78	0.00E+00	1.03E-74	2.64E-75	0.00E+00	1.07E-78	2.81E-77
KR-83M	4.50E-28	1.37E-08	2.01E-09	1.22E-12	3.04E-16	0.00E+00	8.04E-16	5.03E-15	0.00E+00	4.72E-18	5.37E-17
KR-85M	5.21E-21	1.59E-01	2.32E-02	1.41E-05	3.51E-09	0.00E+00	2.90E-07	3.98E-07	0.00E+00	1.23E-10	4.25E-09
KR-85	4.48E-17	1.36E+03	1.99E+02	1.21E-01	3.02E-05	0.00E+00	3.35E-05	3.27E-03	0.00E+00	1.36E-08	3.50E-05
KR-87	6.59E-33	2.01E-13	2.94E-14	1.79E-17	4.44E-21	0.00E+00	3.24E-18	2.28E-18	0.00E+00	6.38E-22	2.43E-20
KR-88	2.19E-23	6.66E-04	9.75E-05	5.92E-08	1.47E-11	0.00E+00	1.36E-08	2.45E-09	0.00E+00	4.60E-12	2.61E-11
						5.21E+00	1.92E-02	8.05E-02	5.57E-02	2.20E-05	8.60E-04

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .014 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .39E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	5.66E-20	2.52E+02	3.94E+00	2.51E-02	6.25E-06	4.81E-01	1.17E-04	5.71E-05	1.14E-02	1.02E-07	1.35E-06
I-132	3.42E-29	1.52E-07	2.38E-09	1.52E-11	3.78E-15	1.67E-12	4.57E-13	7.85E-14	3.94E-14	3.46E-16	1.86E-15
I-133	1.30E-20	5.80E+01	9.06E-01	5.78E-03	1.44E-06	1.81E-02	3.46E-05	2.82E-05	4.28E-04	3.79E-08	6.67E-07
I-134	1.65E-44	7.37E-23	1.15E-24	7.35E-27	1.83E-30	1.41E-28	1.79E-28	3.86E-29	3.33E-30	1.80E-31	9.13E-31
I-135	7.63E-23	3.40E-01	5.31E-03	3.39E-05	8.44E-09	1.83E-05	7.56E-07	1.20E-07	4.33E-07	4.50E-10	2.85E-09
PARTICULATE											
I-131	3.11E-21	1.38E+01	2.16E-01	1.38E-03	3.44E-07	2.64E-02	6.42E-06	3.13E-06	6.25E-04	5.62E-09	7.42E-08
I-132	1.88E-30	8.38E-09	1.31E-10	8.35E-13	2.08E-16	9.16E-14	2.51E-14	4.32E-15	2.17E-15	1.90E-17	1.02E-16
I-133	7.15E-22	3.19E+00	4.98E-02	3.18E-04	7.91E-08	9.95E-04	1.90E-06	1.55E-06	2.35E-05	2.08E-09	3.67E-08
I-134	9.09E-46	4.05E-24	6.33E-26	4.04E-28	1.01E-31	7.73E-30	9.82E-30	2.12E-30	1.83E-31	9.87E-33	5.01E-32
I-135	4.19E-24	1.87E-02	2.92E-04	1.86E-06	4.64E-10	1.00E-06	4.15E-08	6.61E-09	2.38E-08	2.47E-11	1.57E-10
ORGANIC											
I-131	2.49E-21	1.11E+01	1.73E-01	1.10E-03	2.75E-07	2.11E-02	5.13E-06	2.51E-06	5.00E-04	4.49E-09	5.93E-08
I-132	1.50E-30	6.70E-09	1.05E-10	6.68E-13	1.66E-16	7.32E-14	2.01E-14	3.45E-15	1.73E-15	1.52E-17	8.17E-17
I-133	5.72E-22	2.55E+00	3.98E-02	2.54E-04	6.33E-08	7.96E-04	1.52E-06	1.24E-06	1.88E-05	1.67E-09	2.93E-08
I-134	7.27E-46	3.24E-24	5.06E-26	3.23E-28	8.04E-32	6.18E-30	7.85E-30	1.70E-30	1.46E-31	7.90E-33	4.01E-32

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I-135	3.36E-24	1.49E-02	2.33E-04	1.49E-06	3.71E-10	8.04E-07	3.32E-08	5.29E-09	1.90E-08	1.98E-11	1.25E-10
NOBLE GASES											
XE-131M	4.25E-20	1.89E+02	2.96E+00	1.89E-02	4.70E-06	0.00E+00	5.21E-06	2.94E-05	0.00E+00	1.99E-08	6.96E-07
XE-133M	1.56E-19	6.95E+02	1.09E+01	6.93E-02	1.73E-05	0.00E+00	2.87E-05	1.24E-04	0.00E+00	3.24E-08	2.93E-06
XE-133	1.04E-17	4.63E+04	7.24E+02	4.62E+00	1.15E-03	0.00E+00	1.74E-03	7.77E-03	0.00E+00	4.83E-06	1.84E-04
XE-135M	2.00-101	8.90E-80	1.39E-81	8.87E-84	2.21E-87	0.00E+00	4.70E-86	9.94E-87	0.00E+00	4.23E-89	2.35E-88
XE-135	6.12E-20	2.72E+02	4.26E+00	2.72E-02	6.76E-06	0.00E+00	8.37E-05	1.01E-04	0.00E+00	7.34E-08	2.39E-06
XE-138	6.66E-92	2.97E-70	4.64E-72	2.96E-74	7.37E-78	0.00E+00	1.07E-75	2.73E-76	0.00E+00	2.47E-79	6.47E-78
KR-83M	3.03E-30	1.35E-08	2.11E-10	1.35E-12	3.35E-16	0.00E+00	8.45E-17	5.28E-16	0.00E+00	1.10E-18	1.25E-17
KR-85M	3.51E-23	1.56E-01	2.44E-03	1.56E-05	3.88E-09	0.00E+00	3.05E-08	4.19E-08	0.00E+00	2.87E-11	9.91E-10
KR-85	3.02E-19	1.34E+03	2.10E+01	1.34E-01	3.33E-05	0.00E+00	3.53E-06	3.44E-04	0.00E+00	3.16E-09	8.15E-06
KR-87	4.44E-35	1.98E-13	3.09E-15	1.97E-17	4.90E-21	0.00E+00	3.40E-19	2.39E-19	0.00E+00	1.48E-22	5.64E-21
KR-88	1.47E-25	6.56E-04	1.02E-05	6.54E-08	1.63E-11	0.00E+00	1.43E-09	2.57E-10	0.00E+00	1.07E-12	6.08E-12
						5.48E-01	2.02E-03	8.47E-03	1.30E-02	5.11E-06	2.00E-04

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .39E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.52E+02	0.00E+00	2.50E-02	6.23E-06	0.00E+00	0.00E+00	0.00E+00	9.53E-02	8.57E-07	1.13E-05
I-132	1.45E-46	1.52E-07	0.00E+00	1.51E-11	3.76E-15	0.00E+00	0.00E+00	0.00E+00	3.30E-13	2.89E-15	1.55E-14
I-133	5.53E-38	5.80E+01	0.00E+00	5.76E-03	1.43E-06	0.00E+00	0.00E+00	0.00E+00	3.59E-03	3.18E-07	5.59E-06
I-134	6.97E-62	7.30E-23	0.00E+00	7.25E-27	1.81E-30	0.00E+00	0.00E+00	0.00E+00	2.77E-29	1.50E-30	7.61E-30
I-135	3.24E-40	3.40E-01	0.00E+00	3.37E-05	8.39E-09	0.00E+00	0.00E+00	0.00E+00	3.62E-06	3.77E-09	2.38E-08
PARTICULATE											
I-131	1.32E-38	1.38E+01	0.00E+00	1.37E-03	3.42E-07	0.00E+00	0.00E+00	0.00E+00	5.23E-03	4.71E-08	6.21E-07
I-132	7.96E-48	8.35E-09	0.00E+00	8.29E-13	2.06E-16	0.00E+00	0.00E+00	0.00E+00	1.81E-14	1.59E-16	8.54E-16
I-133	3.04E-39	3.19E+00	0.00E+00	3.16E-04	7.87E-08	0.00E+00	0.00E+00	0.00E+00	1.97E-04	1.74E-08	3.07E-07
I-134	3.83E-63	4.01E-24	0.00E+00	3.99E-28	9.92E-32	0.00E+00	0.00E+00	0.00E+00	1.52E-30	8.23E-32	4.18E-31

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I-135	1.78E-41	1.87E-02	0.00E+00	1.85E-06	4.61E-10	0.00E+00	0.00E+00	0.00E+00	1.99E-07	2.07E-10	1.31E-09
ORGANIC											
I-131	1.06E-38	1.11E+01	0.00E+00	1.10E-03	2.74E-07	0.00E+00	0.00E+00	0.00E+00	4.19E-03	3.76E-08	4.97E-07
I-132	6.37E-48	6.68E-09	0.00E+00	6.63E-13	1.65E-16	0.00E+00	0.00E+00	0.00E+00	1.45E-14	1.27E-16	6.83E-16
I-133	2.43E-39	2.55E+00	0.00E+00	2.53E-04	6.30E-08	0.00E+00	0.00E+00	0.00E+00	1.58E-04	1.40E-08	2.46E-07
I-134	3.06E-63	3.21E-24	0.00E+00	3.19E-28	7.94E-32	0.00E+00	0.00E+00	0.00E+00	1.22E-30	6.58E-32	3.34E-31
I-135	1.42E-41	1.49E-02	0.00E+00	1.48E-06	3.69E-10	0.00E+00	0.00E+00	0.00E+00	1.59E-07	1.66E-10	1.05E-09
NOBLE GASES											
XE-131M	1.81E-37	1.89E+02	0.00E+00	1.88E-02	4.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-07	5.83E-06
XE-133M	6.63E-37	6.95E+02	0.00E+00	6.90E-02	1.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-07	2.46E-05
XE-133	4.42E-35	4.63E+04	0.00E+00	4.60E+00	1.14E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-05	1.54E-03
XE-135M	8.24-119	8.64E-80	0.00E+00	8.58E-84	2.14E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.48E-88	1.94E-87
XE-135	2.60E-37	2.72E+02	0.00E+00	2.70E-02	6.73E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-07	2.00E-05
XE-138	2.76-109	2.89E-70	0.00E+00	2.87E-74	7.14E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-78	5.34E-77
KR-83M	1.28E-47	1.35E-08	0.00E+00	1.34E-12	3.33E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.18E-18	1.04E-16
KR-85M	1.49E-40	1.56E-01	0.00E+00	1.55E-05	3.86E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.40E-10	8.29E-09
KR-85	1.28E-36	1.34E+03	0.00E+00	1.33E-01	3.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-08	6.83E-05
KR-87	1.87E-52	1.96E-13	0.00E+00	1.95E-17	4.85E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-21	4.71E-20
KR-88	6.24E-43	6.54E-04	0.00E+00	6.49E-08	1.62E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E-12	5.09E-11
						0.00E+00	0.00E+00	0.00E+00	1.09E-01	4.28E-05	1.68E-03

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .11E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.51E+02	0.00E+00	2.09E-02	5.20E-06	0.00E+00	0.00E+00	0.00E+00	3.72E+00	3.34E-05	4.41E-04
I-132	0.00E+00	1.32E-07	0.00E+00	1.09E-11	2.72E-15	0.00E+00	0.00E+00	0.00E+00	1.20E-11	1.05E-13	5.66E-13
I-133	0.00E+00	5.71E+01	0.00E+00	4.74E-03	1.18E-06	0.00E+00	0.00E+00	0.00E+00	1.39E-01	1.23E-05	2.17E-04
I-134	0.00E+00	5.00E-23	0.00E+00	4.15E-27	1.03E-30	0.00E+00	0.00E+00	0.00E+00	9.03E-28	4.87E-29	2.48E-28

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I-135	0.00E+00	3.23E-01	0.00E+00	2.68E-05	6.68E-09	0.00E+00	0.00E+00	0.00E+00	1.38E-04	1.44E-07	9.09E-07
PARTICULATE											
I-131	0.00E+00	1.38E+01	0.00E+00	1.15E-03	2.86E-07	0.00E+00	0.00E+00	0.00E+00	2.04E-01	1.84E-06	2.42E-05
I-132	0.00E+00	7.24E-09	0.00E+00	6.01E-13	1.50E-16	0.00E+00	0.00E+00	0.00E+00	6.59E-13	5.79E-15	3.11E-14
I-133	0.00E+00	3.14E+00	0.00E+00	2.60E-04	6.48E-08	0.00E+00	0.00E+00	0.00E+00	7.64E-03	6.76E-07	1.19E-05
I-134	0.00E+00	2.75E-24	0.00E+00	2.28E-28	5.67E-32	0.00E+00	0.00E+00	0.00E+00	4.96E-29	2.68E-30	1.36E-29
I-135	0.00E+00	1.78E-02	0.00E+00	1.47E-06	3.67E-10	0.00E+00	0.00E+00	0.00E+00	7.59E-06	7.90E-09	5.00E-08
ORGANIC											
I-131	0.00E+00	1.11E+01	0.00E+00	9.18E-04	2.28E-07	0.00E+00	0.00E+00	0.00E+00	1.63E-01	1.47E-06	1.94E-05
I-132	0.00E+00	5.79E-09	0.00E+00	4.80E-13	1.20E-16	0.00E+00	0.00E+00	0.00E+00	5.28E-13	4.63E-15	2.49E-14
I-133	0.00E+00	2.51E+00	0.00E+00	2.08E-04	5.18E-08	0.00E+00	0.00E+00	0.00E+00	6.11E-03	5.41E-07	9.52E-06
I-134	0.00E+00	2.20E-24	0.00E+00	1.82E-28	4.54E-32	0.00E+00	0.00E+00	0.00E+00	3.97E-29	2.14E-30	1.09E-29
I-135	0.00E+00	1.42E-02	0.00E+00	1.18E-06	2.94E-10	0.00E+00	0.00E+00	0.00E+00	6.07E-06	6.32E-09	4.00E-08
NOBLE GASES											
XE-131M	0.00E+00	1.89E+02	0.00E+00	1.57E-02	3.91E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.51E-06	2.27E-04
XE-133M	0.00E+00	6.91E+02	0.00E+00	5.74E-02	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-05	9.56E-04
XE-133	0.00E+00	4.62E+04	0.00E+00	3.83E+00	9.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-03	6.01E-02
XE-135M	0.00E+00	2.44E-80	0.00E+00	2.02E-84	5.04E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.75E-87	4.31E-86
XE-135	0.00E+00	2.63E+02	0.00E+00	2.18E-02	5.42E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-05	7.67E-04
XE-138	0.00E+00	9.35E-71	0.00E+00	7.76E-75	1.93E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-77	1.25E-75
KR-83M	0.00E+00	1.13E-08	0.00E+00	9.37E-13	2.33E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-16	3.74E-15
KR-85M	0.00E+00	1.45E-01	0.00E+00	1.20E-05	2.99E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.05E-09	3.12E-07
KR-85	0.00E+00	1.34E+03	0.00E+00	1.12E-01	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-06	2.67E-03
KR-87	0.00E+00	1.51E-13	0.00E+00	1.26E-17	3.13E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-20	1.62E-18
KR-88	0.00E+00	5.81E-04	0.00E+00	4.83E-08	1.20E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-10	1.88E-09
						0.00E+00	0.00E+00	0.00E+00	4.24E+00	1.67E-03	6.55E-02

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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

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ELEMENTAL											
I-131	0.00E+00	2.51E+02	0.00E+00	1.73E-02	4.30E-06	0.00E+00	0.00E+00	0.00E+00	3.25E+00	2.92E-05	3.86E-04
I-132	0.00E+00	1.13E-07	0.00E+00	7.79E-12	1.94E-15	0.00E+00	0.00E+00	0.00E+00	9.08E-12	7.97E-14	4.28E-13
I-133	0.00E+00	5.61E+01	0.00E+00	3.86E-03	9.61E-07	0.00E+00	0.00E+00	0.00E+00	1.20E-01	1.06E-05	1.87E-04
I-134	0.00E+00	3.35E-23	0.00E+00	2.30E-27	5.74E-31	0.00E+00	0.00E+00	0.00E+00	5.36E-28	2.90E-29	1.47E-28
I-135	0.00E+00	3.07E-01	0.00E+00	2.11E-05	5.26E-09	0.00E+00	0.00E+00	0.00E+00	1.15E-04	1.20E-07	7.57E-07
PARTICULATE											
I-131	0.00E+00	1.38E+01	0.00E+00	9.48E-04	2.36E-07	0.00E+00	0.00E+00	0.00E+00	1.79E-01	1.61E-06	2.12E-05
I-132	0.00E+00	6.22E-09	0.00E+00	4.28E-13	1.07E-16	0.00E+00	0.00E+00	0.00E+00	4.99E-13	4.38E-15	2.35E-14
I-133	0.00E+00	3.08E+00	0.00E+00	2.12E-04	5.28E-08	0.00E+00	0.00E+00	0.00E+00	6.59E-03	5.83E-07	1.03E-05
I-134	0.00E+00	1.84E-24	0.00E+00	1.27E-28	3.15E-32	0.00E+00	0.00E+00	0.00E+00	2.95E-29	1.59E-30	8.08E-30
I-135	0.00E+00	1.69E-02	0.00E+00	1.16E-06	2.89E-10	0.00E+00	0.00E+00	0.00E+00	6.32E-06	6.58E-09	4.16E-08
ORGANIC											
I-131	0.00E+00	1.10E+01	0.00E+00	7.59E-04	1.89E-07	0.00E+00	0.00E+00	0.00E+00	1.43E-01	1.29E-06	1.70E-05
I-132	0.00E+00	4.98E-09	0.00E+00	3.42E-13	8.52E-17	0.00E+00	0.00E+00	0.00E+00	3.99E-13	3.50E-15	1.88E-14
I-133	0.00E+00	2.47E+00	0.00E+00	1.70E-04	4.22E-08	0.00E+00	0.00E+00	0.00E+00	5.27E-03	4.66E-07	8.21E-06
I-134	0.00E+00	1.47E-24	0.00E+00	1.01E-28	2.52E-32	0.00E+00	0.00E+00	0.00E+00	2.36E-29	1.27E-30	6.47E-30
I-135	0.00E+00	1.35E-02	0.00E+00	9.28E-07	2.31E-10	0.00E+00	0.00E+00	0.00E+00	5.06E-06	5.26E-09	3.33E-08
NOBLE GASES											
XE-131M	0.00E+00	1.89E+02	0.00E+00	1.30E-02	3.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.69E-06	1.99E-04
XE-133M	0.00E+00	6.87E+02	0.00E+00	4.72E-02	1.18E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.19E-06	8.33E-04
XE-133	0.00E+00	4.61E+04	0.00E+00	3.17E+00	7.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	5.25E-02
XE-135M	0.00E+00	6.43E-81	0.00E+00	4.42E-85	1.10E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-87	1.04E-86
XE-135	0.00E+00	2.53E+02	0.00E+00	1.74E-02	4.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-05	6.47E-04
XE-138	0.00E+00	2.85E-71	0.00E+00	1.96E-75	4.88E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-77	3.48E-76
KR-83M	0.00E+00	9.37E-09	0.00E+00	6.45E-13	1.60E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-16	2.74E-15
KR-85M	0.00E+00	1.34E-01	0.00E+00	9.20E-06	2.29E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.34E-09	2.53E-07
KR-85	0.00E+00	1.34E+03	0.00E+00	9.24E-02	2.30E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.05E-07	2.34E-03
KR-87	0.00E+00	1.15E-13	0.00E+00	7.92E-18	1.97E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.86E-20	1.09E-18
KR-88	0.00E+00	5.14E-04	0.00E+00	3.53E-08	8.79E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-10	1.46E-09
						0.00E+00	0.00E+00	0.00E+00	3.70E+00	1.46E-03	5.72E-02

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

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PARTICULATE	.000	.000	.000	.000	1.000	1.000
ORGANIC	.000	.000	.000	.000	1.000	1.000

	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	0.00E+00	2.50E+02	0.00E+00	1.18E-02	2.94E-06	0.00E+00	0.00E+00	0.00E+00	4.91E+00	4.42E-05	5.83E-04
I-132	0.00E+00	8.38E-08	0.00E+00	3.95E-12	9.84E-16	0.00E+00	0.00E+00	0.00E+00	1.11E-11	9.72E-14	5.22E-13
I-133	0.00E+00	5.43E+01	0.00E+00	2.56E-03	6.38E-07	0.00E+00	0.00E+00	0.00E+00	1.77E-01	1.57E-05	2.76E-04
I-134	0.00E+00	1.51E-23	0.00E+00	7.11E-28	1.77E-31	0.00E+00	0.00E+00	0.00E+00	4.63E-28	2.50E-29	1.27E-28
I-135	0.00E+00	2.77E-01	0.00E+00	1.31E-05	3.25E-09	0.00E+00	0.00E+00	0.00E+00	1.62E-04	1.68E-07	1.06E-06
PARTICULATE											
I-131	0.00E+00	1.37E+01	0.00E+00	6.48E-04	1.61E-07	0.00E+00	0.00E+00	0.00E+00	2.70E-01	2.43E-06	3.20E-05
I-132	0.00E+00	4.60E-09	0.00E+00	2.17E-13	5.41E-17	0.00E+00	0.00E+00	0.00E+00	6.09E-13	5.34E-15	2.87E-14
I-133	0.00E+00	2.98E+00	0.00E+00	1.41E-04	3.50E-08	0.00E+00	0.00E+00	0.00E+00	9.74E-03	8.62E-07	1.52E-05
I-134	0.00E+00	8.28E-25	0.00E+00	3.91E-29	9.72E-33	0.00E+00	0.00E+00	0.00E+00	2.55E-29	1.37E-30	6.98E-30
I-135	0.00E+00	1.52E-02	0.00E+00	7.18E-07	1.79E-10	0.00E+00	0.00E+00	0.00E+00	8.88E-06	9.25E-09	5.85E-08
ORGANIC											
I-131	0.00E+00	1.10E+01	0.00E+00	5.19E-04	1.29E-07	0.00E+00	0.00E+00	0.00E+00	2.16E-01	1.94E-06	2.56E-05
I-132	0.00E+00	3.68E-09	0.00E+00	1.74E-13	4.33E-17	0.00E+00	0.00E+00	0.00E+00	4.87E-13	4.27E-15	2.30E-14
I-133	0.00E+00	2.39E+00	0.00E+00	1.13E-04	2.80E-08	0.00E+00	0.00E+00	0.00E+00	7.79E-03	6.90E-07	1.21E-05
I-134	0.00E+00	6.62E-25	0.00E+00	3.12E-29	7.78E-33	0.00E+00	0.00E+00	0.00E+00	2.04E-29	1.10E-30	5.59E-30
I-135	0.00E+00	1.22E-02	0.00E+00	5.74E-07	1.43E-10	0.00E+00	0.00E+00	0.00E+00	7.10E-06	7.40E-09	4.68E-08
NOBLE GASES											
XE-131M	0.00E+00	1.89E+02	0.00E+00	8.89E-03	2.21E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.61E-06	3.01E-04
XE-133M	0.00E+00	6.78E+02	0.00E+00	3.20E-02	7.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-05	1.25E-03
XE-133	0.00E+00	4.58E+04	0.00E+00	2.16E+00	5.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-03	7.92E-02
XE-135M	0.00E+00	4.48E-82	0.00E+00	2.11E-86	5.26E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.98E-88	2.77E-87
XE-135	0.00E+00	2.34E+02	0.00E+00	1.10E-02	2.75E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-05	9.28E-04
XE-138	0.00E+00	2.65E-72	0.00E+00	1.25E-76	3.11E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20E-78	1.10E-76
KR-83M	0.00E+00	6.47E-09	0.00E+00	3.05E-13	7.60E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-16	3.18E-15
KR-85M	0.00E+00	1.14E-01	0.00E+00	5.39E-06	1.34E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.92E-09	3.42E-07
KR-85	0.00E+00	1.34E+03	0.00E+00	6.34E-02	1.58E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-06	3.54E-03
KR-87	0.00E+00	6.66E-14	0.00E+00	3.14E-18	7.82E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-20	1.12E-18
KR-88	0.00E+00	4.01E-04	0.00E+00	1.89E-08	4.71E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-10	1.85E-09
						0.00E+00	0.00E+00	0.00E+00	5.59E+00	2.20E-03	8.62E-02

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

NEDC 92-032 ATTACH 1
SHEET 125 OF 161

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

	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	0.00E+00	2.45E+02	0.00E+00	1.20E-03	3.00E-07	0.00E+00	0.00E+00	0.00E+00	9.53E+00	8.57E-05	1.13E-03
I-132	0.00E+00	1.37E-08	0.00E+00	6.76E-14	1.68E-17	0.00E+00	0.00E+00	0.00E+00	1.12E-11	9.85E-14	5.29E-13
I-133	0.00E+00	4.46E+01	0.00E+00	2.19E-04	5.45E-08	0.00E+00	0.00E+00	0.00E+00	3.20E-01	2.83E-05	4.98E-04
I-134	0.00E+00	1.25E-25	0.00E+00	6.13E-31	1.53E-34	0.00E+00	0.00E+00	0.00E+00	2.07E-28	1.12E-29	5.66E-29
I-135	0.00E+00	1.49E-01	0.00E+00	7.32E-07	1.82E-10	0.00E+00	0.00E+00	0.00E+00	2.48E-04	2.58E-07	1.63E-06
PARTICULATE											
I-131	0.00E+00	1.35E+01	0.00E+00	6.61E-05	1.65E-08	0.00E+00	0.00E+00	0.00E+00	5.23E-01	4.71E-06	6.21E-05
I-132	0.00E+00	7.55E-10	0.00E+00	3.71E-15	9.24E-19	0.00E+00	0.00E+00	0.00E+00	6.17E-13	5.41E-15	2.91E-14
I-133	0.00E+00	2.45E+00	0.00E+00	1.20E-05	3.00E-09	0.00E+00	0.00E+00	0.00E+00	1.76E-02	1.56E-06	2.74E-05
I-134	0.00E+00	6.85E-27	0.00E+00	3.37E-32	8.38E-36	0.00E+00	0.00E+00	0.00E+00	1.14E-29	6.13E-31	3.11E-30
I-135	0.00E+00	8.19E-03	0.00E+00	4.02E-08	1.00E-11	0.00E+00	0.00E+00	0.00E+00	1.36E-05	1.42E-08	8.96E-08
ORGANIC											
I-131	0.00E+00	1.08E+01	0.00E+00	5.29E-05	1.32E-08	0.00E+00	0.00E+00	0.00E+00	4.19E-01	3.76E-06	4.97E-05
I-132	0.00E+00	6.04E-10	0.00E+00	2.97E-15	7.39E-19	0.00E+00	0.00E+00	0.00E+00	4.93E-13	4.33E-15	2.33E-14
I-133	0.00E+00	1.96E+00	0.00E+00	9.63E-06	2.40E-09	0.00E+00	0.00E+00	0.00E+00	1.41E-02	1.24E-06	2.19E-05
I-134	0.00E+00	5.48E-27	0.00E+00	2.69E-32	6.70E-36	0.00E+00	0.00E+00	0.00E+00	9.08E-30	4.90E-31	2.49E-30
I-135	0.00E+00	6.55E-03	0.00E+00	3.22E-08	8.01E-12	0.00E+00	0.00E+00	0.00E+00	1.09E-05	1.13E-08	7.16E-08
NOBLE GASES											
XE-131M	0.00E+00	1.86E+02	0.00E+00	9.13E-04	2.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-05	5.85E-04
XE-133M	0.00E+00	6.28E+02	0.00E+00	3.09E-03	7.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-05	2.37E-03
XE-133	0.00E+00	4.43E+04	0.00E+00	2.18E-01	5.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.02E-03	1.53E-01
XE-135M	0.00E+00	5.13E-89	0.00E+00	2.52E-94	6.27E-98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E-89	1.39E-88
XE-135	0.00E+00	1.49E+02	0.00E+00	7.30E-04	1.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E-05	1.51E-03
XE-138	0.00E+00	1.70E-78	0.00E+00	8.38E-84	2.09E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.86E-79	7.48E-78
KR-83M	0.00E+00	6.99E-10	0.00E+00	3.44E-15	8.56E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-16	2.83E-15
KR-85M	0.00E+00	4.44E-02	0.00E+00	2.18E-07	5.43E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-08	4.65E-07
KR-85	0.00E+00	1.34E+03	0.00E+00	6.61E-03	1.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-06	6.92E-03
KR-87	0.00E+00	2.50E-15	0.00E+00	1.23E-20	3.06E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-20	7.33E-19
KR-88	0.00E+00	9.07E-05	0.00E+00	4.46E-10	1.11E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-10	2.08E-09
						0.00E+00	0.00E+00	0.00E+00	1.08E+01	4.24E-03	1.66E-01

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

NEDC 98-032 ATTACH 1
SHEET 126 OF 161

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.31E+02	0.00E+00	2.73E-06	6.81E-10	0.00E+00	0.00E+00	0.00E+00	1.08E+00	9.71E-06	1.28E-04
I-132	0.00E+00	1.11E-10	0.00E+00	1.31E-18	3.26E-22	0.00E+00	0.00E+00	0.00E+00	1.95E-13	1.71E-15	9.20E-15
I-133	0.00E+00	2.63E+01	0.00E+00	3.11E-07	7.74E-11	0.00E+00	0.00E+00	0.00E+00	2.99E-02	2.64E-06	4.65E-05
I-134	0.00E+00	3.48E-31	0.00E+00	4.12E-39	1.03E-42	0.00E+00	0.00E+00	0.00E+00	1.78E-31	9.62E-33	4.89E-32
I-135	0.00E+00	2.85E-02	0.00E+00	3.37E-10	8.40E-14	0.00E+00	0.00E+00	0.00E+00	1.47E-05	1.53E-08	9.68E-08
PARTICULATE											
I-131	0.00E+00	1.27E+01	0.00E+00	1.50E-07	3.74E-11	0.00E+00	0.00E+00	0.00E+00	5.93E-02	5.33E-07	7.04E-06
I-132	0.00E+00	6.08E-12	0.00E+00	7.20E-20	1.79E-23	0.00E+00	0.00E+00	0.00E+00	1.07E-14	9.41E-17	5.05E-16
I-133	0.00E+00	1.44E+00	0.00E+00	1.71E-08	4.25E-12	0.00E+00	0.00E+00	0.00E+00	1.64E-03	1.45E-07	2.56E-06
I-134	0.00E+00	1.91E-32	0.00E+00	2.27E-40	5.64E-44	0.00E+00	0.00E+00	0.00E+00	9.79E-33	5.29E-34	2.68E-33
I-135	0.00E+00	1.57E-03	0.00E+00	1.85E-11	4.62E-15	0.00E+00	0.00E+00	0.00E+00	8.08E-07	8.41E-10	5.32E-09
ORGANIC											
I-131	0.00E+00	1.02E+01	0.00E+00	1.20E-07	2.99E-11	0.00E+00	0.00E+00	0.00E+00	4.75E-02	4.27E-07	5.63E-06
I-132	0.00E+00	4.87E-12	0.00E+00	5.76E-20	1.43E-23	0.00E+00	0.00E+00	0.00E+00	8.58E-15	7.53E-17	4.04E-16
I-133	0.00E+00	1.15E+00	0.00E+00	1.37E-08	3.40E-12	0.00E+00	0.00E+00	0.00E+00	1.31E-03	1.16E-07	2.05E-06
I-134	0.00E+00	1.53E-32	0.00E+00	1.81E-40	4.51E-44	0.00E+00	0.00E+00	0.00E+00	7.83E-33	4.23E-34	2.15E-33
I-135	0.00E+00	1.25E-03	0.00E+00	1.48E-11	3.69E-15	0.00E+00	0.00E+00	0.00E+00	6.46E-07	6.73E-10	4.25E-09
NOBLE GASES											
XE-131M	0.00E+00	1.79E+02	0.00E+00	2.11E-06	5.26E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-06	6.68E-05
XE-133M	0.00E+00	5.12E+02	0.00E+00	6.06E-06	1.51E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.79E-06	2.53E-04
XE-133	0.00E+00	4.06E+04	0.00E+00	4.81E-04	1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-04	1.71E-02
XE-135M	0.00E+00	1.58-107	0.00E+00	1.87-115	4.65-119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-97	1.66E-96
XE-135	0.00E+00	4.40E+01	0.00E+00	5.21E-07	1.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-06	1.07E-04
XE-138	0.00E+00	5.27E-95	0.00E+00	6.23-103	1.55-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-86	5.02E-85
KR-83M	0.00E+00	1.85E-12	0.00E+00	2.19E-20	5.46E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-18	3.22E-17
KR-85M	0.00E+00	3.56E-03	0.00E+00	4.21E-11	1.05E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.68E-10	1.96E-08
KR-85	0.00E+00	1.34E+03	0.00E+00	1.59E-05	3.96E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-07	8.04E-04
KR-87	0.00E+00	3.94E-19	0.00E+00	4.66E-27	1.16E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-23	2.88E-21
KR-88	0.00E+00	1.72E-06	0.00E+00	2.04E-14	5.08E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.84E-12	5.02E-11
						0.00E+00	0.00E+00	0.00E+00	1.22E+00	4.72E-04	1.85E-02

NEDC 92032 ATTACH 1
SHEET 127 OF 161

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.78E+02	0.00E+00	3.47E-18	8.65E-22	0.00E+00	0.00E+00	0.00E+00	2.46E-03	2.21E-08	2.92E-07
I-132	0.00E+00	4.19E-20	0.00E+00	8.16E-40	2.03E-43	0.00E+00	0.00E+00	0.00E+00	3.78E-18	3.32E-20	1.78E-19
I-133	0.00E+00	2.44E+00	0.00E+00	4.75E-20	1.18E-23	0.00E+00	0.00E+00	0.00E+00	4.25E-05	3.76E-09	6.61E-08
I-134	0.00E+00	3.56E-56	0.00E+00	6.94E-76	1.73E-79	0.00E+00	0.00E+00	0.00E+00	1.20E-39	6.47E-41	3.29E-40
I-135	0.00E+00	1.68E-05	0.00E+00	3.26E-25	8.12E-29	0.00E+00	0.00E+00	0.00E+00	6.77E-09	7.05E-12	4.46E-11
PARTICULATE											
I-131	0.00E+00	9.81E+00	0.00E+00	1.91E-19	4.75E-23	0.00E+00	0.00E+00	0.00E+00	1.35E-04	1.21E-09	1.60E-08
I-132	0.00E+00	2.30E-21	0.00E+00	4.48E-41	1.12E-44	0.00E+00	0.00E+00	0.00E+00	2.08E-19	1.83E-21	9.80E-21
I-133	0.00E+00	1.34E-01	0.00E+00	2.61E-21	6.49E-25	0.00E+00	0.00E+00	0.00E+00	2.33E-06	2.06E-10	3.63E-09
I-134	0.00E+00	1.96E-57	0.00E+00	3.81E-77	9.49E-81	0.00E+00	0.00E+00	0.00E+00	6.59E-41	3.56E-42	1.81E-41
I-135	0.00E+00	9.21E-07	0.00E+00	1.79E-26	4.46E-30	0.00E+00	0.00E+00	0.00E+00	3.72E-10	3.88E-13	2.45E-12
ORGANIC											
I-131	0.00E+00	7.85E+00	0.00E+00	1.53E-19	3.80E-23	0.00E+00	0.00E+00	0.00E+00	1.08E-04	9.72E-10	1.28E-08
I-132	0.00E+00	1.84E-21	0.00E+00	3.58E-41	8.92E-45	0.00E+00	0.00E+00	0.00E+00	1.66E-19	1.46E-21	7.84E-21
I-133	0.00E+00	1.07E-01	0.00E+00	2.09E-21	5.20E-25	0.00E+00	0.00E+00	0.00E+00	1.87E-06	1.65E-10	2.91E-09
I-134	0.00E+00	1.57E-57	0.00E+00	3.05E-77	7.59E-81	0.00E+00	0.00E+00	0.00E+00	5.27E-41	2.85E-42	1.45E-41
I-135	0.00E+00	7.37E-07	0.00E+00	1.43E-26	3.57E-30	0.00E+00	0.00E+00	0.00E+00	2.98E-10	3.10E-13	1.96E-12
NOBLE GASES											
XE-131M	0.00E+00	1.50E+02	0.00E+00	2.92E-18	7.26E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.43E-09	1.55E-07
XE-133M	0.00E+00	2.04E+02	0.00E+00	3.97E-18	9.88E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-09	4.97E-07
XE-133	0.00E+00	2.74E+04	0.00E+00	5.33E-16	1.33E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.94E-07	3.78E-05
XE-135M	0.00E+00	7.89-191	0.00E+00	1.54-210	3.82-214	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21-118	1.23-117
XE-135	0.00E+00	1.86E-01	0.00E+00	3.61E-21	9.00E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E-09	7.64E-08
XE-138	0.00E+00	2.67-169	0.00E+00	5.19-189	1.29-192	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43-105	3.73-104
KR-83M	0.00E+00	4.71E-24	0.00E+00	9.18E-44	2.28E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-23	2.06E-22
KR-85M	0.00E+00	4.18E-08	0.00E+00	8.13E-28	2.02E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-13	3.78E-12

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KR-85	0.00E+00	1.34E+03	0.00E+00	2.61E-17	6.51E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.51E-10	1.94E-06
KR-87	0.00E+00	3.05E-36	0.00E+00	5.95E-56	1.48E-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-29	1.09E-27
KR-88	0.00E+00	3.10E-14	0.00E+00	6.04E-34	1.50E-37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-16	2.30E-15
						0.00E+00	0.00E+00	0.00E+00	2.75E-03	1.04E-06	4.09E-05

1 FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.90E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-15	2.81E-20	3.71E-19
I-132	0.00E+00	9.22-102	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-39	2.07E-41	1.11E-40
I-133	0.00E+00	2.76E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.48E-18	5.74E-22	1.01E-20
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	2.02E-76	1.09E-77	5.53E-77
I-135	0.00E+00	1.68E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.55E-24	6.82E-27	4.31E-26
PARTICULATE											
I-131	0.00E+00	1.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-16	1.54E-21	2.04E-20
I-132	0.00E+00	5.06-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-40	1.14E-42	6.10E-42
I-133	0.00E+00	1.52E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.56E-19	3.15E-23	5.55E-22
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	1.11E-77	5.98E-79	3.04E-78
I-135	0.00E+00	9.22E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-25	3.75E-28	2.37E-27
ORGANIC											
I-131	0.00E+00	8.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-16	1.23E-21	1.63E-20
I-132	0.00E+00	4.05-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-40	9.09E-43	4.88E-42
I-133	0.00E+00	1.21E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-19	2.52E-23	4.44E-22
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	8.87E-78	4.79E-79	2.43E-78
I-135	0.00E+00	7.37E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-25	3.00E-28	1.90E-27
NOBLE GASES											
XE-131M	0.00E+00	3.26E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.12E-21	2.14E-19
XE-133M	0.00E+00	7.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E-21	3.25E-19

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XE-133	0.00E+00	9.01E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-18	4.20E-17
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	1.82-213	1.01-212
XE-135	0.00E+00	4.83E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-23	5.30E-22
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	1.19-191	3.11-190
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	7.56E-47	8.60E-46
KR-85M	0.00E+00	7.75E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-30	7.30E-29
KR-85	0.00E+00	1.34E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-21	3.19E-18
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	3.66E-58	1.39E-56
KR-88	0.00E+00	2.35E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-35	6.80E-35
						0.00E+00	0.00E+00	0.00E+00	3.44E-15	1.14E-18	4.61E-17
TOTAL DOSES 0-30 DAYS						5.76E+00	2.13E-02	8.89E-02	2.58E+01	1.01E-02	3.96E-01

1

FHA - CR, LPZ, 0-50 sec, CR, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	4.13E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.13E+01
I-132	2.51E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-08
I-133	9.52E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.52E+00
I-134	1.22E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-23
I-135	5.58E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.58E-02
PARTICULATE						
I-131	2.27E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E+00
I-132	1.38E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-09
I-133	5.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-01
I-134	6.68E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.68E-25
I-135	3.07E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-03
ORGANIC						
I-131	1.82E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E+00
I-132	1.10E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-09
I-133	4.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-01
I-134	5.34E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E-25
I-135	2.45E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.45E-03
NOBLE GASES						
XE-131M	3.11E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E+01
XE-133M	1.14E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E+02
XE-133	7.60E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E+03
XE-135M	1.49E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-80
XE-135	4.47E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E+01
XE-138	4.95E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-71
KR-83M	2.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-09
KR-85M	2.57E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-02
KR-85	2.20E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E+02
KR-87	3.25E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-14
KR-88	1.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-04

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END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 09:24:03.66

APPENDIX N

Analysis with 70 second isolation (Fha10)

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AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  22:32:42.30



                     1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated
                     2 10 2 0.0 1.0
                     3 -1 1.0E7 1.4186E5 6.46E4
                     4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                     5 45.0 70.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
                     6 10*1.0
                     7 2*3.10E-3 8*0
                     8 10*1.0
                     9 2*3316 8*891
                    10 3*2.9E-4 1.10E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
                    11 3*3.051E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
                    12 10*0.0
                    13 10*0.0
                    14 10*0.0
                    15 10*0.0
                    16 10*0.0
                    17 10*0.0
                    18 10*0.0
                    19 10*0.0
                    20 10*0.0
                    21 1.0 1.0 1.0 1.0 1.0 1.0
                    22 1.0 1.0 1.0
                    23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                    24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

               FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

                                    INITIAL CONTAINMENT INVENTORY

                                    ISOTOPE    ACTIVITY (CURIES)

                                    I-131           1.289E+03
                                    I-132           7.833E-07
                                    I-133           2.969E+02
                                    I-134           3.813E-22
                                    I-135           1.742E+00
                                    XE-131M         2.205E+02
                                    XE-133M         8.096E+02
                                    XE-133          5.392E+04
                                    XE-135M         1.075E-79
                                    XE-135          3.174E+02
                                    XE-138          3.570E-70
                                    KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	1.77E-02	4.41E-06	4.14E+00	1.01E-03	4.91E-04	3.80E-02	3.41E-07	4.51E-06
I-132	5.08E-27	1.55E-07	2.27E-08	1.07E-11	2.67E-15	1.44E-11	3.95E-12	6.78E-13	1.32E-13	1.16E-15	6.21E-15
I-133	1.93E-18	5.89E+01	8.61E+00	4.07E-03	1.01E-06	1.56E-01	2.98E-04	2.43E-04	1.43E-03	1.27E-07	2.23E-06
I-134	2.46E-42	7.49E-23	1.10E-23	5.18E-27	1.29E-30	1.22E-27	1.55E-27	3.34E-28	1.12E-29	6.02E-31	3.06E-30
I-135	1.13E-20	3.45E-01	5.05E-02	2.39E-05	5.95E-09	1.58E-04	6.51E-06	1.04E-06	1.44E-06	1.50E-09	9.51E-09
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	9.72E-04	2.42E-07	2.27E-01	5.53E-05	2.70E-05	2.09E-03	1.88E-08	2.48E-07
I-132	2.79E-28	8.51E-09	1.25E-09	5.89E-13	1.47E-16	7.90E-13	2.17E-13	3.72E-14	7.24E-15	6.36E-17	3.41E-16
I-133	1.06E-19	3.24E+00	4.73E-01	2.24E-04	5.57E-08	8.57E-03	1.64E-05	1.33E-05	7.86E-05	6.96E-09	1.22E-07
I-134	1.35E-43	4.12E-24	6.05E-25	2.85E-28	7.09E-32	6.69E-29	8.50E-29	1.84E-29	6.13E-31	3.31E-32	1.68E-31
I-135	6.23E-22	1.90E-02	2.77E-03	1.31E-06	3.27E-10	8.66E-06	3.58E-07	5.70E-08	7.94E-08	8.27E-11	5.23E-10
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	7.78E-04	1.94E-07	1.82E-01	4.42E-05	2.16E-05	1.67E-03	1.50E-08	1.98E-07
I-132	2.23E-28	6.81E-09	9.97E-10	4.71E-13	1.17E-16	6.32E-13	1.73E-13	2.98E-14	5.79E-15	5.09E-17	2.73E-16
I-133	8.50E-20	2.59E+00	3.78E-01	1.79E-04	4.46E-08	6.86E-03	1.31E-05	1.07E-05	6.29E-05	5.57E-09	9.80E-08
I-134	1.08E-43	3.29E-24	4.84E-25	2.28E-28	5.67E-32	5.35E-29	6.80E-29	1.47E-29	4.90E-31	2.65E-32	1.34E-31
I-135	4.98E-22	1.52E-02	2.22E-03	1.05E-06	2.61E-10	6.92E-06	2.86E-07	4.56E-08	6.35E-08	6.61E-11	4.18E-10
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	1.33E-02	3.31E-06	0.00E+00	4.48E-05	2.53E-04	0.00E+00	6.64E-08	2.32E-06
XE-133M	2.32E-17	7.06E+02	1.03E+02	4.89E-02	1.22E-05	0.00E+00	2.47E-04	1.07E-03	0.00E+00	1.08E-07	9.79E-06
XE-133	1.54E-15	4.70E+04	6.87E+03	3.25E+00	8.10E-04	0.00E+00	1.50E-02	6.69E-02	0.00E+00	1.61E-05	6.14E-04
XE-135M	2.98E-99	9.07E-80	1.35E-80	6.27E-84	1.56E-87	0.00E+00	4.12E-85	8.72E-86	0.00E+00	1.43E-88	7.96E-88

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XE-135	9.08E-18	2.77E+02	4.05E+01	1.91E-02	4.76E-06	0.00E+00	7.21E-04	8.69E-04	0.00E+00	2.45E-07	7.97E-06
XE-138	9.92E-90	3.02E-70	4.48E-71	2.09E-74	5.21E-78	0.00E+00	9.33E-75	2.39E-75	0.00E+00	8.36E-79	2.18E-77
KR-83M	4.50E-28	1.37E-08	2.01E-09	9.50E-13	2.36E-16	0.00E+00	7.29E-16	4.56E-15	0.00E+00	3.67E-18	4.18E-17
KR-85M	5.21E-21	1.59E-01	2.32E-02	1.10E-05	2.73E-09	0.00E+00	2.63E-07	3.61E-07	0.00E+00	9.59E-11	3.31E-09
KR-85	4.48E-17	1.36E+03	1.99E+02	9.44E-02	2.35E-05	0.00E+00	3.04E-05	2.97E-03	0.00E+00	1.05E-08	2.72E-05
KR-87	6.59E-33	2.01E-13	2.94E-14	1.39E-17	3.46E-21	0.00E+00	2.93E-18	2.06E-18	0.00E+00	4.96E-22	1.89E-20
KR-88	2.19E-23	6.66E-04	9.75E-05	4.61E-08	1.15E-11	0.00E+00	1.23E-08	2.22E-09	0.00E+00	3.58E-12	2.03E-11
						4.72E+00	1.74E-02	7.29E-02	4.33E-02	1.71E-05	6.69E-04

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .019 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	1.17E-28	2.37E+02	1.91E+01	2.66E-02	6.62E-06	2.11E+00	5.13E-04	2.51E-04	5.28E-02	4.74E-07	6.26E-06
I-132	7.04E-38	1.43E-07	1.15E-08	1.61E-11	4.00E-15	7.32E-12	2.01E-12	3.45E-13	1.83E-13	1.60E-15	8.61E-15
I-133	2.68E-29	5.45E+01	4.39E+00	6.12E-03	1.52E-06	7.96E-02	1.52E-04	1.24E-04	1.99E-03	1.76E-07	3.10E-06
I-134	3.40E-53	6.90E-23	5.57E-24	7.74E-27	1.93E-30	6.17E-28	7.83E-28	1.69E-28	1.54E-29	8.32E-31	4.22E-30
I-135	1.57E-31	3.19E-01	2.57E-02	3.59E-05	8.93E-09	8.03E-05	3.32E-06	5.29E-07	2.01E-06	2.09E-09	1.32E-08
PARTICULATE											
I-131	6.40E-30	1.30E+01	1.05E+00	1.46E-03	3.64E-07	1.16E-01	2.82E-05	1.38E-05	2.90E-03	2.61E-08	3.44E-07
I-132	3.87E-39	7.86E-09	6.34E-10	8.83E-13	2.20E-16	4.02E-13	1.10E-13	1.89E-14	1.00E-14	8.81E-17	4.73E-16
I-133	1.47E-30	2.99E+00	2.41E-01	3.36E-04	8.37E-08	4.37E-03	8.35E-06	6.81E-06	1.09E-04	9.66E-09	1.70E-07
I-134	1.87E-54	3.79E-24	3.06E-25	4.26E-28	1.06E-31	3.39E-29	4.30E-29	9.29E-30	8.46E-31	4.57E-32	2.32E-31
I-135	8.64E-33	1.75E-02	1.41E-03	1.97E-06	4.91E-10	4.41E-06	1.82E-07	2.91E-08	1.10E-07	1.15E-10	7.26E-10
ORGANIC											
I-131	5.12E-30	1.04E+01	8.39E-01	1.17E-03	2.91E-07	9.28E-02	2.26E-05	1.10E-05	2.32E-03	2.09E-08	2.75E-07
I-132	3.10E-39	6.29E-09	5.07E-10	7.06E-13	1.76E-16	3.22E-13	8.83E-14	1.52E-14	8.03E-15	7.05E-17	3.79E-16
I-133	1.18E-30	2.40E+00	1.93E-01	2.69E-04	6.70E-08	3.50E-03	6.68E-06	5.45E-06	8.74E-05	7.73E-09	1.36E-07
I-134	1.49E-54	3.03E-24	2.45E-25	3.40E-28	8.47E-32	2.71E-29	3.44E-29	7.43E-30	6.77E-31	3.66E-32	1.86E-31

I-135	6.91E-33	1.40E-02	1.13E-03	1.58E-06	3.92E-10	3.53E-06	1.46E-07	2.32E-08	8.82E-08	9.18E-11	5.81E-10
NOBLE GASES											
XE-131M	8.77E-29	1.78E+02	1.43E+01	2.00E-02	4.98E-06	0.00E+00	2.29E-05	1.29E-04	0.00E+00	9.23E-08	3.23E-06
XE-133M	3.22E-28	6.54E+02	5.27E+01	7.34E-02	1.83E-05	0.00E+00	1.26E-04	5.44E-04	0.00E+00	1.50E-07	1.36E-05
XE-133	2.14E-26	4.35E+04	3.51E+03	4.89E+00	1.22E-03	0.00E+00	7.63E-03	3.42E-02	0.00E+00	2.24E-05	8.53E-04
XE-135M	4.06-110	8.24E-80	6.70E-81	9.26E-84	2.30E-87	0.00E+00	2.05E-85	4.34E-86	0.00E+00	1.95E-88	1.08E-87
XE-135	1.26E-28	2.56E+02	2.06E+01	2.87E-02	7.15E-06	0.00E+00	3.68E-04	4.43E-04	0.00E+00	3.40E-07	1.11E-05
XE-138	1.36-100	2.75E-70	2.24E-71	3.09E-74	7.69E-78	0.00E+00	4.65E-75	1.19E-75	0.00E+00	1.14E-78	2.98E-77
KR-83M	6.24E-39	1.27E-08	1.02E-09	1.42E-12	3.54E-16	0.00E+00	3.71E-16	2.32E-15	0.00E+00	5.09E-18	5.79E-17
KR-85M	7.23E-32	1.47E-01	1.18E-02	1.65E-05	4.10E-09	0.00E+00	1.34E-07	1.84E-07	0.00E+00	1.33E-10	4.59E-09
KR-85	6.22E-28	1.26E+03	1.02E+02	1.42E-01	3.53E-05	0.00E+00	1.55E-05	1.51E-03	0.00E+00	1.47E-08	3.78E-05
KR-87	9.11E-44	1.85E-13	1.49E-14	2.08E-17	5.17E-21	0.00E+00	1.49E-18	1.05E-18	0.00E+00	6.87E-22	2.61E-20
KR-88	3.03E-34	6.15E-04	4.96E-05	6.91E-08	1.72E-11	0.00E+00	6.27E-09	1.13E-09	0.00E+00	4.97E-12	2.82E-11
						2.41E+00	8.90E-03	3.72E-02	6.02E-02	2.37E-05	9.29E-04

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .29E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .31E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.37E+02	0.00E+00	2.65E-02	6.61E-06	0.00E+00	0.00E+00	0.00E+00	5.05E-02	4.54E-07	5.99E-06
I-132	1.45E-46	1.43E-07	0.00E+00	1.60E-11	3.98E-15	0.00E+00	0.00E+00	0.00E+00	1.75E-13	1.53E-15	8.23E-15
I-133	5.53E-38	5.45E+01	0.00E+00	6.11E-03	1.52E-06	0.00E+00	0.00E+00	0.00E+00	1.90E-03	1.68E-07	2.96E-06
I-134	6.97E-62	6.87E-23	0.00E+00	7.69E-27	1.92E-30	0.00E+00	0.00E+00	0.00E+00	1.47E-29	7.92E-31	4.02E-30
I-135	3.24E-40	3.19E-01	0.00E+00	3.58E-05	8.90E-09	0.00E+00	0.00E+00	0.00E+00	1.92E-06	2.00E-09	1.26E-08
PARTICULATE											
I-131	1.32E-38	1.30E+01	0.00E+00	1.46E-03	3.63E-07	0.00E+00	0.00E+00	0.00E+00	2.77E-03	2.49E-08	3.29E-07
I-132	7.96E-48	7.85E-09	0.00E+00	8.79E-13	2.19E-16	0.00E+00	0.00E+00	0.00E+00	9.59E-15	8.42E-17	4.52E-16
I-133	3.04E-39	2.99E+00	0.00E+00	3.36E-04	8.35E-08	0.00E+00	0.00E+00	0.00E+00	1.04E-04	9.24E-09	1.63E-07
I-134	3.83E-63	3.77E-24	0.00E+00	4.23E-28	1.05E-31	0.00E+00	0.00E+00	0.00E+00	8.06E-31	4.35E-32	2.21E-31

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I-135	1.78E-41	1.75E-02	0.00E+00	1.97E-06	4.89E-10	0.00E+00	0.00E+00	0.00E+00	1.05E-07	1.10E-10	6.94E-10
ORGANIC											
I-131	1.06E-38	1.04E+01	0.00E+00	1.17E-03	2.90E-07	0.00E+00	0.00E+00	0.00E+00	2.22E-03	1.99E-08	2.63E-07
I-132	6.37E-48	6.28E-09	0.00E+00	7.03E-13	1.75E-16	0.00E+00	0.00E+00	0.00E+00	7.67E-15	6.73E-17	3.62E-16
I-133	2.43E-39	2.40E+00	0.00E+00	2.68E-04	6.68E-08	0.00E+00	0.00E+00	0.00E+00	8.36E-05	7.40E-09	1.30E-07
I-134	3.06E-63	3.02E-24	0.00E+00	3.38E-28	8.42E-32	0.00E+00	0.00E+00	0.00E+00	6.45E-31	3.48E-32	1.77E-31
I-135	1.42E-41	1.40E-02	0.00E+00	1.57E-06	3.91E-10	0.00E+00	0.00E+00	0.00E+00	8.43E-08	8.78E-11	5.55E-10
NOBLE GASES											
XE-131M	1.81E-37	1.78E+02	0.00E+00	2.00E-02	4.97E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.83E-08	3.09E-06
XE-133M	6.63E-37	6.53E+02	0.00E+00	7.32E-02	1.82E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-07	1.30E-05
XE-133	4.42E-35	4.35E+04	0.00E+00	4.88E+00	1.21E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-05	8.16E-04
XE-135M	8.24-119	8.12E-80	0.00E+00	9.10E-84	2.27E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-88	1.02E-87
XE-135	2.60E-37	2.56E+02	0.00E+00	2.87E-02	7.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-07	1.06E-05
XE-138	2.76-109	2.72E-70	0.00E+00	3.04E-74	7.58E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-78	2.81E-77
KR-83M	1.28E-47	1.26E-08	0.00E+00	1.42E-12	3.53E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-18	5.53E-17
KR-85M	1.49E-40	1.47E-01	0.00E+00	1.64E-05	4.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-10	4.39E-09
KR-85	1.28E-36	1.26E+03	0.00E+00	1.42E-01	3.52E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-08	3.62E-05
KR-87	1.87E-52	1.85E-13	0.00E+00	2.07E-17	5.15E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.55E-22	2.49E-20
KR-88	6.24E-43	6.15E-04	0.00E+00	6.89E-08	1.71E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74E-12	2.69E-11
						0.00E+00	0.00E+00	0.00E+00	5.76E-02	2.27E-05	8.89E-04

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .11E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.36E+02	0.00E+00	2.21E-02	5.51E-06	0.00E+00	0.00E+00	0.00E+00	3.94E+00	3.55E-05	4.68E-04
I-132	0.00E+00	1.24E-07	0.00E+00	1.16E-11	2.89E-15	0.00E+00	0.00E+00	0.00E+00	1.27E-11	1.12E-13	6.00E-13
I-133	0.00E+00	5.36E+01	0.00E+00	5.03E-03	1.25E-06	0.00E+00	0.00E+00	0.00E+00	1.48E-01	1.31E-05	2.30E-04
I-134	0.00E+00	4.70E-23	0.00E+00	4.40E-27	1.10E-30	0.00E+00	0.00E+00	0.00E+00	9.58E-28	5.17E-29	2.63E-28

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I-135	0.00E+00	3.04E-01	0.00E+00	2.85E-05	7.09E-09	0.00E+00	0.00E+00	0.00E+00	1.46E-04	1.52E-07	9.64E-07
PARTICULATE											
I-131	0.00E+00	1.30E+01	0.00E+00	1.22E-03	3.03E-07	0.00E+00	0.00E+00	0.00E+00	2.17E-01	1.95E-06	2.57E-05
I-132	0.00E+00	6.80E-09	0.00E+00	6.37E-13	1.59E-16	0.00E+00	0.00E+00	0.00E+00	7.00E-13	6.14E-15	3.30E-14
I-133	0.00E+00	2.95E+00	0.00E+00	2.76E-04	6.88E-08	0.00E+00	0.00E+00	0.00E+00	8.11E-03	7.17E-07	1.26E-05
I-134	0.00E+00	2.58E-24	0.00E+00	2.42E-28	6.02E-32	0.00E+00	0.00E+00	0.00E+00	5.26E-29	2.84E-30	1.44E-29
I-135	0.00E+00	1.67E-02	0.00E+00	1.56E-06	3.89E-10	0.00E+00	0.00E+00	0.00E+00	8.05E-06	8.38E-09	5.30E-08
ORGANIC											
I-131	0.00E+00	1.04E+01	0.00E+00	9.73E-04	2.42E-07	0.00E+00	0.00E+00	0.00E+00	1.73E-01	1.56E-06	2.06E-05
I-132	0.00E+00	5.44E-09	0.00E+00	5.10E-13	1.27E-16	0.00E+00	0.00E+00	0.00E+00	5.60E-13	4.91E-15	2.64E-14
I-133	0.00E+00	2.36E+00	0.00E+00	2.21E-04	5.50E-08	0.00E+00	0.00E+00	0.00E+00	6.49E-03	5.74E-07	1.01E-05
I-134	0.00E+00	2.06E-24	0.00E+00	1.93E-28	4.82E-32	0.00E+00	0.00E+00	0.00E+00	4.21E-29	2.27E-30	1.15E-29
I-135	0.00E+00	1.34E-02	0.00E+00	1.25E-06	3.12E-10	0.00E+00	0.00E+00	0.00E+00	6.44E-06	6.70E-09	4.24E-08
NOBLE GASES											
XE-131M	0.00E+00	1.78E+02	0.00E+00	1.67E-02	4.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.90E-06	2.41E-04
XE-133M	0.00E+00	6.50E+02	0.00E+00	6.09E-02	1.52E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-05	1.01E-03
XE-133	0.00E+00	4.34E+04	0.00E+00	4.07E+00	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03	6.38E-02
XE-135M	0.00E+00	2.29E-80	0.00E+00	2.15E-84	5.34E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-87	4.57E-86
XE-135	0.00E+00	2.47E+02	0.00E+00	2.31E-02	5.76E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E-05	8.13E-04
XE-138	0.00E+00	8.79E-71	0.00E+00	8.23E-75	2.05E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.09E-77	1.33E-75
KR-83M	0.00E+00	1.06E-08	0.00E+00	9.94E-13	2.47E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-16	3.97E-15
KR-85M	0.00E+00	1.36E-01	0.00E+00	1.27E-05	3.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.60E-09	3.31E-07
KR-85	0.00E+00	1.26E+03	0.00E+00	1.18E-01	2.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-06	2.83E-03
KR-87	0.00E+00	1.42E-13	0.00E+00	1.33E-17	3.32E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-20	1.72E-18
KR-88	0.00E+00	5.46E-04	0.00E+00	5.12E-08	1.27E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.50E-10	1.99E-09
						0.00E+00	0.00E+00	0.00E+00	4.50E+00	1.77E-03	6.94E-02

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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

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ELEMENTAL											
I-131	0.00E+00	2.36E+02	0.00E+00	1.83E-02	4.56E-06	0.00E+00	0.00E+00	0.00E+00	3.45E+00	3.10E-05	4.09E-04
I-132	0.00E+00	1.06E-07	0.00E+00	8.26E-12	2.06E-15	0.00E+00	0.00E+00	0.00E+00	9.63E-12	8.46E-14	4.54E-13
I-133	0.00E+00	5.28E+01	0.00E+00	4.10E-03	1.02E-06	0.00E+00	0.00E+00	0.00E+00	1.27E-01	1.13E-05	1.98E-04
I-134	0.00E+00	3.15E-23	0.00E+00	2.44E-27	6.09E-31	0.00E+00	0.00E+00	0.00E+00	5.69E-28	3.07E-29	1.56E-28
I-135	0.00E+00	2.89E-01	0.00E+00	2.24E-05	5.58E-09	0.00E+00	0.00E+00	0.00E+00	1.22E-04	1.27E-07	8.04E-07
PARTICULATE											
I-131	0.00E+00	1.30E+01	0.00E+00	1.01E-03	2.50E-07	0.00E+00	0.00E+00	0.00E+00	1.90E-01	1.70E-06	2.25E-05
I-132	0.00E+00	5.85E-09	0.00E+00	4.54E-13	1.13E-16	0.00E+00	0.00E+00	0.00E+00	5.29E-13	4.65E-15	2.50E-14
I-133	0.00E+00	2.90E+00	0.00E+00	2.25E-04	5.60E-08	0.00E+00	0.00E+00	0.00E+00	6.99E-03	6.19E-07	1.09E-05
I-134	0.00E+00	1.73E-24	0.00E+00	1.34E-28	3.34E-32	0.00E+00	0.00E+00	0.00E+00	3.13E-29	1.69E-30	8.57E-30
I-135	0.00E+00	1.59E-02	0.00E+00	1.23E-06	3.06E-10	0.00E+00	0.00E+00	0.00E+00	6.70E-06	6.98E-09	4.41E-08
ORGANIC											
I-131	0.00E+00	1.04E+01	0.00E+00	8.05E-04	2.00E-07	0.00E+00	0.00E+00	0.00E+00	1.52E-01	1.36E-06	1.80E-05
I-132	0.00E+00	4.68E-09	0.00E+00	3.63E-13	9.04E-17	0.00E+00	0.00E+00	0.00E+00	4.23E-13	3.72E-15	2.00E-14
I-133	0.00E+00	2.32E+00	0.00E+00	1.80E-04	4.48E-08	0.00E+00	0.00E+00	0.00E+00	5.59E-03	4.95E-07	8.71E-06
I-134	0.00E+00	1.38E-24	0.00E+00	1.07E-28	2.67E-32	0.00E+00	0.00E+00	0.00E+00	2.50E-29	1.35E-30	6.86E-30
I-135	0.00E+00	1.27E-02	0.00E+00	9.84E-07	2.45E-10	0.00E+00	0.00E+00	0.00E+00	5.36E-06	5.58E-09	3.53E-08
NOBLE GASES											
XE-131M	0.00E+00	1.78E+02	0.00E+00	1.38E-02	3.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.04E-06	2.11E-04
XE-133M	0.00E+00	6.45E+02	0.00E+00	5.01E-02	1.25E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.75E-06	8.83E-04
XE-133	0.00E+00	4.33E+04	0.00E+00	3.36E+00	8.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	5.57E-02
XE-135M	0.00E+00	6.05E-81	0.00E+00	4.69E-85	1.17E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-87	1.10E-86
XE-135	0.00E+00	2.38E+02	0.00E+00	1.84E-02	4.59E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-05	6.87E-04
XE-138	0.00E+00	2.68E-71	0.00E+00	2.08E-75	5.17E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-77	3.69E-76
KR-83M	0.00E+00	8.81E-09	0.00E+00	6.84E-13	1.70E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-16	2.91E-15
KR-85M	0.00E+00	1.26E-01	0.00E+00	9.76E-06	2.43E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.79E-09	2.69E-07
KR-85	0.00E+00	1.26E+03	0.00E+00	9.80E-02	2.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.61E-07	2.48E-03
KR-87	0.00E+00	1.08E-13	0.00E+00	8.40E-18	2.09E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-20	1.16E-18
KR-88	0.00E+00	4.83E-04	0.00E+00	3.75E-08	9.33E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.72E-10	1.55E-09
						0.00E+00	0.00E+00	0.00E+00	3.93E+00	1.55E-03	6.06E-02

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

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PARTICULATE	.000	.000	.000	.000	1.000	1.000
ORGANIC	.000	.000	.000	.000	1.000	1.000

	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	0.00E+00	2.35E+02	0.00E+00	1.25E-02	3.12E-06	0.00E+00	0.00E+00	0.00E+00	5.21E+00	4.68E-05	6.18E-04
I-132	0.00E+00	7.88E-08	0.00E+00	4.19E-12	1.04E-15	0.00E+00	0.00E+00	0.00E+00	1.18E-11	1.03E-13	5.54E-13
I-133	0.00E+00	5.11E+01	0.00E+00	2.72E-03	6.77E-07	0.00E+00	0.00E+00	0.00E+00	1.88E-01	1.66E-05	2.93E-04
I-134	0.00E+00	1.42E-23	0.00E+00	7.54E-28	1.88E-31	0.00E+00	0.00E+00	0.00E+00	4.92E-28	2.65E-29	1.35E-28
I-135	0.00E+00	2.60E-01	0.00E+00	1.39E-05	3.45E-09	0.00E+00	0.00E+00	0.00E+00	1.71E-04	1.79E-07	1.13E-06
PARTICULATE											
I-131	0.00E+00	1.29E+01	0.00E+00	6.88E-04	1.71E-07	0.00E+00	0.00E+00	0.00E+00	2.86E-01	2.57E-06	3.40E-05
I-132	0.00E+00	4.33E-09	0.00E+00	2.30E-13	5.74E-17	0.00E+00	0.00E+00	0.00E+00	6.46E-13	5.67E-15	3.04E-14
I-133	0.00E+00	2.81E+00	0.00E+00	1.49E-04	3.72E-08	0.00E+00	0.00E+00	0.00E+00	1.03E-02	9.14E-07	1.61E-05
I-134	0.00E+00	7.78E-25	0.00E+00	4.14E-29	1.03E-32	0.00E+00	0.00E+00	0.00E+00	2.70E-29	1.46E-30	7.41E-30
I-135	0.00E+00	1.43E-02	0.00E+00	7.61E-07	1.90E-10	0.00E+00	0.00E+00	0.00E+00	9.42E-06	9.81E-09	6.20E-08
ORGANIC											
I-131	0.00E+00	1.03E+01	0.00E+00	5.50E-04	1.37E-07	0.00E+00	0.00E+00	0.00E+00	2.29E-01	2.06E-06	2.72E-05
I-132	0.00E+00	3.46E-09	0.00E+00	1.84E-13	4.59E-17	0.00E+00	0.00E+00	0.00E+00	5.17E-13	4.53E-15	2.44E-14
I-133	0.00E+00	2.24E+00	0.00E+00	1.19E-04	2.97E-08	0.00E+00	0.00E+00	0.00E+00	8.27E-03	7.32E-07	1.29E-05
I-134	0.00E+00	6.23E-25	0.00E+00	3.31E-29	8.25E-33	0.00E+00	0.00E+00	0.00E+00	2.16E-29	1.17E-30	5.93E-30
I-135	0.00E+00	1.14E-02	0.00E+00	6.09E-07	1.52E-10	0.00E+00	0.00E+00	0.00E+00	7.54E-06	7.85E-09	4.96E-08
NOBLE GASES											
XE-131M	0.00E+00	1.77E+02	0.00E+00	9.43E-03	2.35E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.13E-06	3.19E-04
XE-133M	0.00E+00	6.37E+02	0.00E+00	3.39E-02	8.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	1.33E-03
XE-133	0.00E+00	4.31E+04	0.00E+00	2.29E+00	5.71E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-03	8.40E-02
XE-135M	0.00E+00	4.21E-82	0.00E+00	2.24E-86	5.58E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.28E-88	2.94E-87
XE-135	0.00E+00	2.20E+02	0.00E+00	1.17E-02	2.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-05	9.84E-04
XE-138	0.00E+00	2.49E-72	0.00E+00	1.33E-76	3.30E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E-78	1.17E-76
KR-83M	0.00E+00	6.08E-09	0.00E+00	3.24E-13	8.06E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-16	3.37E-15
KR-85M	0.00E+00	1.07E-01	0.00E+00	5.72E-06	1.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-08	3.63E-07
KR-85	0.00E+00	1.26E+03	0.00E+00	6.72E-02	1.67E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-06	3.75E-03
KR-87	0.00E+00	6.26E-14	0.00E+00	3.33E-18	8.30E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-20	1.19E-18
KR-88	0.00E+00	3.77E-04	0.00E+00	2.01E-08	4.99E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E-10	1.96E-09
						0.00E+00	0.00E+00	0.00E+00	5.93E+00	2.33E-03	9.14E-02

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.30E+02	0.00E+00	1.28E-03	3.18E-07	0.00E+00	0.00E+00	0.00E+00	1.01E+01	9.09E-05	1.20E-03
I-132	0.00E+00	1.29E-08	0.00E+00	7.17E-14	1.78E-17	0.00E+00	0.00E+00	0.00E+00	1.19E-11	1.05E-13	5.61E-13
I-133	0.00E+00	4.19E+01	0.00E+00	2.32E-04	5.79E-08	0.00E+00	0.00E+00	0.00E+00	3.39E-01	3.00E-05	5.29E-04
I-134	0.00E+00	1.17E-25	0.00E+00	6.50E-31	1.62E-34	0.00E+00	0.00E+00	0.00E+00	2.19E-28	1.18E-29	6.01E-29
I-135	0.00E+00	1.40E-01	0.00E+00	7.77E-07	1.93E-10	0.00E+00	0.00E+00	0.00E+00	2.63E-04	2.73E-07	1.73E-06
PARTICULATE											
I-131	0.00E+00	1.26E+01	0.00E+00	7.02E-05	1.75E-08	0.00E+00	0.00E+00	0.00E+00	5.55E-01	4.99E-06	6.59E-05
I-132	0.00E+00	7.10E-10	0.00E+00	3.94E-15	9.80E-19	0.00E+00	0.00E+00	0.00E+00	6.54E-13	5.74E-15	3.08E-14
I-133	0.00E+00	2.30E+00	0.00E+00	1.28E-05	3.18E-09	0.00E+00	0.00E+00	0.00E+00	1.87E-02	1.65E-06	2.91E-05
I-134	0.00E+00	6.44E-27	0.00E+00	3.57E-32	8.89E-36	0.00E+00	0.00E+00	0.00E+00	1.20E-29	6.50E-31	3.30E-30
I-135	0.00E+00	7.69E-03	0.00E+00	4.27E-08	1.06E-11	0.00E+00	0.00E+00	0.00E+00	1.44E-05	1.50E-08	9.50E-08
ORGANIC											
I-131	0.00E+00	1.01E+01	0.00E+00	5.61E-05	1.40E-08	0.00E+00	0.00E+00	0.00E+00	4.44E-01	3.99E-06	5.27E-05
I-132	0.00E+00	5.68E-10	0.00E+00	3.15E-15	7.84E-19	0.00E+00	0.00E+00	0.00E+00	5.23E-13	4.59E-15	2.47E-14
I-133	0.00E+00	1.84E+00	0.00E+00	1.02E-05	2.54E-09	0.00E+00	0.00E+00	0.00E+00	1.49E-02	1.32E-06	2.32E-05
I-134	0.00E+00	5.15E-27	0.00E+00	2.86E-32	7.11E-36	0.00E+00	0.00E+00	0.00E+00	9.63E-30	5.20E-31	2.64E-30
I-135	0.00E+00	6.15E-03	0.00E+00	3.42E-08	8.50E-12	0.00E+00	0.00E+00	0.00E+00	1.15E-05	1.20E-08	7.60E-08
NOBLE GASES											
XE-131M	0.00E+00	1.75E+02	0.00E+00	9.69E-04	2.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-05	6.21E-04
XE-133M	0.00E+00	5.90E+02	0.00E+00	3.28E-03	8.15E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-05	2.51E-03
XE-133	0.00E+00	4.17E+04	0.00E+00	2.31E-01	5.76E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-03	1.62E-01
XE-135M	0.00E+00	4.82E-89	0.00E+00	2.67E-94	6.66E-98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-89	1.47E-88
XE-135	0.00E+00	1.40E+02	0.00E+00	7.75E-04	1.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.94E-05	1.60E-03
XE-138	0.00E+00	1.60E-78	0.00E+00	8.89E-84	2.21E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-79	7.94E-78
KR-83M	0.00E+00	6.57E-10	0.00E+00	3.65E-15	9.08E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-16	3.00E-15
KR-85M	0.00E+00	4.17E-02	0.00E+00	2.31E-07	5.76E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-08	4.93E-07
KR-85	0.00E+00	1.26E+03	0.00E+00	7.01E-03	1.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-06	7.35E-03
KR-87	0.00E+00	2.35E-15	0.00E+00	1.30E-20	3.25E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-20	7.78E-19
KR-88	0.00E+00	8.52E-05	0.00E+00	4.73E-10	1.18E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.88E-10	2.20E-09
						0.00E+00	0.00E+00	0.00E+00	1.15E+01	4.49E-03	1.76E-01

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

NEDC 92-032 ATTACH 1
SHEET 141 OF 161

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.17E+02	0.00E+00	2.90E-06	7.22E-10	0.00E+00	0.00E+00	0.00E+00	1.15E+00	1.03E-05	1.36E-04
I-132	0.00E+00	1.04E-10	0.00E+00	1.39E-18	3.46E-22	0.00E+00	0.00E+00	0.00E+00	2.07E-13	1.82E-15	9.76E-15
I-133	0.00E+00	2.47E+01	0.00E+00	3.30E-07	8.21E-11	0.00E+00	0.00E+00	0.00E+00	3.17E-02	2.81E-06	4.94E-05
I-134	0.00E+00	3.28E-31	0.00E+00	4.37E-39	1.09E-42	0.00E+00	0.00E+00	0.00E+00	1.89E-31	1.02E-32	5.18E-32
I-135	0.00E+00	2.68E-02	0.00E+00	3.58E-10	8.91E-14	0.00E+00	0.00E+00	0.00E+00	1.56E-05	1.62E-08	1.03E-07
PARTICULATE											
I-131	0.00E+00	1.19E+01	0.00E+00	1.59E-07	3.97E-11	0.00E+00	0.00E+00	0.00E+00	6.29E-02	5.66E-07	7.47E-06
I-132	0.00E+00	5.72E-12	0.00E+00	7.64E-20	1.90E-23	0.00E+00	0.00E+00	0.00E+00	1.14E-14	9.99E-17	5.36E-16
I-133	0.00E+00	1.36E+00	0.00E+00	1.81E-08	4.51E-12	0.00E+00	0.00E+00	0.00E+00	1.74E-03	1.54E-07	2.71E-06
I-134	0.00E+00	1.80E-32	0.00E+00	2.40E-40	5.98E-44	0.00E+00	0.00E+00	0.00E+00	1.04E-32	5.61E-34	2.85E-33
I-135	0.00E+00	1.47E-03	0.00E+00	1.97E-11	4.90E-15	0.00E+00	0.00E+00	0.00E+00	8.57E-07	8.92E-10	5.64E-09
ORGANIC											
I-131	0.00E+00	9.55E+00	0.00E+00	1.28E-07	3.17E-11	0.00E+00	0.00E+00	0.00E+00	5.03E-02	4.53E-07	5.98E-06
I-132	0.00E+00	4.57E-12	0.00E+00	6.11E-20	1.52E-23	0.00E+00	0.00E+00	0.00E+00	9.10E-15	7.99E-17	4.29E-16
I-133	0.00E+00	1.09E+00	0.00E+00	1.45E-08	3.61E-12	0.00E+00	0.00E+00	0.00E+00	1.39E-03	1.23E-07	2.17E-06
I-134	0.00E+00	1.44E-32	0.00E+00	1.92E-40	4.79E-44	0.00E+00	0.00E+00	0.00E+00	8.31E-33	4.49E-34	2.28E-33
I-135	0.00E+00	1.18E-03	0.00E+00	1.57E-11	3.92E-15	0.00E+00	0.00E+00	0.00E+00	6.85E-07	7.14E-10	4.51E-09
NOBLE GASES											
XE-131M	0.00E+00	1.68E+02	0.00E+00	2.24E-06	5.58E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-06	7.09E-05
XE-133M	0.00E+00	4.81E+02	0.00E+00	6.42E-06	1.60E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E-06	2.68E-04
XE-133	0.00E+00	3.82E+04	0.00E+00	5.10E-04	1.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.77E-04	1.82E-02
XE-135M	0.00E+00	1.48-107	0.00E+00	1.98-115	4.93-119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-97	1.76E-96
XE-135	0.00E+00	4.14E+01	0.00E+00	5.53E-07	1.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-06	1.13E-04
XE-138	0.00E+00	4.95E-95	0.00E+00	6.61-103	1.65-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-86	5.33E-85
KR-83M	0.00E+00	1.74E-12	0.00E+00	2.33E-20	5.79E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-18	3.42E-17
KR-85M	0.00E+00	3.34E-03	0.00E+00	4.47E-11	1.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-10	2.08E-08
KR-85	0.00E+00	1.26E+03	0.00E+00	1.69E-05	4.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-07	8.53E-04
KR-87	0.00E+00	3.70E-19	0.00E+00	4.95E-27	1.23E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.02E-23	3.05E-21
KR-88	0.00E+00	1.62E-06	0.00E+00	2.16E-14	5.39E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.38E-12	5.32E-11
						0.00E+00	0.00E+00	0.00E+00	1.29E+00	5.00E-04	1.97E-02

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1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.68E+02	0.00E+00	3.69E-18	9.18E-22	0.00E+00	0.00E+00	0.00E+00	2.61E-03	2.35E-08	3.10E-07
I-132	0.00E+00	3.94E-20	0.00E+00	8.65E-40	2.15E-43	0.00E+00	0.00E+00	0.00E+00	4.02E-18	3.52E-20	1.89E-19
I-133	0.00E+00	2.29E+00	0.00E+00	5.04E-20	1.25E-23	0.00E+00	0.00E+00	0.00E+00	4.50E-05	3.99E-09	7.02E-08
I-134	0.00E+00	3.35E-56	0.00E+00	7.36E-76	1.83E-79	0.00E+00	0.00E+00	0.00E+00	1.27E-39	6.87E-41	3.49E-40
I-135	0.00E+00	1.58E-05	0.00E+00	3.46E-25	8.62E-29	0.00E+00	0.00E+00	0.00E+00	7.19E-09	7.48E-12	4.73E-11
PARTICULATE											
I-131	0.00E+00	9.22E+00	0.00E+00	2.03E-19	5.04E-23	0.00E+00	0.00E+00	0.00E+00	1.43E-04	1.29E-09	1.70E-08
I-132	0.00E+00	2.16E-21	0.00E+00	4.75E-41	1.18E-44	0.00E+00	0.00E+00	0.00E+00	2.21E-19	1.94E-21	1.04E-20
I-133	0.00E+00	1.26E-01	0.00E+00	2.77E-21	6.89E-25	0.00E+00	0.00E+00	0.00E+00	2.47E-06	2.19E-10	3.85E-09
I-134	0.00E+00	1.84E-57	0.00E+00	4.04E-77	1.01E-80	0.00E+00	0.00E+00	0.00E+00	6.99E-41	3.77E-42	1.92E-41
I-135	0.00E+00	8.66E-07	0.00E+00	1.90E-26	4.74E-30	0.00E+00	0.00E+00	0.00E+00	3.95E-10	4.11E-13	2.60E-12
ORGANIC											
I-131	0.00E+00	7.37E+00	0.00E+00	1.62E-19	4.03E-23	0.00E+00	0.00E+00	0.00E+00	1.15E-04	1.03E-09	1.36E-08
I-132	0.00E+00	1.73E-21	0.00E+00	3.80E-41	9.47E-45	0.00E+00	0.00E+00	0.00E+00	1.76E-19	1.55E-21	8.32E-21
I-133	0.00E+00	1.01E-01	0.00E+00	2.21E-21	5.51E-25	0.00E+00	0.00E+00	0.00E+00	1.98E-06	1.75E-10	3.08E-09
I-134	0.00E+00	1.47E-57	0.00E+00	3.23E-77	8.05E-81	0.00E+00	0.00E+00	0.00E+00	5.59E-41	3.02E-42	1.53E-41
I-135	0.00E+00	6.93E-07	0.00E+00	1.52E-26	3.79E-30	0.00E+00	0.00E+00	0.00E+00	3.16E-10	3.29E-13	2.08E-12
NOBLE GASES											
XE-131M	0.00E+00	1.41E+02	0.00E+00	3.09E-18	7.70E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-09	1.64E-07
XE-133M	0.00E+00	1.92E+02	0.00E+00	4.21E-18	1.05E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-09	5.27E-07
XE-133	0.00E+00	2.57E+04	0.00E+00	5.66E-16	1.41E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-06	4.01E-05
XE-135M	0.00E+00	7.42-191	0.00E+00	1.63-210	4.06-214	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34-118	1.30-117
XE-135	0.00E+00	1.74E-01	0.00E+00	3.83E-21	9.54E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-09	8.10E-08
XE-138	0.00E+00	2.51-169	0.00E+00	5.51-189	1.37-192	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51-105	3.96-104
KR-83M	0.00E+00	4.43E-24	0.00E+00	9.74E-44	2.42E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-23	2.18E-22
KR-85M	0.00E+00	3.93E-08	0.00E+00	8.62E-28	2.15E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-13	4.01E-12

KR-85	0.00E+00	1.26E+03	0.00E+00	2.77E-17	6.90E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.97E-10	2.06E-06
KR-87	0.00E+00	2.87E-36	0.00E+00	6.31E-56	1.57E-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-29	1.16E-27
KR-88	0.00E+00	2.92E-14	0.00E+00	6.41E-34	1.60E-37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-16	2.44E-15
						0.00E+00	0.00E+00	0.00E+00	2.92E-03	1.10E-06	4.34E-05

1 FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.79E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-15	2.98E-20	3.93E-19
I-132	0.00E+00	8.66-102	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E-39	2.19E-41	1.18E-40
I-133	0.00E+00	2.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.88E-18	6.09E-22	1.07E-20
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	2.14E-76	1.16E-77	5.87E-77
I-135	0.00E+00	1.58E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.95E-24	7.24E-27	4.58E-26
PARTICULATE											
I-131	0.00E+00	9.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-16	1.64E-21	2.16E-20
I-132	0.00E+00	4.76-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-40	1.21E-42	6.47E-42
I-133	0.00E+00	1.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-19	3.35E-23	5.89E-22
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	1.18E-77	6.35E-79	3.22E-78
I-135	0.00E+00	8.66E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-25	3.98E-28	2.51E-27
ORGANIC											
I-131	0.00E+00	7.85E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-16	1.31E-21	1.73E-20
I-132	0.00E+00	3.81-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-40	9.64E-43	5.18E-42
I-133	0.00E+00	1.14E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-19	2.68E-23	4.71E-22
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	9.41E-78	5.08E-79	2.58E-78
I-135	0.00E+00	6.93E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-25	3.18E-28	2.01E-27
NOBLE GASES											
XE-131M	0.00E+00	3.06E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.49E-21	2.27E-19
XE-133M	0.00E+00	6.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.81E-21	3.45E-19

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XE-133	0.00E+00	8.47E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-18	4.45E-17
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	1.93-213	1.07-212
XE-135	0.00E+00	4.54E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-23	5.62E-22
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	1.26-191	3.30-190
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	8.02E-47	9.13E-46
KR-85M	0.00E+00	7.29E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-30	7.75E-29
KR-85	0.00E+00	1.26E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-21	3.38E-18
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	3.88E-58	1.48E-56
KR-88	0.00E+00	2.21E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-35	7.21E-35
						0.00E+00	0.00E+00	0.00E+00	3.65E-15	1.21E-18	4.89E-17
				TOTAL DOSES 0-30 DAYS		7.13E+00	2.63E-02	1.10E-01	2.73E+01	1.07E-02	4.20E-01

1

FHA - CR, LPZ, 0-70 sec, CR, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	5.65E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.65E+01
I-132	3.42E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-08
I-133	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E+01
I-134	1.66E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-23
I-135	7.62E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-02
PARTICULATE						
I-131	3.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E+00
I-132	1.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-09
I-133	7.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.14E-01
I-134	9.11E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.11E-25
I-135	4.19E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-03
ORGANIC						
I-131	2.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.48E+00
I-132	1.50E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-09
I-133	5.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.72E-01
I-134	7.29E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.29E-25
I-135	3.35E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.35E-03
NOBLE GASES						
XE-131M	4.25E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E+01
XE-133M	1.56E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E+02
XE-133	1.04E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E+04
XE-135M	2.02E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-80
XE-135	6.11E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.11E+01
XE-138	6.72E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.72E-71
KR-83M	3.03E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-09
KR-85M	3.51E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-02
KR-85	3.01E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E+02
KR-87	4.44E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.44E-14
KR-88	1.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-04

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END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 22:32:42.68

APPENDIX O

Analysis with 80 second isoaltion

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AXIDENT VER 2 MOD 4
                    PRODUCTION DATE 02/18/92
                    BEGIN EXECUTION DATE:  12/03/1999
                    BEGIN EXECUTION TIME:  09:32:12.16



                     1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated
                     2 10 2 0.0 1.0
                     3 -1 1.0E7 1.4186E5 6.46E4
                     4 0.0 0.0 0.0 1.0 1.0 7.95E5 0.0
                     5 45.0 80.0 90.0 1.8E3 3.6E3 7.2E3 2.88E4 8.64E4 3.456E5 2.592E6
                     6 10*1.0
                     7 2*3.10E-3 8*0
                     8 10*1.0
                     9 2*3316 8*891
                    10 3.20E-4 3.20E-4 3.20E-4 1.10E-4 4.00E-5 4.00E-5 4.00E-5 1.60E-5 5.80E-6 1.70E-6
                    11 3*2.695E-4 1.00E-9 1.00E-9 1.00E-9 2.65E-9 6.41E-8 1.20E-8 6.64E-9
                    12 10*0.0
                    13 10*0.0
                    14 10*0.0
                    15 10*0.0
                    16 10*0.0
                    17 10*0.0
                    18 10*0.0
                    19 10*0.0
                    20 10*0.0
                    21 1.0 1.0 1.0 1.0 1.0 1.0
                    22 1.0 1.0 1.0
                    23 1.289E+03 7.833E-07 2.969E+02 3.813E-22 1.742E+00 2.205E+02 8.096E+02 5.392E+04
                    24 1.075E-79 3.174E+02 3.570E-70 1.581E-08 1.823E-01 1.564E+03 2.317E-13 7.658E-04
1

            FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

                                    INITIAL CONTAINMENT INVENTORY

                                    ISOTOPE    ACTIVITY (CURIES)

                                    I-131           1.289E+03
                                    I-132           7.833E-07
                                    I-133           2.969E+02
                                    I-134           3.813E-22
                                    I-135           1.742E+00
                                    XE-131M         2.205E+02
                                    XE-133M         8.096E+02
                                    XE-133          5.392E+04
                                    XE-135M         1.075E-79
                                    XE-135          3.174E+02
                                    XE-138          3.570E-70
                                    KR-83M          1.581E-08
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KR-85M	1.823E-01
KR-85	1.564E+03
KR-87	2.317E-13
KR-88	7.658E-04

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .013 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .27E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	8.39E-18	2.56E+02	3.74E+01	1.56E-02	3.89E-06	4.57E+00	1.11E-03	5.42E-04	3.35E-02	3.02E-07	3.98E-06
I-132	5.08E-27	1.55E-07	2.27E-08	9.46E-12	2.36E-15	1.59E-11	4.35E-12	7.48E-13	1.16E-13	1.02E-15	5.49E-15
I-133	1.93E-18	5.89E+01	8.61E+00	3.60E-03	8.96E-07	1.72E-01	3.29E-04	2.68E-04	1.26E-03	1.12E-07	1.97E-06
I-134	2.46E-42	7.49E-23	1.10E-23	4.58E-27	1.14E-30	1.34E-27	1.71E-27	3.69E-28	9.85E-30	5.32E-31	2.70E-30
I-135	1.13E-20	3.45E-01	5.05E-02	2.11E-05	5.25E-09	1.74E-04	7.19E-06	1.14E-06	1.28E-06	1.33E-09	8.40E-09
PARTICULATE											
I-131	4.61E-19	1.41E+01	2.05E+00	8.59E-04	2.14E-07	2.51E-01	6.10E-05	2.98E-05	1.84E-03	1.66E-08	2.19E-07
I-132	2.79E-28	8.51E-09	1.25E-09	5.20E-13	1.29E-16	8.72E-13	2.39E-13	4.11E-14	6.40E-15	5.61E-17	3.02E-16
I-133	1.06E-19	3.24E+00	4.73E-01	1.98E-04	4.92E-08	9.46E-03	1.81E-05	1.47E-05	6.94E-05	6.14E-09	1.08E-07
I-134	1.35E-43	4.12E-24	6.05E-25	2.52E-28	6.26E-32	7.39E-29	9.38E-29	2.02E-29	5.41E-31	2.92E-32	1.48E-31
I-135	6.23E-22	1.90E-02	2.77E-03	1.16E-06	2.89E-10	9.55E-06	3.95E-07	6.29E-08	7.01E-08	7.30E-11	4.62E-10
ORGANIC											
I-131	3.69E-19	1.12E+01	1.64E+00	6.87E-04	1.71E-07	2.01E-01	4.88E-05	2.38E-05	1.47E-03	1.33E-08	1.75E-07
I-132	2.23E-28	6.81E-09	9.97E-10	4.16E-13	1.04E-16	6.97E-13	1.91E-13	3.29E-14	5.12E-15	4.49E-17	2.41E-16
I-133	8.50E-20	2.59E+00	3.78E-01	1.58E-04	3.94E-08	7.56E-03	1.44E-05	1.18E-05	5.55E-05	4.92E-09	8.65E-08
I-134	1.08E-43	3.29E-24	4.84E-25	2.01E-28	5.01E-32	5.91E-29	7.50E-29	1.62E-29	4.33E-31	2.34E-32	1.19E-31
I-135	4.98E-22	1.52E-02	2.22E-03	9.27E-07	2.31E-10	7.64E-06	3.16E-07	5.03E-08	5.61E-08	5.84E-11	3.69E-10
NOBLE GASES											
XE-131M	6.31E-18	1.92E+02	2.81E+01	1.18E-02	2.93E-06	0.00E+00	4.95E-05	2.79E-04	0.00E+00	5.87E-08	2.05E-06
XE-133M	2.32E-17	7.06E+02	1.03E+02	4.32E-02	1.07E-05	0.00E+00	2.72E-04	1.18E-03	0.00E+00	9.54E-08	8.65E-06
XE-133	1.54E-15	4.70E+04	6.87E+03	2.87E+00	7.15E-04	0.00E+00	1.65E-02	7.39E-02	0.00E+00	1.42E-05	5.42E-04
XE-135M	2.98E-99	9.07E-80	1.35E-80	5.54E-84	1.38E-87	0.00E+00	4.55E-85	9.62E-86	0.00E+00	1.26E-88	7.03E-88

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XE-135	9.08E-18	2.77E+02	4.05E+01	1.69E-02	4.21E-06	0.00E+00	7.96E-04	9.59E-04	0.00E+00	2.17E-07	7.04E-06
XE-138	9.92E-90	3.02E-70	4.48E-71	1.85E-74	4.60E-78	0.00E+00	1.03E-74	2.64E-75	0.00E+00	7.38E-79	1.93E-77
KR-83M	4.50E-28	1.37E-08	2.01E-09	8.39E-13	2.09E-16	0.00E+00	8.04E-16	5.03E-15	0.00E+00	3.25E-18	3.69E-17
KR-85M	5.21E-21	1.59E-01	2.32E-02	9.70E-06	2.41E-09	0.00E+00	2.90E-07	3.98E-07	0.00E+00	8.47E-11	2.92E-09
KR-85	4.48E-17	1.36E+03	1.99E+02	8.34E-02	2.08E-05	0.00E+00	3.35E-05	3.27E-03	0.00E+00	9.31E-09	2.40E-05
KR-87	6.59E-33	2.01E-13	2.94E-14	1.23E-17	3.05E-21	0.00E+00	3.24E-18	2.28E-18	0.00E+00	4.38E-22	1.67E-20
KR-88	2.19E-23	6.66E-04	9.75E-05	4.07E-08	1.01E-11	0.00E+00	1.36E-08	2.45E-09	0.00E+00	3.16E-12	1.80E-11
						5.21E+00	1.92E-02	8.05E-02	3.82E-02	1.51E-05	5.91E-04

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .022 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE=3316.0 CFM

X/Q CONT ROOM= .27E-03 SEC/M3 SEC RELEASE RATE= .27E+03 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	5.29E-33	2.30E+02	2.63E+01	2.64E-02	6.58E-06	3.21E+00	7.81E-04	3.81E-04	7.03E-02	6.32E-07	8.35E-06
I-132	3.19E-42	1.39E-07	1.59E-08	1.60E-11	3.97E-15	1.11E-11	3.05E-12	5.24E-13	2.43E-13	2.14E-15	1.15E-14
I-133	1.22E-33	5.28E+01	6.06E+00	6.09E-03	1.51E-06	1.21E-01	2.31E-04	1.89E-04	2.65E-03	2.34E-07	4.13E-06
I-134	1.54E-57	6.67E-23	7.68E-24	7.68E-27	1.91E-30	9.38E-28	1.19E-27	2.57E-28	2.05E-29	1.11E-30	5.62E-30
I-135	7.14E-36	3.10E-01	3.55E-02	3.56E-05	8.87E-09	1.22E-04	5.05E-06	8.05E-07	2.67E-06	2.78E-09	1.76E-08
PARTICULATE											
I-131	2.91E-34	1.26E+01	1.45E+00	1.45E-03	3.62E-07	1.77E-01	4.29E-05	2.10E-05	3.86E-03	3.47E-08	4.59E-07
I-132	1.76E-43	7.61E-09	8.74E-10	8.77E-13	2.18E-16	6.11E-13	1.68E-13	2.88E-14	1.34E-14	1.17E-16	6.31E-16
I-133	6.69E-35	2.90E+00	3.33E-01	3.34E-04	8.32E-08	6.65E-03	1.27E-05	1.04E-05	1.46E-04	1.29E-08	2.27E-07
I-134	8.45E-59	3.67E-24	4.22E-25	4.22E-28	1.05E-31	5.15E-29	6.54E-29	1.41E-29	1.13E-30	6.08E-32	3.09E-31
I-135	3.92E-37	1.70E-02	1.95E-03	1.96E-06	4.88E-10	6.71E-06	2.78E-07	4.42E-08	1.47E-07	1.53E-10	9.67E-10
ORGANIC											
I-131	2.33E-34	1.01E+01	1.16E+00	1.16E-03	2.89E-07	1.41E-01	3.43E-05	1.68E-05	3.09E-03	2.78E-08	3.67E-07
I-132	1.40E-43	6.09E-09	6.99E-10	7.02E-13	1.75E-16	4.89E-13	1.34E-13	2.30E-14	1.07E-14	9.39E-17	5.04E-16
I-133	5.35E-35	2.32E+00	2.66E-01	2.67E-04	6.66E-08	5.32E-03	1.02E-05	8.29E-06	1.16E-04	1.03E-08	1.81E-07
I-134	6.76E-59	2.93E-24	3.37E-25	3.38E-28	8.41E-32	4.12E-29	5.23E-29	1.13E-29	9.02E-31	4.87E-32	2.47E-31

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I-135	3.14E-37	1.36E-02	1.56E-03	1.57E-06	3.90E-10	5.37E-06	2.22E-07	3.54E-08	1.18E-07	1.22E-10	7.74E-10
NOBLE GASES											
XE-131M	3.98E-33	1.73E+02	1.98E+01	1.99E-02	4.95E-06	0.00E+00	3.48E-05	1.97E-04	0.00E+00	1.23E-07	4.30E-06
XE-133M	1.46E-32	6.34E+02	7.26E+01	7.30E-02	1.82E-05	0.00E+00	1.92E-04	8.28E-04	0.00E+00	2.00E-07	1.81E-05
XE-133	9.73E-31	4.22E+04	4.84E+03	4.86E+00	1.21E-03	0.00E+00	1.16E-02	5.20E-02	0.00E+00	2.99E-05	1.14E-03
XE-135M	1.83-114	7.93E-80	9.21E-81	9.14E-84	2.27E-87	0.00E+00	3.11E-85	6.58E-86	0.00E+00	2.58E-88	1.44E-87
XE-135	5.72E-33	2.48E+02	2.84E+01	2.86E-02	7.11E-06	0.00E+00	5.60E-04	6.74E-04	0.00E+00	4.54E-07	1.48E-05
XE-138	6.11-105	2.65E-70	3.07E-71	3.05E-74	7.60E-78	0.00E+00	7.06E-75	1.81E-75	0.00E+00	1.51E-78	3.96E-77
KR-83M	2.83E-43	1.23E-08	1.41E-09	1.41E-12	3.52E-16	0.00E+00	5.64E-16	3.53E-15	0.00E+00	6.78E-18	7.72E-17
KR-85M	3.28E-36	1.42E-01	1.63E-02	1.64E-05	4.08E-09	0.00E+00	2.04E-07	2.80E-07	0.00E+00	1.77E-10	6.12E-09
KR-85	2.82E-32	1.22E+03	1.40E+02	1.41E-01	3.51E-05	0.00E+00	2.36E-05	2.30E-03	0.00E+00	1.95E-08	5.04E-05
KR-87	4.13E-48	1.79E-13	2.06E-14	2.06E-17	5.14E-21	0.00E+00	2.26E-18	1.59E-18	0.00E+00	9.14E-22	3.48E-20
KR-88	1.37E-38	5.96E-04	6.84E-05	6.87E-08	1.71E-11	0.00E+00	9.54E-09	1.72E-09	0.00E+00	6.62E-12	3.76E-11
						3.66E+00	1.35E-02	5.66E-02	8.02E-02	3.16E-05	1.24E-03

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .025 HOURS: X/Q(SITE)= .32E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-03 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	2.40E-37	2.30E+02	0.00E+00	2.64E-02	6.57E-06	0.00E+00	0.00E+00	0.00E+00	2.51E-02	2.26E-07	2.98E-06
I-132	1.45E-46	1.38E-07	0.00E+00	1.59E-11	3.97E-15	0.00E+00	0.00E+00	0.00E+00	8.68E-14	7.62E-16	4.09E-15
I-133	5.53E-38	5.28E+01	0.00E+00	6.08E-03	1.51E-06	0.00E+00	0.00E+00	0.00E+00	9.46E-04	8.37E-08	1.47E-06
I-134	6.97E-62	6.66E-23	0.00E+00	7.66E-27	1.91E-30	0.00E+00	0.00E+00	0.00E+00	7.29E-30	3.93E-31	2.00E-30
I-135	3.24E-40	3.09E-01	0.00E+00	3.56E-05	8.86E-09	0.00E+00	0.00E+00	0.00E+00	9.54E-07	9.93E-10	6.28E-09
PARTICULATE											
I-131	1.32E-38	1.26E+01	0.00E+00	1.45E-03	3.61E-07	0.00E+00	0.00E+00	0.00E+00	1.38E-03	1.24E-08	1.64E-07
I-132	7.96E-48	7.61E-09	0.00E+00	8.75E-13	2.18E-16	0.00E+00	0.00E+00	0.00E+00	4.77E-15	4.18E-17	2.25E-16
I-133	3.04E-39	2.90E+00	0.00E+00	3.34E-04	8.31E-08	0.00E+00	0.00E+00	0.00E+00	5.20E-05	4.60E-09	8.09E-08
I-134	3.83E-63	3.66E-24	0.00E+00	4.21E-28	1.05E-31	0.00E+00	0.00E+00	0.00E+00	4.00E-31	2.16E-32	1.10E-31

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I-135	1.78E-41	1.70E-02	0.00E+00	1.96E-06	4.87E-10	0.00E+00	0.00E+00	0.00E+00	5.24E-08	5.46E-11	3.45E-10
ORGANIC											
I-131	1.06E-38	1.01E+01	0.00E+00	1.16E-03	2.89E-07	0.00E+00	0.00E+00	0.00E+00	1.10E-03	9.92E-09	1.31E-07
I-132	6.37E-48	6.09E-09	0.00E+00	7.00E-13	1.74E-16	0.00E+00	0.00E+00	0.00E+00	3.81E-15	3.35E-17	1.80E-16
I-133	2.43E-39	2.32E+00	0.00E+00	2.67E-04	6.65E-08	0.00E+00	0.00E+00	0.00E+00	4.16E-05	3.68E-09	6.47E-08
I-134	3.06E-63	2.93E-24	0.00E+00	3.37E-28	8.38E-32	0.00E+00	0.00E+00	0.00E+00	3.20E-31	1.73E-32	8.78E-32
I-135	1.42E-41	1.36E-02	0.00E+00	1.56E-06	3.90E-10	0.00E+00	0.00E+00	0.00E+00	4.19E-08	4.37E-11	2.76E-10
NOBLE GASES											
XE-131M	1.81E-37	1.73E+02	0.00E+00	1.99E-02	4.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-08	1.54E-06
XE-133M	6.63E-37	6.34E+02	0.00E+00	7.29E-02	1.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.14E-08	6.47E-06
XE-133	4.42E-35	4.22E+04	0.00E+00	4.86E+00	1.21E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-05	4.06E-04
XE-135M	8.24-119	7.87E-80	0.00E+00	9.06E-84	2.25E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.08E-89	5.05E-88
XE-135	2.60E-37	2.48E+02	0.00E+00	2.85E-02	7.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-07	5.26E-06
XE-138	2.76-109	2.63E-70	0.00E+00	3.03E-74	7.54E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-79	1.39E-77
KR-83M	1.28E-47	1.23E-08	0.00E+00	1.41E-12	3.51E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-18	2.75E-17
KR-85M	1.49E-40	1.42E-01	0.00E+00	1.64E-05	4.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.33E-11	2.18E-09
KR-85	1.28E-36	1.22E+03	0.00E+00	1.41E-01	3.51E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.97E-09	1.80E-05
KR-87	1.87E-52	1.79E-13	0.00E+00	2.06E-17	5.12E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-22	1.24E-20
KR-88	6.24E-43	5.96E-04	0.00E+00	6.85E-08	1.71E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-12	1.34E-11
						0.00E+00	0.00E+00	0.00E+00	2.86E-02	1.13E-05	4.42E-04

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT .500 HOURS: X/Q(SITE)= .11E-03 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.29E+02	0.00E+00	2.20E-02	5.49E-06	0.00E+00	0.00E+00	0.00E+00	3.93E+00	3.53E-05	4.66E-04
I-132	0.00E+00	1.20E-07	0.00E+00	1.15E-11	2.87E-15	0.00E+00	0.00E+00	0.00E+00	1.27E-11	1.11E-13	5.97E-13
I-133	0.00E+00	5.20E+01	0.00E+00	5.00E-03	1.25E-06	0.00E+00	0.00E+00	0.00E+00	1.47E-01	1.30E-05	2.29E-04
I-134	0.00E+00	4.55E-23	0.00E+00	4.38E-27	1.09E-30	0.00E+00	0.00E+00	0.00E+00	9.53E-28	5.15E-29	2.61E-28

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I-135	0.00E+00	2.95E-01	0.00E+00	2.83E-05	7.06E-09	0.00E+00	0.00E+00	0.00E+00	1.46E-04	1.52E-07	9.60E-07
PARTICULATE											
I-131	0.00E+00	1.26E+01	0.00E+00	1.21E-03	3.02E-07	0.00E+00	0.00E+00	0.00E+00	2.16E-01	1.94E-06	2.56E-05
I-132	0.00E+00	6.59E-09	0.00E+00	6.34E-13	1.58E-16	0.00E+00	0.00E+00	0.00E+00	6.96E-13	6.11E-15	3.28E-14
I-133	0.00E+00	2.86E+00	0.00E+00	2.75E-04	6.84E-08	0.00E+00	0.00E+00	0.00E+00	8.07E-03	7.14E-07	1.26E-05
I-134	0.00E+00	2.50E-24	0.00E+00	2.41E-28	5.99E-32	0.00E+00	0.00E+00	0.00E+00	5.24E-29	2.83E-30	1.44E-29
I-135	0.00E+00	1.62E-02	0.00E+00	1.56E-06	3.88E-10	0.00E+00	0.00E+00	0.00E+00	8.01E-06	8.34E-09	5.27E-08
ORGANIC											
I-131	0.00E+00	1.01E+01	0.00E+00	9.69E-04	2.41E-07	0.00E+00	0.00E+00	0.00E+00	1.73E-01	1.55E-06	2.05E-05
I-132	0.00E+00	5.27E-09	0.00E+00	5.07E-13	1.26E-16	0.00E+00	0.00E+00	0.00E+00	5.57E-13	4.89E-15	2.63E-14
I-133	0.00E+00	2.29E+00	0.00E+00	2.20E-04	5.47E-08	0.00E+00	0.00E+00	0.00E+00	6.46E-03	5.71E-07	1.01E-05
I-134	0.00E+00	2.00E-24	0.00E+00	1.93E-28	4.79E-32	0.00E+00	0.00E+00	0.00E+00	4.19E-29	2.26E-30	1.15E-29
I-135	0.00E+00	1.29E-02	0.00E+00	1.25E-06	3.10E-10	0.00E+00	0.00E+00	0.00E+00	6.41E-06	6.67E-09	4.22E-08
NOBLE GASES											
XE-131M	0.00E+00	1.72E+02	0.00E+00	1.66E-02	4.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.87E-06	2.40E-04
XE-133M	0.00E+00	6.30E+02	0.00E+00	6.06E-02	1.51E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-05	1.01E-03
XE-133	0.00E+00	4.21E+04	0.00E+00	4.05E+00	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03	6.35E-02
XE-135M	0.00E+00	2.22E-80	0.00E+00	2.14E-84	5.32E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.18E-87	4.55E-86
XE-135	0.00E+00	2.39E+02	0.00E+00	2.30E-02	5.73E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-05	8.09E-04
XE-138	0.00E+00	8.52E-71	0.00E+00	8.19E-75	2.04E-78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.07E-77	1.32E-75
KR-83M	0.00E+00	1.03E-08	0.00E+00	9.89E-13	2.46E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.47E-16	3.95E-15
KR-85M	0.00E+00	1.32E-01	0.00E+00	1.27E-05	3.16E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.55E-09	3.29E-07
KR-85	0.00E+00	1.22E+03	0.00E+00	1.18E-01	2.93E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-06	2.82E-03
KR-87	0.00E+00	1.38E-13	0.00E+00	1.33E-17	3.30E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-20	1.71E-18
KR-88	0.00E+00	5.30E-04	0.00E+00	5.10E-08	1.27E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-10	1.98E-09
						0.00E+00	0.00E+00	0.00E+00	4.48E+00	1.76E-03	6.91E-02

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 1.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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

NEDC 97-032 ATTACH 1
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ELEMENTAL											
I-131	0.00E+00	2.29E+02	0.00E+00	1.82E-02	4.54E-06	0.00E+00	0.00E+00	0.00E+00	3.43E+00	3.09E-05	4.08E-04
I-132	0.00E+00	1.03E-07	0.00E+00	8.22E-12	2.05E-15	0.00E+00	0.00E+00	0.00E+00	9.59E-12	8.42E-14	4.52E-13
I-133	0.00E+00	5.12E+01	0.00E+00	4.08E-03	1.01E-06	0.00E+00	0.00E+00	0.00E+00	1.27E-01	1.12E-05	1.97E-04
I-134	0.00E+00	3.05E-23	0.00E+00	2.43E-27	6.06E-31	0.00E+00	0.00E+00	0.00E+00	5.66E-28	3.06E-29	1.55E-28
I-135	0.00E+00	2.80E-01	0.00E+00	2.23E-05	5.55E-09	0.00E+00	0.00E+00	0.00E+00	1.21E-04	1.26E-07	8.00E-07
PARTICULATE											
I-131	0.00E+00	1.26E+01	0.00E+00	1.00E-03	2.49E-07	0.00E+00	0.00E+00	0.00E+00	1.89E-01	1.70E-06	2.24E-05
I-132	0.00E+00	5.67E-09	0.00E+00	4.52E-13	1.12E-16	0.00E+00	0.00E+00	0.00E+00	5.27E-13	4.62E-15	2.48E-14
I-133	0.00E+00	2.81E+00	0.00E+00	2.24E-04	5.58E-08	0.00E+00	0.00E+00	0.00E+00	6.96E-03	6.16E-07	1.08E-05
I-134	0.00E+00	1.68E-24	0.00E+00	1.34E-28	3.33E-32	0.00E+00	0.00E+00	0.00E+00	3.11E-29	1.68E-30	8.53E-30
I-135	0.00E+00	1.54E-02	0.00E+00	1.22E-06	3.05E-10	0.00E+00	0.00E+00	0.00E+00	6.67E-06	6.95E-09	4.39E-08
ORGANIC											
I-131	0.00E+00	1.01E+01	0.00E+00	8.01E-04	1.99E-07	0.00E+00	0.00E+00	0.00E+00	1.51E-01	1.36E-06	1.79E-05
I-132	0.00E+00	4.54E-09	0.00E+00	3.61E-13	9.00E-17	0.00E+00	0.00E+00	0.00E+00	4.22E-13	3.70E-15	1.99E-14
I-133	0.00E+00	2.25E+00	0.00E+00	1.79E-04	4.46E-08	0.00E+00	0.00E+00	0.00E+00	5.57E-03	4.93E-07	8.67E-06
I-134	0.00E+00	1.34E-24	0.00E+00	1.07E-28	2.66E-32	0.00E+00	0.00E+00	0.00E+00	2.49E-29	1.34E-30	6.83E-30
I-135	0.00E+00	1.23E-02	0.00E+00	9.80E-07	2.44E-10	0.00E+00	0.00E+00	0.00E+00	5.34E-06	5.56E-09	3.52E-08
NOBLE GASES											
XE-131M	0.00E+00	1.72E+02	0.00E+00	1.37E-02	3.42E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.01E-06	2.10E-04
XE-133M	0.00E+00	6.26E+02	0.00E+00	4.99E-02	1.24E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-06	8.79E-04
XE-133	0.00E+00	4.20E+04	0.00E+00	3.34E+00	8.33E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-03	5.55E-02
XE-135M	0.00E+00	5.86E-81	0.00E+00	4.67E-85	1.16E-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-87	1.10E-86
XE-135	0.00E+00	2.30E+02	0.00E+00	1.83E-02	4.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-05	6.83E-04
XE-138	0.00E+00	2.60E-71	0.00E+00	2.07E-75	5.15E-79	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-77	3.67E-76
KR-83M	0.00E+00	8.54E-09	0.00E+00	6.81E-13	1.69E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.54E-16	2.89E-15
KR-85M	0.00E+00	1.22E-01	0.00E+00	9.71E-06	2.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.75E-09	2.67E-07
KR-85	0.00E+00	1.22E+03	0.00E+00	9.75E-02	2.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.56E-07	2.47E-03
KR-87	0.00E+00	1.05E-13	0.00E+00	8.36E-18	2.08E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-20	1.15E-18
KR-88	0.00E+00	4.68E-04	0.00E+00	3.73E-08	9.28E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-10	1.54E-09
						0.00E+00	0.00E+00	0.00E+00	3.91E+00	1.54E-03	6.04E-02

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 2.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .10E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

NEDC 88-032 ATTACH 1
SHEET 154 OF 161

PARTICULATE	.000	.000	.000	.000	1.000	1.000
ORGANIC	.000	.000	.000	.000	1.000	1.000

	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	0.00E+00	2.28E+02	0.00E+00	1.25E-02	3.10E-06	0.00E+00	0.00E+00	0.00E+00	5.19E+00	4.66E-05	6.16E-04
I-132	0.00E+00	7.64E-08	0.00E+00	4.17E-12	1.04E-15	0.00E+00	0.00E+00	0.00E+00	1.17E-11	1.03E-13	5.51E-13
I-133	0.00E+00	4.95E+01	0.00E+00	2.71E-03	6.73E-07	0.00E+00	0.00E+00	0.00E+00	1.87E-01	1.66E-05	2.92E-04
I-134	0.00E+00	1.37E-23	0.00E+00	7.51E-28	1.87E-31	0.00E+00	0.00E+00	0.00E+00	4.89E-28	2.64E-29	1.34E-28
I-135	0.00E+00	2.52E-01	0.00E+00	1.38E-05	3.43E-09	0.00E+00	0.00E+00	0.00E+00	1.71E-04	1.78E-07	1.12E-06
PARTICULATE											
I-131	0.00E+00	1.25E+01	0.00E+00	6.84E-04	1.70E-07	0.00E+00	0.00E+00	0.00E+00	2.85E-01	2.56E-06	3.38E-05
I-132	0.00E+00	4.20E-09	0.00E+00	2.29E-13	5.71E-17	0.00E+00	0.00E+00	0.00E+00	6.43E-13	5.64E-15	3.03E-14
I-133	0.00E+00	2.72E+00	0.00E+00	1.49E-04	3.70E-08	0.00E+00	0.00E+00	0.00E+00	1.03E-02	9.10E-07	1.60E-05
I-134	0.00E+00	7.54E-25	0.00E+00	4.12E-29	1.03E-32	0.00E+00	0.00E+00	0.00E+00	2.69E-29	1.45E-30	7.37E-30
I-135	0.00E+00	1.39E-02	0.00E+00	7.58E-07	1.89E-10	0.00E+00	0.00E+00	0.00E+00	9.38E-06	9.76E-09	6.18E-08
ORGANIC											
I-131	0.00E+00	1.00E+01	0.00E+00	5.48E-04	1.36E-07	0.00E+00	0.00E+00	0.00E+00	2.28E-01	2.05E-06	2.71E-05
I-132	0.00E+00	3.36E-09	0.00E+00	1.83E-13	4.57E-17	0.00E+00	0.00E+00	0.00E+00	5.14E-13	4.51E-15	2.42E-14
I-133	0.00E+00	2.18E+00	0.00E+00	1.19E-04	2.96E-08	0.00E+00	0.00E+00	0.00E+00	8.23E-03	7.28E-07	1.28E-05
I-134	0.00E+00	6.04E-25	0.00E+00	3.30E-29	8.21E-33	0.00E+00	0.00E+00	0.00E+00	2.15E-29	1.16E-30	5.90E-30
I-135	0.00E+00	1.11E-02	0.00E+00	6.06E-07	1.51E-10	0.00E+00	0.00E+00	0.00E+00	7.50E-06	7.81E-09	4.94E-08
NOBLE GASES											
XE-131M	0.00E+00	1.72E+02	0.00E+00	9.39E-03	2.34E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.09E-06	3.18E-04
XE-133M	0.00E+00	6.18E+02	0.00E+00	3.38E-02	8.41E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	1.32E-03
XE-133	0.00E+00	4.17E+04	0.00E+00	2.28E+00	5.68E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-03	8.36E-02
XE-135M	0.00E+00	4.08E-82	0.00E+00	2.23E-86	5.56E-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.26E-88	2.92E-87
XE-135	0.00E+00	2.13E+02	0.00E+00	1.17E-02	2.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-05	9.79E-04
XE-138	0.00E+00	2.41E-72	0.00E+00	1.32E-76	3.28E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.44E-78	1.16E-76
KR-83M	0.00E+00	5.90E-09	0.00E+00	3.22E-13	8.02E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-16	3.36E-15
KR-85M	0.00E+00	1.04E-01	0.00E+00	5.69E-06	1.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-08	3.61E-07
KR-85	0.00E+00	1.22E+03	0.00E+00	6.69E-02	1.67E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-06	3.74E-03
KR-87	0.00E+00	6.07E-14	0.00E+00	3.32E-18	8.26E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-20	1.18E-18
KR-88	0.00E+00	3.65E-04	0.00E+00	2.00E-08	4.97E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-10	1.95E-09
						0.00E+00	0.00E+00	0.00E+00	5.90E+00	2.32E-03	9.10E-02

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 8.000 HOURS: X/Q(SITE)= .40E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .27E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

NEDC 98-039 ATTACH 1
SHEET 155 OF 161

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

	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	0.00E+00	2.23E+02	0.00E+00	1.27E-03	3.16E-07	0.00E+00	0.00E+00	0.00E+00	1.01E+01	9.04E-05	1.19E-03
I-132	0.00E+00	1.25E-08	0.00E+00	7.13E-14	1.78E-17	0.00E+00	0.00E+00	0.00E+00	1.19E-11	1.04E-13	5.59E-13
I-133	0.00E+00	4.06E+01	0.00E+00	2.31E-04	5.76E-08	0.00E+00	0.00E+00	0.00E+00	3.38E-01	2.99E-05	5.26E-04
I-134	0.00E+00	1.14E-25	0.00E+00	6.47E-31	1.61E-34	0.00E+00	0.00E+00	0.00E+00	2.18E-28	1.18E-29	5.98E-29
I-135	0.00E+00	1.36E-01	0.00E+00	7.73E-07	1.93E-10	0.00E+00	0.00E+00	0.00E+00	2.61E-04	2.72E-07	1.72E-06
PARTICULATE											
I-131	0.00E+00	1.23E+01	0.00E+00	6.98E-05	1.74E-08	0.00E+00	0.00E+00	0.00E+00	5.53E-01	4.97E-06	6.56E-05
I-132	0.00E+00	6.88E-10	0.00E+00	3.92E-15	9.76E-19	0.00E+00	0.00E+00	0.00E+00	6.51E-13	5.72E-15	3.07E-14
I-133	0.00E+00	2.23E+00	0.00E+00	1.27E-05	3.16E-09	0.00E+00	0.00E+00	0.00E+00	1.86E-02	1.64E-06	2.89E-05
I-134	0.00E+00	6.24E-27	0.00E+00	3.55E-32	8.85E-36	0.00E+00	0.00E+00	0.00E+00	1.20E-29	6.47E-31	3.29E-30
I-135	0.00E+00	7.46E-03	0.00E+00	4.25E-08	1.06E-11	0.00E+00	0.00E+00	0.00E+00	1.44E-05	1.50E-08	9.46E-08
ORGANIC											
I-131	0.00E+00	9.80E+00	0.00E+00	5.59E-05	1.39E-08	0.00E+00	0.00E+00	0.00E+00	4.42E-01	3.98E-06	5.25E-05
I-132	0.00E+00	5.50E-10	0.00E+00	3.14E-15	7.81E-19	0.00E+00	0.00E+00	0.00E+00	5.21E-13	4.57E-15	2.46E-14
I-133	0.00E+00	1.78E+00	0.00E+00	1.02E-05	2.53E-09	0.00E+00	0.00E+00	0.00E+00	1.49E-02	1.31E-06	2.31E-05
I-134	0.00E+00	4.99E-27	0.00E+00	2.84E-32	7.08E-36	0.00E+00	0.00E+00	0.00E+00	9.59E-30	5.18E-31	2.63E-30
I-135	0.00E+00	5.97E-03	0.00E+00	3.40E-08	8.46E-12	0.00E+00	0.00E+00	0.00E+00	1.15E-05	1.20E-08	7.57E-08
NOBLE GASES											
XE-131M	0.00E+00	1.69E+02	0.00E+00	9.64E-04	2.40E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-05	6.18E-04
XE-133M	0.00E+00	5.72E+02	0.00E+00	3.26E-03	8.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-05	2.50E-03
XE-133	0.00E+00	4.04E+04	0.00E+00	2.30E-01	5.73E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-03	1.62E-01
XE-135M	0.00E+00	4.67E-89	0.00E+00	2.66E-94	6.62E-98	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-89	1.47E-88
XE-135	0.00E+00	1.35E+02	0.00E+00	7.71E-04	1.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.91E-05	1.60E-03
XE-138	0.00E+00	1.55E-78	0.00E+00	8.85E-84	2.20E-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.02E-79	7.90E-78
KR-83M	0.00E+00	6.37E-10	0.00E+00	3.63E-15	9.04E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-16	2.99E-15
KR-85M	0.00E+00	4.04E-02	0.00E+00	2.30E-07	5.73E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-08	4.91E-07
KR-85	0.00E+00	1.22E+03	0.00E+00	6.98E-03	1.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-06	7.31E-03
KR-87	0.00E+00	2.28E-15	0.00E+00	1.30E-20	3.23E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-20	7.74E-19
KR-88	0.00E+00	8.26E-05	0.00E+00	4.71E-10	1.17E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-10	2.19E-09
						0.00E+00	0.00E+00	0.00E+00	1.14E+01	4.47E-03	1.75E-01

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

NEDC 17080 ATTACH 1
SHEET 156 OF 161

AT 24.000 HOURS: X/Q(SITE)= .16E-04 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .64E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	2.11E+02	0.00E+00	2.89E-06	7.19E-10	0.00E+00	0.00E+00	0.00E+00	1.14E+00	1.03E-05	1.35E-04
I-132	0.00E+00	1.01E-10	0.00E+00	1.38E-18	3.44E-22	0.00E+00	0.00E+00	0.00E+00	2.06E-13	1.81E-15	9.71E-15
I-133	0.00E+00	2.39E+01	0.00E+00	3.28E-07	8.17E-11	0.00E+00	0.00E+00	0.00E+00	3.15E-02	2.79E-06	4.91E-05
I-134	0.00E+00	3.18E-31	0.00E+00	4.35E-39	1.08E-42	0.00E+00	0.00E+00	0.00E+00	1.88E-31	1.02E-32	5.16E-32
I-135	0.00E+00	2.60E-02	0.00E+00	3.56E-10	8.87E-14	0.00E+00	0.00E+00	0.00E+00	1.55E-05	1.62E-08	1.02E-07
PARTICULATE											
I-131	0.00E+00	1.16E+01	0.00E+00	1.59E-07	3.95E-11	0.00E+00	0.00E+00	0.00E+00	6.26E-02	5.63E-07	7.44E-06
I-132	0.00E+00	5.54E-12	0.00E+00	7.60E-20	1.89E-23	0.00E+00	0.00E+00	0.00E+00	1.13E-14	9.94E-17	5.34E-16
I-133	0.00E+00	1.32E+00	0.00E+00	1.80E-08	4.49E-12	0.00E+00	0.00E+00	0.00E+00	1.73E-03	1.53E-07	2.70E-06
I-134	0.00E+00	1.74E-32	0.00E+00	2.39E-40	5.95E-44	0.00E+00	0.00E+00	0.00E+00	1.03E-32	5.58E-34	2.83E-33
I-135	0.00E+00	1.43E-03	0.00E+00	1.96E-11	4.87E-15	0.00E+00	0.00E+00	0.00E+00	8.53E-07	8.88E-10	5.62E-09
ORGANIC											
I-131	0.00E+00	9.26E+00	0.00E+00	1.27E-07	3.16E-11	0.00E+00	0.00E+00	0.00E+00	5.01E-02	4.51E-07	5.95E-06
I-132	0.00E+00	4.43E-12	0.00E+00	6.08E-20	1.51E-23	0.00E+00	0.00E+00	0.00E+00	9.06E-15	7.95E-17	4.27E-16
I-133	0.00E+00	1.05E+00	0.00E+00	1.44E-08	3.59E-12	0.00E+00	0.00E+00	0.00E+00	1.39E-03	1.23E-07	2.16E-06
I-134	0.00E+00	1.40E-32	0.00E+00	1.91E-40	4.76E-44	0.00E+00	0.00E+00	0.00E+00	8.27E-33	4.46E-34	2.27E-33
I-135	0.00E+00	1.14E-03	0.00E+00	1.57E-11	3.90E-15	0.00E+00	0.00E+00	0.00E+00	6.82E-07	7.10E-10	4.49E-09
NOBLE GASES											
XE-131M	0.00E+00	1.63E+02	0.00E+00	2.23E-06	5.56E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-06	7.06E-05
XE-133M	0.00E+00	4.66E+02	0.00E+00	6.39E-06	1.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-06	2.67E-04
XE-133	0.00E+00	3.70E+04	0.00E+00	5.07E-04	1.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-04	1.81E-02
XE-135M	0.00E+00	1.44-107	0.00E+00	1.97-115	4.91-119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-97	1.75E-96
XE-135	0.00E+00	4.01E+01	0.00E+00	5.50E-07	1.37E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.47E-06	1.13E-04
XE-138	0.00E+00	4.80E-95	0.00E+00	6.58-103	1.64-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-86	5.30E-85
KR-83M	0.00E+00	1.69E-12	0.00E+00	2.32E-20	5.77E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-18	3.40E-17
KR-85M	0.00E+00	3.24E-03	0.00E+00	4.45E-11	1.11E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-10	2.07E-08
KR-85	0.00E+00	1.22E+03	0.00E+00	1.68E-05	4.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-07	8.49E-04
KR-87	0.00E+00	3.59E-19	0.00E+00	4.92E-27	1.23E-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.98E-23	3.04E-21
KR-88	0.00E+00	1.57E-06	0.00E+00	2.15E-14	5.36E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.33E-12	5.30E-11
						0.00E+00	0.00E+00	0.00E+00	1.29E+00	4.98E-04	1.96E-02

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1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS

1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 96.000 HOURS: X/Q(SITE)= .58E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM

X/Q CONT ROOM= .12E-07 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.63E+02	0.00E+00	3.67E-18	9.13E-22	0.00E+00	0.00E+00	0.00E+00	2.60E-03	2.33E-08	3.08E-07
I-132	0.00E+00	3.82E-20	0.00E+00	8.61E-40	2.14E-43	0.00E+00	0.00E+00	0.00E+00	4.00E-18	3.51E-20	1.88E-19
I-133	0.00E+00	2.22E+00	0.00E+00	5.01E-20	1.25E-23	0.00E+00	0.00E+00	0.00E+00	4.48E-05	3.97E-09	6.98E-08
I-134	0.00E+00	3.25E-56	0.00E+00	7.32E-76	1.82E-79	0.00E+00	0.00E+00	0.00E+00	1.27E-39	6.84E-41	3.47E-40
I-135	0.00E+00	1.53E-05	0.00E+00	3.45E-25	8.58E-29	0.00E+00	0.00E+00	0.00E+00	7.15E-09	7.45E-12	4.71E-11
PARTICULATE											
I-131	0.00E+00	8.94E+00	0.00E+00	2.02E-19	5.02E-23	0.00E+00	0.00E+00	0.00E+00	1.43E-04	1.28E-09	1.69E-08
I-132	0.00E+00	2.10E-21	0.00E+00	4.73E-41	1.18E-44	0.00E+00	0.00E+00	0.00E+00	2.20E-19	1.93E-21	1.03E-20
I-133	0.00E+00	1.22E-01	0.00E+00	2.75E-21	6.86E-25	0.00E+00	0.00E+00	0.00E+00	2.46E-06	2.18E-10	3.84E-09
I-134	0.00E+00	1.78E-57	0.00E+00	4.02E-77	1.00E-80	0.00E+00	0.00E+00	0.00E+00	6.96E-41	3.76E-42	1.91E-41
I-135	0.00E+00	8.39E-07	0.00E+00	1.89E-26	4.71E-30	0.00E+00	0.00E+00	0.00E+00	3.93E-10	4.09E-13	2.59E-12
ORGANIC											
I-131	0.00E+00	7.15E+00	0.00E+00	1.61E-19	4.01E-23	0.00E+00	0.00E+00	0.00E+00	1.14E-04	1.03E-09	1.35E-08
I-132	0.00E+00	1.68E-21	0.00E+00	3.79E-41	9.42E-45	0.00E+00	0.00E+00	0.00E+00	1.76E-19	1.54E-21	8.28E-21
I-133	0.00E+00	9.77E-02	0.00E+00	2.20E-21	5.49E-25	0.00E+00	0.00E+00	0.00E+00	1.97E-06	1.74E-10	3.07E-09
I-134	0.00E+00	1.43E-57	0.00E+00	3.22E-77	8.01E-81	0.00E+00	0.00E+00	0.00E+00	5.57E-41	3.00E-42	1.53E-41
I-135	0.00E+00	6.72E-07	0.00E+00	1.51E-26	3.77E-30	0.00E+00	0.00E+00	0.00E+00	3.14E-10	3.27E-13	2.07E-12
NOBLE GASES											
XE-131M	0.00E+00	1.37E+02	0.00E+00	3.08E-18	7.66E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-09	1.64E-07
XE-133M	0.00E+00	1.86E+02	0.00E+00	4.19E-18	1.04E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.79E-09	5.24E-07
XE-133	0.00E+00	2.50E+04	0.00E+00	5.63E-16	1.40E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-06	3.99E-05
XE-135M	0.00E+00	7.19-191	0.00E+00	1.62-210	4.04-214	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33-118	1.30-117
XE-135	0.00E+00	1.69E-01	0.00E+00	3.82E-21	9.50E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.48E-09	8.07E-08
XE-138	0.00E+00	2.43-169	0.00E+00	5.48-189	1.36-192	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51-105	3.94-104
KR-83M	0.00E+00	4.30E-24	0.00E+00	9.69E-44	2.41E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-23	2.17E-22
KR-85M	0.00E+00	3.81E-08	0.00E+00	8.58E-28	2.14E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-13	3.99E-12

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KR-85	0.00E+00	1.22E+03	0.00E+00	2.76E-17	6.87E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.93E-10	2.05E-06
KR-87	0.00E+00	2.78E-36	0.00E+00	6.28E-56	1.56E-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03E-29	1.15E-27
KR-88	0.00E+00	2.83E-14	0.00E+00	6.38E-34	1.59E-37	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.27E-16	2.42E-15
						0.00E+00	0.00E+00	0.00E+00	2.90E-03	1.09E-06	4.32E-05

1 FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ANALYSIS BASED ON: 1 MWT, 141860. FT3 CONT CENTER VOLUME, 64600. FT3 CONTROL ROOM VOLUME, 31.36 FT EFF RADIUS
1. FT3 SPRAYED VOL, 795000. FT3 UNSPRAYED VOL, 1. CFM MIXING, 00.00 PCT REL TO SPRAYED VOL

AT 720.000 HOURS: X/Q(SITE)= .17E-05 SEC/M3 PRIMARY LEAK RATE=****** PERCENT/DAY CONTROL ROOM INTAKE= 891.0 CFM
X/Q CONT ROOM= .66E-08 SEC/M3 SEC RELEASE RATE= .00E+00 VOL/DAY PCT PRI LKG TO ATM = 00.00

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

	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	0.00E+00	1.73E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-15	2.97E-20	3.92E-19
I-132	0.00E+00	8.40-102	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-39	2.18E-41	1.17E-40
I-133	0.00E+00	2.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.85E-18	6.06E-22	1.07E-20
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	2.13E-76	1.15E-77	5.84E-77
I-135	0.00E+00	1.53E-33	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.92E-24	7.20E-27	4.56E-26
PARTICULATE											
I-131	0.00E+00	9.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-16	1.63E-21	2.15E-20
I-132	0.00E+00	4.61-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-40	1.20E-42	6.44E-42
I-133	0.00E+00	1.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-19	3.33E-23	5.86E-22
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	1.17E-77	6.32E-79	3.21E-78
I-135	0.00E+00	8.40E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.80E-25	3.96E-28	2.50E-27
ORGANIC											
I-131	0.00E+00	7.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-16	1.30E-21	1.72E-20
I-132	0.00E+00	3.69-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-40	9.60E-43	5.15E-42
I-133	0.00E+00	1.11E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-19	2.66E-23	4.69E-22
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	9.36E-78	5.05E-79	2.57E-78
I-135	0.00E+00	6.72E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-25	3.17E-28	2.00E-27
NOBLE GASES											
XE-131M	0.00E+00	2.97E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.46E-21	2.26E-19
XE-133M	0.00E+00	6.39E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-21	3.44E-19

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XE-133	0.00E+00	8.21E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-18	4.43E-17
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	1.92-213	1.07-212
XE-135	0.00E+00	4.40E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-23	5.59E-22
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	1.26-191	3.28-190
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	7.98E-47	9.08E-46
KR-85M	0.00E+00	7.07E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-30	7.71E-29
KR-85	0.00E+00	1.22E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-21	3.37E-18
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	3.86E-58	1.47E-56
KR-88	0.00E+00	2.14E-81	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-35	7.18E-35
						0.00E+00	0.00E+00	0.00E+00	3.63E-15	1.21E-18	4.87E-17
TOTAL DOSES 0-30 DAYS						8.87E+00	3.28E-02	1.37E-01	2.72E+01	1.07E-02	4.18E-01

1

FHA - CR, LPZ, 0-80 sec, CR, Sec not isolated

ISOTOPE	ACTIVITY RELEASED (CURIES)					
	2. HRS	8. HRS	24. HRS	96. HRS	720. HRS	
ELEMENTAL						
I-131	6.37E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.37E+01
I-132	3.86E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-08
I-133	1.47E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E+01
I-134	1.87E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-23
I-135	8.60E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.60E-02
PARTICULATE						
I-131	3.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.50E+00
I-132	2.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-09
I-133	8.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.06E-01
I-134	1.03E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-24
I-135	4.72E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.72E-03
ORGANIC						
I-131	2.80E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E+00
I-132	1.70E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-09
I-133	6.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-01
I-134	8.21E-25	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.21E-25
I-135	3.78E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-03
NOBLE GASES						
XE-131M	4.79E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.79E+01
XE-133M	1.76E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E+02
XE-133	1.17E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E+04
XE-135M	2.27E-80	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-80
XE-135	6.89E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.89E+01
XE-138	7.56E-71	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-71
KR-83M	3.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-09
KR-85M	3.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.95E-02
KR-85	3.40E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E+02
KR-87	5.00E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-14
KR-88	1.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-04

NEDC 88-032 ATTACH 1
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END EXECUTION DATE: 12/03/1999
END EXECUTION TIME: 09:32:12.55