TOLEDO EDISON

E 2.30.1.5
RR 2 P-2-85-02

February 13, 1986

Mr. James G. Keppler
Regional Director, Region III
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Effluent and Waste Disposal Semiannual Report for the Period From July 1, 1985 through December 31, 1985 Davis-Besse Nuclear Power Station Unit 1.

Dear Mr. Keppler:

Enclosed find two (2) copies of the Effluent and Waste Disposal Semiannual Report for Davis-Besse Nuclear Power Station covering the third and fourth quarters of 1985. Included as attachments are the revised versions of the Offsite Dose Calculation Manual (ODCM) and the Process Control Program (PCP) per Davis-Besse's Technical Specifications Appendix A, Section 6.9.1.11.

The applicable portions of Regulatory Guides 1.109, 1.111, and 1.113 have been used along with NUREG-0133 for dose calculations and meteorological modeling methodology to demonstrate compliance with Appendix I to 10 CFR Part 50.

Sincerely,

Louis F. Storz

Louis F. Storz
Plant Manager
Davis-Besse Nuclear Power Station

LFS/JB

mj d/61

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1/25

Enclosures

cc: Mr. James M. Taylor
Office of Inspection & Enforcement
Encl.: 25 copies

Ohio Environmental Protection Agency
Northwest District Office
Services
Encl: 1 copy

Health Program Director
Ohio Department of Health
Encl: 1 copy

Mr. James Greer
Ottawa County Disaster

Encl: 1 copy

NRC Resident Inspector
Encl: 1 copy

EFFLUENT AND WASTE DISPOSAL

SEMIANNUAL REPORT

DAVIS-BESSE NUCLEAR POWER STATION

UNIT 1

For the Period From

JULY 1, 1985 - DECEMBER 31, 1985

Docket No. 50-346
License No. NPF-3

TOLEDO EDISON COMPANY
300 MADISON AVENUE
TOLEDO, OHIO 43652

FEBRUARY, 1986

EFFLUENT AND WASTE DISPOSAL

SEMIANNUAL REPORT

DAVIS-BESSE NUCLEAR POWER STATION

UNIT 1

JULY 1, 1985 - DECEMBER 31, 1985

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(continued)

Facility: Davis-Besse Nuclear Power Station, Unit 1
Licensee: The Toledo Edison Company
Reporting Period: July 1, 1985 - December 31, 1985

Supplemental Information:

1. Regulatory Limits

Liquid and Gaseous Radioactive Effluent Limits

	LIQUID	GAS	
ANNUAL DOSE COMMITMENT FROM URANIUM FUEL CYCLE SOURCES (40 CFR 190)	≤25 mrems total body or any organ ≤75 mrems thyroid		
DOSE LIMIT		Noble Gas	I-131, Tritium & Particulates**
Calendar quarter	≤1.5 mrem total body ≤5 mrem to any organ	≤5 mrad /qtr.* ≤10 mrad /qtr.*	≤7.5 mrems/qtr. any organ
Calendar year	≤3 mrem total body ≤10 mrem to any organ	≤10 mrad /yr* ≤20 mrad /yr*	≤15 mrems/yr any organ
DOSE RATE LIMIT		≤500 mrems/yr total body ≤3000 mrems/yr skin	≤1500 mrems/yr any organ
MICROCURIES PER MILLIMETER LIMIT	10 CFR 20 Part 20.106		
MICROCURIES PER MILLIMETER LIMIT FOR DISSOLVED OR ENTRAINED NOBLE GASES	2×10^{-4} microcuries/ml		

*Absorbed Air Dose
**With half-lifes greater than 8 days

2. Maximum Permissible Concentrations - Limits used are specified in 10 CFR 20, Appendix B, Table II, Column 2.

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases

1. These gases, excluding tritium, are collected in a Marinelli type beaker, specially modified for gas sampling, steel bombs, or glass vials and counted on a germanium detector for principal gamma emitters.

2. Tritium gas is collected using a bubbler apparatus and counted by liquid scintillation.

b. Iodines - are collected on a charcoal or zeolite cartridge filter, and counted on a germanium detector.

c. Particulates - are collected on filter paper and counted on a germanium detector.

d. Liquid Effluents - are counted in a bottle or Marinelli beaker on a germanium detector.

5. Batch Releases

a. Liquid

1.	Number of batch releases:	35
2.	Total time period for batch releases:	5.31E+01 Hours
3.	Maximum time period for a batch release:	1.80E+02 Minutes
4.	Average time period for batch releases:	9.11E+01 Minutes
5.	Minimum time period for a batch release:	7.50E+01 Minutes

b. Gaseous

1.	Number of batch releases:	5
2.	Number of containment purges:	3
3.	Number of waste gas decay tank releases:	2
4.	Total time period for batch releases:	1.15E+02 Hours
5.	Maximum time period for a batch release:	2.22E+03 Minutes
6.	Average time period for batch releases:	1.38E+03 Minutes
7.	Minimum time period for a batch release:	8.80E+01 Minutes

6. Abnormal Releases

None

7. Radiological Effluent Technical Specifications (RETS)
Percent of Limits

Specification	Limit	Percent
a. Quarterly: Gaseous Third quarter, 1985		
Noble gases (gamma)	5 mRad/qtr	7.46E-03
Noble gases (beta)	10 mRad/qtr	1.10E-02
I-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days	7.5 mRem/qtr	2.76E-03
b. Quarterly: Gaseous Fourth quarter, 1985		
Noble gases (gamma)	5 mRad/qtr	4.14E-06
Noble gases (beta)	10 mRad/qtr	2.34E-04
I-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days	7.5 mRem/qtr	1.83E-03
c. Calendar year: Gaseous		
Noble gases (gamma)	10 mRad/yr	3.73E-03*
Noble gases (beta)	20 mRad/yr	5.64E-03*
I-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days	15 mRem/yr	2.29E-03
d. Quarterly: Liquid Third quarter, 1985		
Total body	1.5 mRem/qtr	9.99E+00
Any organ (LIVER)	5 mRem/qtr	4.27E+00
e. Quarterly, Liquid Fourth quarter, 1985		
Total body	1.5 mRem/qtr	9.89E-01
Any organ (LIVER)	5 mRem/qtr	4.19E-01
f. Calendar year:		
Total body	3 mRem/yr	5.49E+00*
Any organ (LIVER)	10 mRem/yr	2.34E+00*

* Value represents the percent of annual limit for the third and fourth quarters of 1985 since Davis-Besse's RETS went into effect during the second half of 1985.

8. Dose Assessment

The following is a list of the sources of input data:

a. Water usage - source:
Appendix I analysis, NRC Docket 50-346, Evaluation of Compliance with Appendix I to 10CFR50, June 4, 1976, Davis-Besse Nuclear Power Station Unit No. 1.

b. 0-50 mile meat, milk, vegetable production, and population data - source:
1982 Annual Environmental Operating Report, report entitled, 'Evaluation of Compliance With Appendix I to 10CFR50: Updated Population, Agricultural, Meat-Animal, and Milk Production Data Tables for 1982'. This evaluation was based on the 1980 Census; the Agricultural Ministry of Ontario 1980 report entitled, 'Agricultural Statistics and Livestock Marketing Account, 1980'; the Agricultural Ministry of Ontario 1980 report entitled 'Agricultural Statistics for Ontario - 1980 Publication 21, 1980'; the Michigan Department of Agriculture, July, 1981 report entitled 'Michigan Agricultural Statistics, 1981'; the Ohio Crop Reporting Service, 1981 report entitled 'Ohio Agricultural Statistics, 1981'

c. Gaseous and liquid source terms - sources: Tables 1A, 1C, 2A and 2B.

d. Location of the nearest individuals and pathways by sector out to 5 miles - source:
1985 Annual Environmental Operating Report, report entitled, 'Land Use Census'.

Tables 1 and 3 present the maximum doses computed from the noble gas effluents for each quarter. Tables 2 and 4 present doses resulting from gaseous iodine, and particulate effluents. Doses resulting from liquid releases are presented in Tables 5 and 6.

9. Inoperable RETS Equipment

The following are explanations as to why certain monitoring equipment required under Davis-Besse's Radiological Effluent Technical Specifications were inoperable for more than 30 days.

a. Waste Gas System Effluent Flow Rate Measuring Device's FT1821 and FT1821A were declared inoperable on 10/30/85 at 0000 hours. These meters were found to be malfunctioning during calibration and were sent to a vendor for repair. The vendor has informed us that replacement parts are no longer available. New monitors have been ordered and we are currently awaiting shipment.

b. Waste Gas System Oxygen Monitor AE5828B was declared inoperable on 11/8/85 at 0825 hours. Due to engineering difficulties this meter is still inoperable.

c. Station Vent Stack Radiation Monitor Sample Flow Device FT4598AA was declared inoperable on 10/30/85 at 0000 hours. The meter was returned to an operable state on 2/12/86 at 0200 hours. The delay in getting the meter back to an operable state was due to the implementation of newly acquired test equipment. The total days of inoperability was 105 days.

d. Station Vent Stack Radiation Monitor Sample Flow Device FT4598BA was declared inoperable on 10/30/85 at 0000 hours. The meter was declared operable on 12/6/85 at 1650 hours. The delay was caused by the implementation of newly acquired test equipment. The total days of inoperability was 36 days.

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1985)
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CI	1.81E+01	2.07E-01	2.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.27E+00	2.61E-02	
3. PERCENT OF TECHNICAL SPEC. LIMIT (RETS)	See Sect 7, Supp Information			
B. I-131, TRITIUM, PARTICULATES, and ALPHA				
1. I-131, TRITIUM, AND PARTICULATES WITH HALF-LIVES > 8 DAYS	CI	3.06E+00	2.76E+00	2.00E+01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	3.84E-01	3.48E-01	
3. PERCENT OF TECHNICAL SPEC. LIMIT (RETS)	See Sect 7, Supp Information			
4. GROSS ALPHA RADIO-ACTIVITY	CI	1.36E-05	7.99E-06	

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (85-2)

GASEOUS EFFLUENTS- ELEVATED RELEASE *

Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
1. Fission gases					
krypton-85	Ci	. E	. E	. E	. E
krypton-85m	Ci	. E	. E	. E	. E
krypton-87	Ci	. E	. E	. E	. E
krypton-88	Ci	. E	. E	. E	. E
xenon-133	Ci	. E	. E	. E	. E
xenon-135	Ci	. E	. E	. E	. E
xenon-135m	Ci	. E	. E	. E	. E
xenon-138	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E
2. Iodines					
iodine-131	Ci	. E	. E	. E	. E
iodine-133	Ci	. E	. E	. E	. E
iodine-135	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E
3. Particulates					
strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	. E	. E	. E	. E
cesium-137	Ci	. E	. E	. E	. E
barium-lanthanum-140	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E

* Not applicable; all releases are classified as mixed mode releases.

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1985)
GASEOUS EFFLUENTS MIXED MODE RELEASES

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE 3RD QUARTER	CONTINUOUS MODE 4TH QUARTER	BATCH MODE 3RD QUARTER	BATCH MODE 4TH QUARTER
1. FISSION GASES					
KR-85	CI	0.00E-01	0.00E-01	6.92E-03	2.07E-01
XE131M	CI	0.00E-01	0.00E-01	7.85E-05	0.00E-01
XE133M	CI	0.00E-01	0.00E-01	7.09E-02	0.00E-01
XE-133	CI	0.00E-01	0.00E-01	1.79E+01	0.00E-01
XE-135	CI	0.00E-01	0.00E-01	3.70E-02	0.00E-01
TOTAL FOR PERIOD	CI	0.00E-01	0.00E-01	1.81E+01	2.07E-01
2. IODINES					
I-131	CI	2.55E-06	0.00E-01	0.00E-01	0.00E-01
TOTAL FOR PERIOD	CI	2.55E-06	0.00E-01	0.00E-01	0.00E-01
3. PARTICULATES					
H-3	CI	2.91E+00	2.76E+00	1.47E-01	5.80E-04
TOTAL FOR PERIOD	CI	2.91E+00	2.76E+00	1.47E-01	5.80E-04

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1985)
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (WITHOUT TRITIUM, GASES, ALPHA)	CI	1.72E-02	8.53E-03	2.00E+01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	2.64E-09	1.41E-09	
3. PERCENT OF TECHNICAL SPEC. LIMIT, (RETS)	See Sect 7, Supp Information			
4. PERCENT OF 10 CFR 20 LIMIT	%	1.28E-02	2.87E-03	
B. TRITIUM				
1. TOTAL RELEASE	CI	5.88E+00	2.02E+01	2.00E+01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	9.01E-07	3.34E-06	
3. PERCENT OF 10 CFR 20 LIMIT	%	3.00E-02	1.11E-01	
C. DISSOLVED & ENTRAINED GASES				
1. TOTAL RELEASE	CI	0.00E-01	0.00E-01	2.00E+01
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	UCI/ML	0.00E-01	0.00E-01	
3. PERCENT OF 2 E-4 UCI/CC LIMIT	%	0.00E-01	0.00E-01	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	0.00E-01	0.00E-01	2.00E+01
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.33E+05	6.85E+05	2.00E+01
F. VOLUME OF DILUTION WATER				
1. TOTAL RELEASE	LITERS	6.53E+09	6.04E+09	2.00E+01

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1985)
LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE*		BATCH MODE	
		3RD QUARTER	4TH QUARTER	3RD QUARTER	4TH QUARTER
MN-54	CI			0.00E-01	2.12E-05
FE-55	CI			2.59E-03	4.73E-03
FE-59	CI			7.03E-06	5.35E-06
CO-58	CI			1.66E-03	4.82E-04
CO-60	CI			3.29E-04	1.33E-03
AG110M	CI			4.17E-05	4.80E-05
SB-125	CI			6.10E-05	8.70E-05
CS-134	CI			2.85E-03	3.85E-04
CS-137	CI			9.66E-03	1.44E-03
CE-141	CI			0.00E-01	9.06E-07
TOTAL FOR PERIOD ABOVE	CI			1.72E-02	8.53E-03

* NOT APPLICABLE; ALL RADIOACTIVE LIQUID EFFLUENTS ARE RELEASED BY BATCH MODE.

TABLE 3A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (85-2)
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL. (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	3 M Ci	 3.50 E+1 3.76 E+0	 1.0 E+1
b. Dry compressible waste, contaminated equip, etc.	3 M Ci	 5.00 E+1 5.70 E-1	 1.0 E+1
c. Irradiated components, control rods, etc.	3 M Ci	 . E . E	 . E
d. Other (describe) Dewatered primary system cartridge filters	3 M Ci	 4.19 E+0 5.20 E+1	 1.0 E+1

2 Estimate of major nuclide composition (by type of waste)

a.	Co-58	%	3.90 E+1
	Co-60	%	2.10 E+1
	Ni-63	%	2.10 E+1
b.	Cs-137	%	4.60 E+1
	Co-60	%	1.60 E+1
	Cs-134	%	1.80 E+1
c.	N/A	%	. E
d.	Ni-63	%	6.40 E+1
	Co-60	%	3.20 E+1
	Cs-137	%	1.00 E+0

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
11	'Exclusive Use' Truck	Barnwell Waste Mgmt Facl. Barnwell, S.C. 29812

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

SEMIANNUAL MAXIMUM INDIVIDUAL DOSE TABLE (GASEOUS)

JULY 1, 1985 THROUGH DEC. 31,1985

DOSE DUE TO RELEASE OF NOBLE GAS

WHOLE BODY DOSE (MREM)

	CRITICAL SECTOR	CRITICAL DISTANCE	CRITICAL AGE	CRITICAL ORGAN	CRITICAL DOSE
THIRD QUARTER	N	980.(M)	NA	W BODY	6.55E-07
FOURTH QUARTER	N	0.(M)	NA	W BODY	0.00E-01
SEMIANNUAL TOTAL	N	980.(M)	NA	W BODY	6.55E-07

SKIN DOSES (MREM)

	CRITICAL SECTOR	CRITICAL DISTANCE	CRITICAL AGE	CRITICAL ORGAN	CRITICAL DOSE
THIRD QUARTER	N	980.(M)	NA	SKIN	1.84E-06
FOURTH QUARTER	N	0.(M)	NA	SKIN	0.00E-01
SEMIANNUAL TOTAL	N	980.(M)	NA	SKIN	1.84E-06

SEMIANNUAL MAXIMUM INDIVIDUAL DOSE TABLE (GASEOUS)

JULY 1, 1985 THROUGH DEC. 31,1985

DOSE DUE TO I-131, H-3, AND PARTICULATES WITH HALFLIVES > 8 DAYS

WHOLE BODY DOSE (MREM)

	CRITICAL SECTOR	CRITICAL DISTANCE	CRITICAL AGE	CRITICAL ORGAN	CRITICAL DOSE
THIRD QUARTER	NNE	990.(M)	CHILD	W BODY	1.17E-03
FOURTH QUARTER	NNE	990.(M)	CHILD	W BODY	9.50E-04
SEMIANNUAL TOTAL	NNE	990.(M)	CHILD	W BODY	2.12E-03

SIGNIFICANT ORGAN DOSES (MREM)

	CRITICAL SECTOR	CRITICAL DISTANCE	CRITICAL AGE	CRITICAL ORGAN	CRITICAL DOSE
THIRD QUARTER	NNE	990.(M)	CHILD	THYROID	1.54E-03
FOURTH QUARTER	NNE	990.(M)	CHILD	THYROID	9.50E-04
SEMIANNUAL TOTAL	NNE	990.(M)	CHILD	THYROID	2.49E-03

SEMIANNUAL POPULATION DOSE TABLE (GASEOUS)

JULY 1, 1985 THROUGH DEC. 31, 1985

DOSE DUE TO RELEASE OF NOBLE GAS

	TOTAL INTEGRATED POPULATION DOSE (MANREM)	AVERAGE DOSE TO INDIVIDUALS IN POPULATION (MREM)
	WHOLE BODY	WHOLE BODY
THIRD QUARTER	6.53E-04	2.93E-07
FOURTH QUARTER	6.36E-08	2.86E-11
SEMIANNUAL TOTAL	6.53E-04	2.93E-07

SEMIANNUAL POPULATION DOSE TABLE (GASEOUS)

JULY 1, 1985 THROUGH DEC. 31,1985

DOSE DUE TO I-131, H-3, AND PARTICULATES WITH HALFLIVES > 8 DAYS

	TOTAL INTEGRATED POPULATION DOSE (MANREM)	AVERAGE DOSE TO INDIVIDUALS IN POPULATION (MREM)
	WHOLE BODY	WHOLE BODY
THIRD QUARTER	9.86E-04	4.43E-07
FOURTH QUARTER	8.04E-04	3.61E-07
SEMIANNUAL TOTAL	1.79E-03	8.04E-07

SEMIANNUAL POPULATION DOSE TABLE (LIQUID)

JULY 1, 1985 THROUGH DEC. 31,1985

	TOTAL INTEGRATED POPULATION DOSE (MANREM)	AVERAGE DOSE TO INDIVIDUALS IN POPULATION (MREM)
	WHOLE BODY	WHOLE BODY
THIRD QUARTER	5.05E-01	2.27E-04
FOURTH QUARTER	1.30E-01	5.84E-05
SEMIANNUAL TOTAL	6.35E-01	2.85E-04

SEMIANNUAL MAXIMUM INDIVIDUAL DOSE TABLE (LIQUID)

JULY 1, 1985 THROUGH DEC. 31,1985

CRITICAL RECEPTOR : 0.6 MILES NW OF DISCHARGE

	WHOLE BODY DOSES (MREM)		SIGNIFICANT ORGAN DOSES (MREM)		
	CRITICAL AGE	CRITICAL DOSE	CRITICAL AGE	CRITICAL ORGAN	CRITICAL DOSE
THIRD QUARTER	ADULT	1.50E-01	TEEN	LIVER	2.20E-01
FOURTH QUARTER	ADULT	1.48E-02	TEEN	LIVER	2.14E-02
SEMIANNUAL TOTAL	ADULT	1.65E-01	TEEN	LIVER	2.42E-01

Table 7

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: A
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	1	0	0	0	1

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: B
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	4	0	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	1	0	0	1
ENE	0	0	7	1	0	0	8
E	0	0	9	0	0	0	9
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	0	0	3	1	0	0	4
SW	0	0	1	1	0	0	2
WSW	0	0	1	1	0	0	2
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	4	22	5	0	0	31

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: C
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	1	2	0	0	3
NNE	0	3	3	0	0	0	6
NE	0	2	5	6	0	0	13
ENE	0	2	20	0	0	0	22
E	0	10	6	1	0	0	17
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	3	3	0	0	0	6
SSW	0	3	17	1	0	0	21
SW	0	2	13	2	0	0	17
WSW	0	2	7	6	0	0	15
W	0	0	0	1	0	0	1
WNW	0	0	1	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	0	1	4	1	0	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	31	80	20	0	0	131

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: D
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	19	37	12	0	0	69
NNE	2	26	38	32	4	0	102
NE	0	20	51	68	10	0	149
ENE	0	30	49	6	0	0	85
E	2	36	26	2	0	0	66
ESE	2	26	8	3	0	0	39
SE	1	12	6	0	0	0	19
SSE	2	15	8	1	0	0	26
S	1	25	20	1	0	0	47
SSW	3	41	59	6	0	0	109
SW	0	32	67	20	0	0	119
WSW	1	13	59	27	2	0	102
W	2	5	20	19	0	0	46
WNW	0	7	9	2	0	0	18
NW	1	9	9	3	0	0	22
NNW	0	9	20	3	0	0	32
VARIABLE	0	0	0	0	0	0	0
TOTAL	18	325	486	205	16	0	1050

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: E
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	8	0	0	0	0	0	8
NNE	1	2	0	2	0	0	5
NE	1	2	1	0	0	0	4
ENE	1	5	17	1	0	0	24
E	3	11	8	2	0	0	24
ESE	1	14	8	2	0	0	25
SE	8	39	5	0	0	0	52
SSE	12	39	1	0	0	0	52
S	16	37	6	0	0	0	59
SSW	4	66	42	4	0	0	116
SW	5	53	26	5	0	0	89
WSW	2	27	20	2	3	0	54
W	4	34	22	0	0	0	60
WNW	1	5	14	0	0	0	20
NW	0	5	5	0	0	0	10
NNW	1	6	4	1	0	0	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	68	345	179	19	3	0	614

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: F
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	3	0	0	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	2	0	0	0	0	2
ESE	0	2	0	0	0	0	2
SE	2	1	0	0	0	0	3
SSE	13	31	0	0	0	0	44
S	28	28	0	0	0	0	56
SSW	10	35	1	0	0	0	46
SW	9	48	2	0	0	0	59
WSW	6	11	0	0	0	0	17
W	3	15	1	0	0	0	19
WNW	0	3	0	1	0	0	4
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	74	176	4	1	0	0	255

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: G
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	4	3	0	0	0	0	7
S	8	17	0	0	0	0	25
SSW	1	31	2	0	1	0	35
SW	3	7	3	4	0	0	17
WSW	3	7	1	0	0	0	11
W	1	6	1	0	0	0	8
WNW	0	3	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	2	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	21	74	11	4	1	0	111

PERIODS OF CALM (HOURS): 0

Table 7 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: TOTAL
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	13	23	38	14	0	0	88
NNE	3	31	41	34	4	0	113
NE	1	24	57	75	10	0	167
ENE	1	37	94	8	0	0	140
E	5	59	50	5	0	0	119
ESE	3	43	16	5	0	0	67
SE	11	52	11	0	0	0	74
SSE	31	89	9	1	0	0	130
S	53	110	30	1	0	0	194
SSW	18	176	125	12	1	0	332
SW	17	142	112	32	0	0	303
WSW	12	60	88	36	5	0	201
W	10	60	44	20	0	0	134
WNW	1	18	24	3	0	0	46
NW	1	15	14	3	0	0	33
NNW	1	16	30	5	0	0	52
VARIABLE	0	0	0	0	0	0	0
TOTAL	181	955	783	254	20	0	2193

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 15

Table 8

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: A
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	1	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	0	1

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: B
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	4	0	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	4	0	0	5
E	0	0	6	7	0	0	13
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	1	0	0	1
SSW	0	0	3	0	1	0	4
SW	0	0	0	1	0	0	1
WSW	0	0	0	3	0	0	3
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	4	10	16	1	0	31

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: C
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	3	0	0	3
NNE	0	2	3	0	0	0	5
NE	0	3	2	3	2	0	10
ENE	0	2	14	9	0	0	25
E	0	5	11	1	0	0	17
ESE	0	2	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	0	1	1	1	2	5
SSW	0	4	2	14	2	0	22
SW	0	0	10	5	1	0	16
WSW	0	0	4	8	1	0	13
W	0	0	1	2	2	0	5
WNW	0	1	0	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	0	0	4	1	0	0	5
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	21	52	47	9	2	131

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: D
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	13	29	30	1	0	73
NNE	2	20	32	24	13	0	91
NE	0	21	35	40	44	3	143
ENE	0	12	48	29	9	1	99
E	1	17	20	16	4	0	58
ESE	1	17	23	6	1	2	50
SE	1	5	7	5	0	0	18
SSE	1	5	9	6	1	0	22
S	1	3	21	23	9	2	59
SSW	1	8	32	33	19	0	93
SW	0	11	24	49	18	0	102
WSW	2	6	34	51	23	2	118
W	1	4	12	20	12	0	49
WNW	0	3	6	7	5	0	21
NW	0	8	10	9	0	0	27
NNW	1	3	13	7	1	0	25
VARIABLE	0	0	0	0	0	0	0
TOTAL	12	156	355	355	160	10	1048

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: E
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	4	4	0	1	0	9
NNE	0	3	0	1	1	0	5
NE	1	3	2	2	0	0	8
ENE	1	1	3	16	1	0	22
E	0	6	7	6	0	2	21
ESE	2	5	15	18	1	1	42
SE	0	8	17	24	0	0	49
SSE	0	8	9	13	0	0	30
S	0	1	15	36	15	1	68
SSW	0	1	13	53	12	4	83
SW	0	3	17	55	18	0	93
WSW	0	8	21	36	2	3	70
W	0	3	16	30	3	0	52
WNW	1	3	11	14	7	0	36
NW	0	2	5	8	1	0	16
NNW	0	1	3	5	0	0	9
VARIABLE	1	0	0	0	0	0	1
TOTAL	6	60	158	317	62	11	614

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: F
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	1	1	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	0	1	0	0	0	1
E	0	1	1	0	0	0	2
ESE	0	3	2	0	0	0	5
SE	2	10	5	0	0	0	17
SSE	0	2	11	10	2	0	25
S	0	4	4	29	14	0	51
SSW	0	2	5	27	6	0	40
SW	0	2	4	25	2	0	33
WSW	2	2	7	22	0	0	33
W	0	1	7	12	0	0	20
WNW	0	2	2	6	2	0	12
NW	0	2	3	4	0	0	9
NNW	0	1	1	0	0	0	2
VARIABLE	1	0	0	0	0	0	1
TOTAL	6	34	54	135	26	0	255

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: G
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	1	1	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	0	1	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	4	3	0	0	0	7
SSE	0	3	0	5	0	0	8
S	0	1	2	6	0	0	9
SSW	0	0	2	21	8	0	31
SW	0	0	1	18	3	1	23
WSW	0	0	1	5	0	0	6
W	0	0	1	2	1	0	4
WNW	0	3	1	1	0	0	5
NW	0	5	1	4	0	0	10
NNW	0	0	4	0	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	17	18	63	12	1	111

PERIODS OF CALM (HOURS): 0

Table 8 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/01/85 TO 9/30/85
STABILITY CLASS: TOTAL
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	23	35	33	2	0	94
NNE	2	25	35	25	14	0	101
NE	1	28	39	45	46	3	162
ENE	1	15	68	58	10	1	153
E	1	29	45	31	4	2	112
ESE	3	27	40	24	2	3	99
SE	3	27	32	29	0	0	91
SSE	1	19	29	34	3	0	86
S	1	9	43	96	39	5	193
SSW	1	15	57	148	49	4	274
SW	0	16	56	153	42	1	268
WSW	4	16	67	125	26	5	243
W	1	8	37	66	18	0	130
WNW	1	12	20	28	14	0	75
NW	0	18	19	25	1	0	63
NNW	1	5	25	13	1	0	45
VARIABLE	2	0	0	0	0	0	2
TOTAL	24	292	647	933	271	24	2191

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 17

Table 9

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: A
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: B
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	2	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	1	2	1	0	4

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: C
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	1	0	0	0	1
NNE	0	1	1	0	0	0	2
NE	0	0	0	3	0	0	3
ENE	0	1	3	0	0	0	4
E	0	0	3	2	0	0	5
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	3	4	0	0	7
SW	0	0	0	1	0	0	1
WSW	0	0	6	3	2	1	12
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	0	2	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	4	20	13	2	1	40

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: D
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	3	17	11	12	7	51
NNE	1	10	15	31	10	0	67
NE	1	11	37	60	27	1	137
ENE	0	14	12	35	16	0	77
E	1	13	34	39	5	0	92
ESE	4	18	26	14	0	0	62
SE	6	15	7	7	1	1	37
SSE	10	17	1	1	0	0	29
S	4	14	8	15	0	0	41
SSW	6	14	48	40	3	0	111
SW	2	13	45	80	37	12	189
WSW	0	17	74	67	48	18	224
W	0	19	35	23	7	0	84
WNW	1	11	16	27	2	0	57
NW	3	5	37	14	2	0	61
NNW	2	8	36	20	6	0	72
VARIABLE	0	0	0	0	0	0	0
TOTAL	42	202	448	484	176	39	1391

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: E
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	4	2	0	0	0	6
NNE	0	1	0	0	0	0	1
NE	1	0	1	0	0	0	2
ENE	0	5	4	0	0	0	9
E	3	20	7	8	0	0	38
ESE	4	17	12	14	0	0	47
SE	6	15	6	0	0	0	27
SSE	9	21	5	0	0	0	35
S	4	23	13	9	1	0	50
SSW	8	36	50	11	5	0	110
SW	2	29	53	10	3	0	97
WSW	5	23	44	8	1	0	81
W	0	6	18	3	1	0	28
WNW	1	4	4	0	0	0	9
NW	1	2	5	1	0	0	9
NNW	0	5	4	0	0	0	9
VARIABLE	0	0	0	0	0	0	0
TOTAL	44	211	228	64	11	0	558

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: F
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	2	1	0	0	0	0	3
ESE	3	2	0	0	0	0	5
SE	4	8	2	0	1	0	15
SSE	10	14	0	0	0	0	24
S	7	13	1	0	0	0	21
SSW	1	20	1	0	0	0	22
SW	0	14	4	0	0	0	18
WSW	1	5	0	0	0	0	6
W	0	6	3	0	0	0	9
WNW	0	0	2	0	0	0	2
NW	1	0	1	0	0	0	2
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	29	83	14	0	1	0	127

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: G
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	1	2	1	0	0	0	4
S	0	0	0	0	0	0	0
SSW	0	11	0	0	0	0	11
SW	0	4	0	0	0	0	4
WSW	0	0	0	0	0	0	0
W	0	1	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	2	19	1	0	0	0	22

PERIODS OF CALM (HOURS): 0

Table 9 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: TOTAL
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	7	20	11	12	7	58
NNE	1	12	16	31	10	0	70
NE	2	11	38	65	27	1	144
ENE	0	20	19	35	16	0	90
E	7	34	45	49	5	0	140
ESE	11	38	39	28	0	0	116
SE	16	38	15	7	2	1	79
SSE	30	55	7	1	0	0	93
S	15	50	22	24	1	0	112
SSW	15	81	102	55	8	0	261
SW	4	60	102	91	40	12	309
WSW	6	45	124	78	51	19	323
W	0	32	56	26	8	0	122
WNW	2	15	22	27	3	0	69
NW	5	8	43	15	2	0	73
NNW	2	13	42	20	6	0	83
VARIABLE	0	0	0	0	0	0	0
TOTAL	117	519	712	563	191	40	2142

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 66

Table 10

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: A
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: B
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	1	1	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	1	1
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	1	1	1	1	4

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: C
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	1	0	0	0	1
NNE	0	1	1	0	0	0	2
NE	0	0	0	0	2	0	2
ENE	0	0	3	2	0	0	5
E	0	0	2	0	2	0	4
ESE	0	0	2	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	1	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	3	3	0	6
SW	0	0	0	2	0	0	2
WSW	0	0	0	6	1	1	8
W	0	0	0	1	2	1	4
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	0	2	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	2	12	14	10	2	40

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: 5
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	4	12	9	10	23	59
NNE	1	6	8	21	10	7	53
NE	2	8	27	50	42	5	134
ENE	0	6	11	15	33	21	86
E	2	7	10	15	37	22	93
ESE	1	5	13	25	21	3	68
SE	3	13	6	5	9	0	36
SSE	5	4	14	1	1	1	26
S	3	7	9	9	8	9	45
SSW	0	5	12	25	23	14	79
SW	0	7	6	53	38	23	127
WSW	1	5	17	71	81	80	255
W	1	8	17	43	28	17	114
WNW	1	4	27	21	18	5	76
NW	1	2	19	18	11	3	54
NNW	1	5	18	37	16	1	78
VARIABLE	0	0	0	0	0	0	0
TOTAL	23	96	226	418	386	234	1383

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: E
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	3	4	1	0	8
NNE	0	0	1	0	0	0	1
NE	0	1	1	0	0	0	2
ENE	0	1	1	2	0	0	4
E	0	3	15	6	3	4	31
ESE	1	3	13	9	8	13	47
SE	1	6	6	8	2	1	24
SSE	1	1	10	9	2	0	23
S	1	2	7	23	14	6	53
SSW	1	5	9	29	31	14	89
SW	1	2	13	43	27	4	90
WSW	0	4	16	50	17	3	90
W	0	2	8	27	6	1	44
WNW	0	2	6	13	3	0	24
NW	0	1	2	6	3	0	12
NNW	0	1	2	5	0	0	8
VARIABLE	0	0	0	0	0	0	0
TOTAL	6	34	113	234	117	46	550

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: F
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	1	1	0	0	0	2
ENE	0	1	0	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	1	2	1	0	0	4
SE	0	1	5	5	1	1	13
SSE	0	0	2	7	2	0	11
S	0	1	2	14	4	1	22
SSW	1	1	5	9	3	0	19
SW	0	1	2	12	11	0	26
WSW	0	0	0	2	4	0	6
W	0	0	2	5	0	0	7
WNW	0	0	2	5	0	0	7
NW	0	1	0	6	0	0	7
NNW	0	0	0	1	0	0	1
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	9	23	67	25	2	127

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: G
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	1	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	1	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	0	0	1	4	2	0	7
SW	0	0	0	5	0	0	5
WSW	0	0	0	1	1	0	2
W	0	0	2	1	0	0	3
WNW	0	0	0	0	0	0	0
NW	0	0	0	1	0	0	1
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	4	13	4	0	22

PERIODS OF CALM (HOURS): 0

Table 10 Continued

D A V I S - B E S S E
U N I T 1

JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/01/85 TO 12/31/85
STABILITY CLASS: TOTAL
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	1	4	16	13	11	23	68
NNE	1	7	10	21	11	7	57
NE	2	10	29	51	45	5	142
ENE	0	8	15	19	33	21	96
E	2	12	27	21	42	26	130
ESE	2	9	31	35	29	16	122
SE	4	20	17	19	12	2	74
SSE	6	5	27	17	5	1	61
S	4	10	19	46	26	16	121
SSW	2	11	27	70	62	28	200
SW	1	10	21	115	76	27	250
WSW	1	9	33	130	104	84	361
W	1	10	29	77	36	19	172
WNW	1	6	35	39	21	5	107
NW	1	5	21	31	14	4	76
NNW	1	6	22	43	16	1	89
VARIABLE	0	0	0	0	0	0	0
TOTAL	30	142	379	747	543	285	2126

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 82

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: A
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	1	0	0	0	1

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: B
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 vo 9/30/85
STABILITY CLASS: C
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	1	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	1	1	0	0	3

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: D
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	1	0	0	0	0	1
NNE	0	3	0	0	0	0	3
NE	0	1	3	0	0	0	4
ENE	0	1	2	0	0	0	3
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	2	0	0	0	0	2
SSE	0	1	1	0	0	0	2
S	0	0	0	0	0	0	0
SSW	0	3	9	1	0	0	13
SW	0	1	3	1	0	0	5
WSW	0	0	0	0	0	0	0
W	0	0	1	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	2	0	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	16	19	2	0	0	37

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: E
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	1	0	0	0	2
E	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	1
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	5	0	0	0	0	6
SSW	0	6	8	0	0	0	14
SW	0	1	3	0	0	0	4
WSW	0	0	0	0	0	0	0
W	1	1	0	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	14	12	0	0	0	30

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: F
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	1	0	0	0	2

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: G
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	2	0	1	0	4
SW	0	0	3	4	0	0	7
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	5	4	1	0	11

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: TOTAL
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	1	0	0	0	0	1
NNE	0	3	0	0	0	0	3
NE	0	1	3	0	0	0	4
ENE	1	1	3	0	0	0	5
E	0	1	0	0	0	0	1
ESE	1	0	0	0	0	0	1
SE	0	3	0	0	0	0	3
SSE	0	1	1	0	0	0	2
S	1	5	0	0	0	0	6
SSW	0	11	21	1	1	0	34
SW	0	2	10	6	0	0	18
WSW	0	0	0	0	0	0	0
W	1	1	1	0	0	0	3
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	2	0	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	33	39	7	1	0	84

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 3

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: A
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	1	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	1	0	1

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: B
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: C
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	1	0	1
SW	0	0	0	0	1	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	0	0	2	0	3

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: D
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	1	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	2	1	0	0	0	3
ENE	0	0	2	4	0	0	6
E	0	0	0	0	0	0	0
ESE	0	0	1	0	0	0	1
SE	0	1	1	0	0	0	2
SSE	0	0	1	1	0	0	2
S	0	0	0	0	1	0	1
SSW	0	0	1	7	2	0	10
SW	0	0	2	4	1	0	7
WSW	0	0	0	0	0	0	0
W	0	0	0	1	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	2	0	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	7	9	17	4	0	37

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: E
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	1	0	0	1
E	0	1	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	2	0	0	0	0	2
SSE	0	0	0	0	0	0	0
S	0	0	0	1	0	0	1
SSW	0	0	2	10	4	0	16
SW	0	0	2	3	1	0	6
WSW	0	0	0	0	0	0	0
W	0	1	1	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	5	5	15	5	0	30

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: F
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	1	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	1	0	1	0	2

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: G
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	1	1	0	3
SW	0	0	1	3	3	1	8
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	2	4	4	1	11

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 7/1/85 to 9/30/85
STABILITY CLASS: TOTAL
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	1	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	2	1	0	0	0	3
ENE	0	0	2	5	0	0	7
E	0	1	0	0	0	0	1
ESE	0	1	1	0	0	0	2
SE	0	3	1	0	0	0	4
SSE	0	0	1	1	0	0	2
S	0	0	0	1	1	0	2
SSW	0	0	5	18	9	0	32
SW	0	0	5	10	7	1	23
WSW	0	0	0	0	0	0	0
W	0	1	1	1	0	0	3
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	0	2	0	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	13	17	36	17	1	84

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 3

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: A
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: B
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: C
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: D
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	4	6	2	0	12
SW	0	0	3	11	0	0	14
WSW	0	0	2	5	0	0	7
W	0	0	1	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	10	22	2	0	34

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: E
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	2	1	0	0	3
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	2	1	0	0	3

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: F
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: G
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
35-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: TOTAL
ELEVATION: 35 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	4	6	2	0	12
SW	0	0	5	12	0	0	17
WSW	0	0	2	5	0	0	7
W	0	0	1	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	12	23	2	0	37

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: A
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: B
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: C
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: D
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	3	4	7
SW	0	0	0	4	4	3	11
WSW	0	0	0	5	7	0	12
W	0	0	0	2	2	0	4
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	11	16	7	34

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: E
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	3	0	3
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	3	0	3

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: F
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: G
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM (HOURS): 0

D A V I S - B E S S E
U N I T 1

BATCH RELEASE JOINT FREQUENCY DISTRIBUTION
WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
250-FT WINDS AND DELTA TEMPERATURE (250FT-35FT)

PERIOD OF RECORD: 10/1/85 to 12/31/85
STABILITY CLASS: TOTAL
ELEVATION: 250 FEET

WIND DIRECTION	WIND SPEED (MPH) 0.7-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.4	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	3	4	7
SW	0	0	0	4	4	3	11
WSW	0	0	0	5	10	0	15
W	0	0	0	2	2	0	4
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	11	19	7	37

PERIODS OF CALM (HOURS): 0

HOURS OF MISSING DATA: 0

TABLE 15

HOURLY METEOROLOGICAL DATA DURING BATCH RELEASES

DAVIS-BESSE NUCLEAR POWER STATION

JULY 1, 1985 - SEPTEMBER 30, 1985

YR	MONTH	DAY	HOUR	35' WIND SPD (MPH)	35' WIND DIRECTION	T 250'-35' (F)
85	7	1	1	10.7	69	-0.6
85	7	1	2	10.9	64	-0.7
85	7	1	3	9.6	59	-0.7
85	7	1	4	9.1	51	-0.8
85	7	1	5	8.2	54	-0.7
85	7	1	6	7.4	58	-0.8
85	7	1	7	7.1	51	-1.1
85	7	1	8	8.0	36	-1.3
85	7	1	9	6.0	33	-1.3
85	7	1	10	6.2	31	-1.3
85	7	1	11	4.0	17	-1.1
85	7	1	12	5.5	340	-1.3
85	7	1	13	4.9	326	-1.4
85	7	1	14	4.8	314	-1.9
85	7	1	15	6.5	353	-1.8
85	7	1	16	6.7	94	-1.4
85	7	1	17	5.9	140	-0.9
85	7	1	18	4.3	129	-0.3
85	7	1	19	3.6	114	-0.4
85	7	1	20	1.8	75	.2
85	7	1	21	4.4	133	-0.8
85	7	1	22	2.6	179	0.3
85	7	4	10	6.9	202	-1.7
85	7	4	11	8.6	219	-1.4
85	7	4	12	11.7	221	0.5
85	7	4	13	13.5	229	1.5
85	7	4	14	12.4	227	2.4
85	7	4	15	11.6	203	1.3
85	7	4	16	13.6	216	-0.3
85	7	4	17	13.9	214	3.2
85	7	4	18	13.6	216	2.3
85	7	4	19	10.5	204	0.2
85	7	4	20	10.4	200	-0.4
85	7	4	21	8.3	197	0.3
85	7	4	22	7.7	198	0.4
85	7	4	23	6.4	195	0.6
85	7	4	24	4.4	181	0.6
85	7	5	1	8.0	193	0.2
85	7	5	2	9.5	201	-0.4
85	7	5	3	7.6	194	-0.2
85	7	5	4	8.6	195	-0.1
85	7	5	5	10.5	204	-0.4
85	7	5	6	10.4	224	-0.5

TABLE 15 Continued

HOURLY METEOROLOGICAL DATA DURING BATCH RELEASES

DAVIS-BESSE NUCLEAR POWER STATION

JULY 1, 1985 - SEPTEMBER 30, 1985

YR	MONTH	DAY	HOUR	35' WIND SPD (MPH)	35' WIND DIRECTION	T 250' - 35' (F)
85	7	5	7	3.6	269	-0.2
85	7	5	8	4.0	198	-0.6
85	7	5	9	6.6	143	-1.4
85	7	5	10	8.9	162	-1.5
85	7	5	11	10.9	194	-1.7
85	7	5	12	15.1	212	-1.6
85	7	5	13	16.7	216	-1.8
85	7	5	14	****	***	****
85	7	5	15	****	***	****
85	7	5	16	8.9	318	-1.3
85	7	5	17	19.4	39	****
85	7	5	18	****	***	****
85	7	5	19	****	***	****
85	7	5	20	****	***	****
85	7	5	21	10.6	203	-2.5
85	7	5	22	10.5	207	-0.8
85	7	5	23	9.1	210	-1.0
85	7	5	24	7.1	200	-0.7
85	7	6	1	6.3	215	-0.7
85	8	6	9	11.8	197	-1.4
85	8	6	10	13.9	198	-1.7
85	8	6	11	12.9	200	-1.8
85	8	6	12	11.6	204	-1.3
85	8	6	13	9.8	206	-1.0
85	8	6	14	9.9	206	-1.2
85	8	6	15	11.2	210	-1.3
85	8	6	16	9.7	213	-1.3
85	8	6	17	7.2	212	-1.2
85	8	6	18	7.8	209	-1.1
85	8	6	19	7.8	216	-0.6
85	8	6	20	11.8	220	-0.3
85	8	6	21	8.4	216	2.0
85	8	6	22	6.1	196	0.9
85	8	6	23	4.0	185	0.1
85	8	6	24	4.0	186	1.5
85	8	7	1	4.8	187	1.6
85	8	7	2	5.4	198	0.8
85	8	7	3	7.2	201	-0.1
85	8	7	4	6.0	222	0.0
85	8	7	5	5.6	202	-0.1
85	8	7	6	6.8	262	-0.1
85	9	28	17	10.1	249	-1.3
85	9	28	18	8.6	240	-0.7
85	9	28	19	6.5	236	0.6

*** Indicates unavailable data

TABLE 16

HOURLY METEOROLOGICAL DATA DURING BATCH RELEASES

DAVIS-BESSE NUCLEAR POWER STATION

OCTOBER 1, 1985 - DECEMBER 31, 1985

YR	MONTH	DAY	HOUR	35' WIND SPD (MPH)	35' WIND DIRECTION	T 250'-35' (F)
85	12	21	15	15.4	229	-1.4
85	12	21	16	15.4	232	-1.2
85	12	21	17	12.7	227	-0.9
85	12	21	18	11.6	225	-0.6
85	12	21	19	12.6	226	-0.5
85	12	21	20	12.3	224	-0.1
85	12	21	21	10.8	225	0.1
85	12	21	22	10.5	224	-0.7
85	12	21	23	12.6	226	-0.8
85	12	21	24	13.2	228	-0.8
85	12	22	1	12.1	218	-1.1
85	12	22	2	11.6	210	-1.0
85	12	22	3	12.3	209	-1.1
85	12	22	4	12.2	208	-1.1
85	12	22	5	12.4	198	-1.1
85	12	22	6	13.4	195	-1.1
85	12	22	7	14.0	192	-1
85	12	22	8	15.2	196	-1.0
85	12	22	9	16.1	193	-1.0
85	12	22	10	18.0	194	-1.0
85	12	22	11	17.8	203	-1.0
85	12	22	12	20.0	210	-1.0
85	12	22	13	19.0	213	-1.0
85	12	22	14	17.7	217	-0.9
85	12	22	15	17.8	224	-0.9
85	12	22	16	16.6	226	-0.9
85	12	22	17	17.8	231	-0.9
85	12	22	18	15.4	226	-0.9
85	12	22	19	16.4	229	-0.8
85	12	22	20	17.2	237	-0.7
85	12	22	21	17.9	248	-0.8
85	12	22	22	13.5	253	-0.8
85	12	22	23	11.4	249	-0.8
85	12	22	24	11.9	252	-0.8
85	12	23	1	13.3	248	-0.8
85	12	23	2	13.6	252	-0.8
85	12	23	3	11.1	260	-0.8

THE TOLEDO EDISON COMPANY

DAVIS-BESSE NUCLEAR POWER STATION

OFFSITE DOSE CALCULATIONS MANUAL

Revision No.	Reviewed by Station Review Board	Date
0	Stephen M Dennoy	2/21/84
1	D. W. Braden	8/29/85

OFFSITE DOSE CALCULATION MANUAL

FOR

DAVIS-BESSE NUCLEAR POWER STATION

March 1984

OFFSITE DOSE CALCULATION MANUAL

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INTRODUCTION

This OFFSITE DOSE CALCULATION MANUAL (ODCM) describes the methodology and parameters to be used in the calculation of offsite doses due to radioactive liquid and gaseous effluents and in the calculation of liquid and gaseous effluent monitoring instrumentation alarm/trip setpoints. The ODCM also contains a list and graphic description of the specific sample locations for the radiological environmental monitoring program.

The ODCM will be maintained at the Station for use as a reference guide and training document of accepted methodologies and calculations. Changes in the calculational methods or parameters will be incorporated into the ODCM in order to assure that the ODCM represents the present methodology in all applicable areas.

The methodology stated in this manual is acceptable for use in demonstrating compliance with 10 CFR Part 20.106, 10 CFR Part 50 Appendix I, and 40 CFR Part 190. Only the dose attributable to the Davis-Besse Nuclear Power Station is considered in demonstrating compliance with 40 CFR Part 190.

More conservative calculation methods and/or conditions (e.g., location and/or exposure pathways expected to yield higher computed doses) than appropriate for the maximally exposed person may be assumed in the dose evaluations.

For the calculation of individual doses from gaseous effluents, the receptor is selected on the basis of applicable exposure pathways identified in the land use census. Methodologies and pathways considered in NUREG-0133 are consistent with those in the ODCM.

For liquid releases, doses are evaluated for the drinking water and freshwater fish pathways. In the Great Lakes region, invertebrates do not constitute a direct ingestion pathway to man.

1.0 LIQUID EFFLUENTS

1.1 Liquid Effluent Monitor Setpoints

1.1.1 Liquid Radwaste Effluent Line Monitors

Liquid Radwaste Effluent Line Monitors provide alarm and automatic termination of release prior to exceeding the concentration limits specified in 10 CFR Part 20, Appendix B, Table II, Column 2 at the release point to the unrestricted area. To meet this specification, the alarm/trip setpoints for liquid effluent monitors and flow measurement devices are set to assure that the following equation is satisfied:

$$\frac{cf}{F+f} \leq C, \qquad (1\text{-}1)$$

where:

C = the effluent concentration limit (RETS, section 3.11.1) implementing 10 CFR Part 20.106 for the site, in μCi/ml

c = the setpoint, in μCi/ml, of the radioactivity monitor measuring the radioactivity concentration in the effluent line prior to dilution and subsequent release; the setpoint, which is proportional to the volumetric flow of the effluent line and inversely proportional to the volumetric flow of the dilution stream plus the effluent stream, represents a value which, if exceeded, would result in concentrations exceeding the limits of 10 CFR Part 20.106 in the unrestricted area

f = the flow setpoint as measured at the radiation monitor location, in volume per unit time, but in the same units as F, below

F = the dilution water flow setpoint as measured prior to the release point in volume per unit time.

At Davis-Besse Unit 1, the available dilution water flow (F) is constant for a given release, and the waste tank flow (f) and monitor setpoint (c) are set to meet the condition of Equation 1-1 for a given effluent concentration, C. The method by which this is accomplished is as follows:

1) The isotopic concentration for a waste tank to be released is determined by the analyses required in RETS Table 4.11-1. The ratio of the concentration to the unrestricted area MPC (10 CFR Part 20, Appendix B, Table II, Column 2) is calculated with the equation:

$$FMPC = \sum_i \frac{C_{g_i}}{MPC_i} \qquad (1\text{-}2)$$

where:

FMPC = fraction of the unrestricted area MPC

C_{g_i} = concentration of each radionuclide i measured in each tank prior to release (μCi/ml)

MPC_i = unrestricted area MPC for each radionuclide i from 10 CFR Part 20, Appendix B, Table II, Column 2. For dissolved and entrained noble gases a value of 2×10^{-4} μCi/ml shall be used.

The total or gross beta or gamma activity alone may be used to conservatively determine the MPC fraction by the equation:

$$FMPC = \frac{C_t}{1 \times 10^{-7}} \qquad (1\text{-}3)$$

Where:

C_t = the total or gross beta or gamma activity

1×10^{-7} = MPC value for an unidentified mixture of radionuclides (from footnote 3.b to 10 CFR Part 20, Appendix B).

2) The MPC fraction (FMPC) as determined for each batch used to calculate a Dilution Factor, D.F., which is the ratio of total dilution flow rate to tank flow rate required to assure that the limiting concentration of 10 CFR Part 20, Appendix B, Table II, Column 2 are met at the point of discharge.

$$D.F. = \frac{FMPC}{S.F.} \qquad (1\text{-}4)$$

where:

D.F. = dilution factor

S.F. = an administrative safety factor normally applied at Davis-Besse which causes the calculated Dilution Factor to be 3.33 times larger than the dilution factor required for compliance with 10 CFR Part 20 limits.

3) The maximum permissible waste tank flow rate, f_d, is calculated based on a fixed dilution flow rate, F_d:

$$f_d = \frac{F_d + f_d}{D.F.} \cong \frac{F_d}{D.F.} \text{ for } F_d >> f_d \qquad (1\text{-}5)$$

where:

F_d = 0.9 x (dilution flow rate), as readout in control room

f_d = maximum permissible waste tank flow rate

D.F. = Dilution Factor from Step 2.

NOTE that the equation is valid only for D.F. >1; for D.F. $\leq$1, the waste tank concentration meets the limits of 10 CFR Part 20 without dilution, and f_d may take on any desired value.

4) The minimum dilution flow (F), and waste tank maximum flow rate setpoint (f) are calculated as follows:

$F = F_d$ = 0.9 x actual dilution flow rate as observed from the control room readout,

$f = 0.9 \times f_d$ = 0.9 calculated maximum waste tank flow rate for the stated release conditions.

A control room alarm occurs if the dilution flow rate falls below the preset flow rate, or if the tank flow rate exceeds 0.9 of the preset flow rate, and the release is terminated.

5) The monitor setpoint may now be specified based on the values of F, and f which were specified to assure that releases are maintained below the concentrations of 10 CFR Part 20, Appendix B, Table II, Column 2. The monitor setpoint in counts per minute (cpm) is taken from the monitor calibration graph (e.g., Figure 1) to correspond to three times the concentration in the batch.

$$S.P. = 3 \times A \quad (\mu Ci/ml) \qquad (1\text{-}6)$$

where:

S.P. = the monitor setpoint obtained from the calibration curve for the monitor (cpm)

A = total radioactivity concentration in the batch

$$A = \sum_i C_{g_i}$$

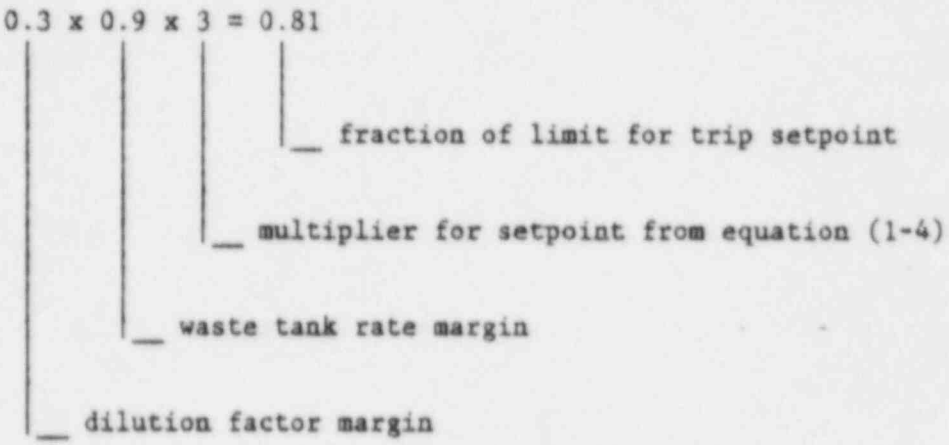
or, if based on gross or total beta or gamma analysis,

$$A = C_t$$

Normally, only one liquid release is conducted at a time. If more than one release of radioactive effluents is conducted simultaneously, the setpoints for the individual radiation monitors for the combined releases will be set to prevent exceeding the concentrations of 10 CFR Part 20, Appendix B, Table II, Column 2 in the environment.

NOTE that the setpoint contains a factor of conservatism, even if the calculated setpoint tank flow rate

is attained, since the calculated rate contains the factors as shown:



In practice, the actual tank flow rate normally is many times less than the calculated tank flow rate, thus providing an additional safety factor during a release.

1.1.2 Turbine Building (Floor Drains) Sump Effluent Line (Applicable upon completion of modification)

The purpose of the monitor for the turbine building sump effluent line (or Unit Storm Sewer Outlet) is to detect abnormal radionuclide concentrations in the sump effluent system. Because the only sources to the sump effluent system are from the secondary steam system, activity is expected in the turbine building sump effluent system only if a significant primary-to-secondary leak is present. If a primary-to-secondary leak is present, the activity in the sump effluent system would be comprised of only those radionuclides found in the secondary system, but with reduced activity from decay and dilution.

Until activity is measured in the secondary system, it will not be practical to select radionuclides on which to calculate the setpoint of the inline monitor. The monitor is, therefore, operated normally as a gross gamma detector

at the lowest practical activity level to prevent false alarms. The lowest practical level has been determined to be three times the background count rate of the monitor when filled with clean water.

When activity above the level specified in RETS Table 4.11-1 is detected in the secondary system, the principal nuclide or nuclides comprising a major fraction of the activity in the secondary system condensate will be identified by gamma ray spectroscopy in the laboratory. The monitor setpoint will then be determined as follows:

1) The isotopic concentration for the turbine building sump effluent is determined by the sampling and analytical requirements per RETS Table 4.11-1 (only required when secondary system concentration exceeds 10^{-5} μCi/ml). The ratio of the concentration to the unrestricted area MPC is calculated with the equation:

$$FMPC = \sum_i \frac{C_{g_i}}{MPC_i} \qquad (1\text{-}7)$$

Where:

FMPC = fraction of the unrestricted area MPC

C_{g_i} = concentration of each radionuclide i measured in each grab sample

MPC_i = unrestricted area MPC for each radionuclide i from 10 CFR Part 20, Appendix B, Table II, Column 2. For dissolved and entrained gases, a value of 2×10^{-4} μCi/ml shall be used.

If based on gross or total beta or gamma analysis, the unrestricted area MPC fraction is simply:

$$FMPC = \frac{C_t}{1 \times 10^{-7}} \qquad (1\text{-}8)$$

C_t = the total or gross beta or gamma activity

1×10^{-7} = MPC value for an unidentified mixture of radionuclides (from footnote 3.b to 10 CFR Part 20, Appendix B).

2) The actual dilution factor from fixed flow rates of the turbine building sump effluent flow rate and dilution flow rate is as follows:

$$\text{actual dilution factor} = \frac{f + F}{f}$$

where:

f = turbine building sump effluent flow rate (gpm)

F = dilution flow rate (gpm)

3) The concentration in the turbine building sump which corresponds to an unrestricted area MPC value after dilution is calculated from the previously defined quantities, and is:

$$c = \frac{A}{FMPC} * \frac{f + F}{f} \qquad (1\text{-}9)$$

where:

c = concentration corresponding to the unrestricted area MPC value after dilution

A = total radioactivity concentration (μCi/ml)

$$A = \sum_i C_{g_i}$$

or, if based on total or gross beta or gamma analysis,

$$A = C_t$$

The calibration curve for the monitor (e.g., Figure 1) is then used to determine the count rate (cpm) corresponding to the radionuclide concentration (c). The monitor setpoint is the sum of the calculated count rate plus the observed background count rate of the monitor.

To simplify the determination of setpoint or in the event that the concentration of radioactive material in the sample from the turbine building sump is below measurable levels (i.e., less than 5×10^{-7} μCi/ml for principal gamma emitters), the value of 1×10^{-7} μCi/ml may be substituted for the factor $\frac{A}{FMPC}$ (i.e., $\frac{A}{FMPC} = 1 \times 10^{-7}$).

It may conservatively be assumed that the radionuclide concentrations in the secondary system are identical to those in the turbine building sump. Therefore, the results of the sampling and analysis of the secondary system may be used in conservatively determining the values of FMPC and c, above.

1.2 Dose Calculation for Liquid Effluents

Technical Specification 4.11.1.2.1 requires that an assessment be performed at least once every 31 days in any quarter in which radioactive effluent is discharged to determine whether the dose or dose commitment to a person offsite due to radioactive material released in liquid effluent calculated on a cumulative basis exceeds Specification 3.11.1.2. The requirement is satisfied by computing the accumulated dose commitment to the most exposed organ and to the total body of a hypothetical person exposed by eating fish and drinking water taken from Lake Erie.

The dose contribution from all radionuclides identified in liquid effluents released to unrestricted areas is calculated using the following expressions:

$$D_\tau = \sum_i A_{i\tau} \left| \sum_{\ell=1}^{m} \Delta t_\ell \, C_{i\ell} \, F_\ell \right|$$

where:

D_τ = dose or dose commitment to organ τ, including total body (mrem).

$A_{i\tau} = K_o \left| \frac{U_w}{D_w} + U_F \, BF_i \right| \; DF_i$, the site-related ingestion does commitment factor from radionuclide i ($\frac{\text{mrem/hr}}{\mu\text{Ci/ml}}$) (from Table 3 of Appendix B).

Δt_ℓ = length of the ℓ^{th} time period over which $C_{i\ell}$ and F_ℓ are averaged for all liquid releases, in hours.

$C_{i\ell}$ = average concentration of radionuclide i observed in undiluted liquid effluent during time period Δt_ℓ from any liquid release, in μCi/ml. Concentrations are determined

primarily from a gamma isotopic analysis of a liquid effluent sample. For Fe-55, Sr-89, Sr-90, and H-3, the last measured value will be used in dose calculations.

F_ℓ = near-field average dilution factor for C_i during any liquid effluent release. Defined as the ratio of the average undiluted liquid waste flow during release to the product of the average flow from the site discharge structure to unrestricted receiving waters times the near-field dilution factor of 10 times the collection box factor of 1.0 (Ref. 2).

$$F_\ell = \frac{\text{average undiluted liquid waste flow}}{\text{average flow from the site discharge} \times 10 \times 1.0}$$

K_o = units conversion factor 1.14×10^3

$$\left(10^6 \frac{pCi}{\mu Ci} \times 10^3 \frac{ml}{liter} \div 8{,}760 \frac{hr}{yr}\right)$$

U_w = adult water consumption (730 liters/yr) (Ref. 3)

D_w = dilution factor from the near-field area within one-quarter mile of the release point to the potable water intake for adult water consumption. D_w is (57/(10 x 1.0)) = 5.7, where 57 = lowest dilution factor corresponding to beach wells located approximately 966 m NW of the discharge point (Ref. 2). The near-field dilution factor of 10, represents the mixing effect of the discharge structure (Ref. 2).

U_F = adult fish consumption (21 kg/yr) (Ref. 3).

BF_i = bioaccumulation factor for nuclide, i, in fish, in pCi/kg per pCi/liter from Table 1 of Appendix B (taken from Reference 3, Table A-1).

DF_i = dose conversion factor for nuclide, i, for adults in preselected organ, τ, in mrem/pCi, from Table 2 of Appendix B (taken from Reference 3, Table E-11).

1.3 Projected Personal Maximum Dose For Liquid Effluents | 1

The dose commitment to a person offsite due to radioactive material released in liquid effluent may be projected by calculating the extrapolated total body and most exposed organ dose commitments to a hypothetical person exposed by eating fish and drinking water. The potential dose commitments to organs and to the total body are computed separately.

The dose commitment to a maximally exposed hypothetical person will be projected by calculating the doses accumulated during the most recent three months according to the method described in Section 1.2 and by assuming that the result represents the projected doses during the current month or quarter

Alternatively, the 31 day dose commitment may be projected by using the equation: | 1

$$P_\tau = \frac{T}{X} D_\tau \qquad (1\text{-}11)$$

where:

P_τ = projected dose commitment (mrem) to organ τ (including total body) for the current quarter

T = number of days in the projected time period (i.e. 31 days 91 days). | 1

X = number of days to date in current quarter

D_τ = accumulated personal dose to data during the current quarter via radioactive material in liquid effluent (mrem).

1.4 REFERENCES TO 1.0 LIQUID EFFLUENTS

1.4.1 J.S. Boegli, W.L. Britz, R.R. Bellamy, and R.L. Waterfield. 1978. "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," NUREG-0133, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission.

1.4.2 D.W. McDougall. 1980. "Aquatic Dilution Factors within 50 miles of the Davis-Besse Unit 1 Nuclear Power Plant." Stone & Webster Engineering Corporation.

1.4.3 United States Nuclear Regulatory Commission. 1977. "Calculation of Annual Dose to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I," Regulatory Guide 1.109, Revision 1.

2.0 GASEOUS EFFLUENTS

2.1 Gaseous Effluent Monitor Setpoints

.1.1 Station Vent Monitor

The station vent is the only normal radioactive gaseous release point.

For the purpose of implementation of section 3.3.3.10 of the RETS, the alarm setpoint level for the station vent noble gas monitor will be calculated as follows:

$$S_v = \text{the lesser of} \left| \begin{array}{l} 0.5\ (R_t)\ 500 \\ \quad \text{or} \\ 0.5\ (R_s)\ 3000 \end{array} \right. \qquad (2\text{-}1)$$

Where:

S_v = count rate of station vent noble gas monitor at alarm setpoint level (cpm)

0.5 = safety factor allowing 100% margin for cumulative uncertainties of measurements (dimensionless)

R_t = count rate per mrem/yr to the total body

R_s = count rate per mrem/yr to the skin.

The values of R_t and R_s are dependent on the radionuclide distribution and are derived by the equations:

$$R_t = C \div [\ \overline{\chi/Q}_{NG} \sum_i K_i\ (\dot{Q}_i)] \qquad (2\text{-}2)$$

$$R_s = C \div [(\overline{\chi/Q}_{NG}) \sum_i (L_i + 1.1\, M_i)\, \dot{Q}_i] \qquad (2\text{-}3)$$

where:

C = count rate of the station vent monitor corresponding to grab sample radionuclide concentrations (cpm)

$\overline{\chi/Q}_{NG}$ = highest sector annual average atmospheric dispersion at the unrestricted area boundary

= 1.83×10^{-6} sec/m^3 in the north-northeast sector

K_i = total body dose factor due to gamma emissions from isotope i (mrem/yr per μCi/m^3) from Table 4 of Appendix B

$\dot{Q}_i$ = rate of release of each noble gas radionuclide i identified by the sampling and analysis per RETS Table 4.11-2 (μCi/sec)

L_i = skin dose factor due to beta emissions from isotope i (mrem/yr per μCi/m^3) from Table 4 of Appendix B

1.1 = mrem skin dose per mrad air dose

M_i = air dose factor due to gamma emissions from isotope i (mrad/yr per μCi/m^3) from Table 4 of Appendix B.

A more conservative setpoint may be calculated to minimize requirements for adjustment of the monitor by using the equations:

$$R'_t = C' \div [(\overline{\chi/Q}_{NG})K] \quad (2\text{-}4)$$

$$R'_s = C' \div [(\overline{\chi/Q}_{NG})(L + 1.1M)] \quad (2\text{-}5)$$

where:

R'_t = conservative count rate per mrem/yr to the total body (Xe-133 detection, Kr-89 dose)

R'_s = conservative count rate per mrem/yr to the skin (Xe-133 detection, Kr-89 dose)

C' = count rate of station vent monitor for an effluent concentration of Xe-133 corresponding to 1.0 μCi/sec release rate of Xe-133 (cpm)

K = total body dose factor for Kr-89, from Table 4 of Appendix B

L = skin dose factor for Kr-89, from Table 4 of Appendix B

M = air dose factor for Kr-89, from Table 4 of Appendix B

2.1.2 Waste Gas Decay System and Containment Purge Monitors

The waste gas decay tank releases and containment purges, in addition to being monitored by the station vent monitor, are controlled individually to provide additional assurance that releases do not exceed the limits of Technical Specifications 3.11.2.1.

The setpoint level (S_d) for discharge through the waste gas decay system monitor will be calculated in a corresponding manner:

$$S_d = \text{the lesser of} \left| \begin{array}{l} \overline{0.5\ (r_t)\ 500} \\ \quad \text{or} \\ \underline{0.5\ (r_s)\ 3000} \end{array} \right. \qquad (2\text{-}6)$$

where:

S_d = count rate of waste gas decay system monitor at alarm setpoint level

r_t = count rate per mrem/yr to the total body

r_s = count rate per mrem/yr to the skin

The values of r_t and r_s are dependent on the radionuclide distribution and are derived by the equations:

$$r_t = c \div [(\overline{\chi/Q}_{NG}) \sum_i K_i \dot{q}_i] \qquad (2\text{-}7)$$

$$r_s = c \div [(\overline{\chi/Q}_{NG}) \sum_i (L_i + 1.1M_i) \dot{q}_i] \qquad (2\text{-}8)$$

where:

c = count rate of the waste gas decay system monitor for radionuclide concentrations to be discharged (cpm)

$\dot{q}_i$ = rate of release of noble gas radionuclide i (μCi/sec)

For a more conservative, simpler setpoint for the waste gas system monitor, the equations are:

$$r'_t = c' \div [(\overline{\chi/Q}_{NG})K] \quad (2\text{-}9)$$

$$r'_s = c' \div [(\overline{\chi/Q}_{NG})(L + 1.1M)] \quad (2\text{-}10)$$

where:

r'_t = conservative count rate per mrem to the total body (Xe-133 detection, Kr-89 dose)

r'_s = conservative count rate per mrem to the skin (Xe-133 detection, Kr-89 dose)

c' = count rate of the waste gas decay system monitor for an effluent concentration corresponding to 1.0 μCi/sec release rate for Xe-133

The setpo . level for the containment purge noble gas monitor will be calculated using the same methodology as indicated for the waste gas decay system, utilizing the appropriate corresponding count and release rates.

The calculated setpoint values will be regarded as upper bounds for the actual setpoint adjustments (ie, setpoint adjustments are not required to be performed if the existing setpoint level corresponds to a lower count rate than the calculated value).

2.2 Gaseous Effluent Dose Rate and Dose Calculations

2.2.1 Unrestricted Area Boundary Dose Rate

a. Technical Specification 3.11.2.1a limits the dose rate in the unrestricted area due to noble gas releases

from the station to ≤500 mrem/yr, total body and ≤3000 mrem/yr, skin. Radiation monitor alarm setpoints are established to assure that these release limits are not exceeded. In the event any gaseous releases from the station results in the alarm setpoints being exceeded, an evaluation of the unrestricted area dose rate resulting from the release shall be performed using the following equations:

$$D_{tb} = (\overline{\chi/Q}_{NG}) \sum_i K_i \dot{Q}_i \quad (2\text{-}11)$$

$$D_s = (\overline{\chi/Q}_{NG}) \sum_i (L_i + 1.1M_i) \dot{Q}_i \quad (2\text{-}12)$$

where:

D_{tb} = total body dose rate (mrem/yr)

D_s = skin dose rate (mrem/yr)

$\overline{\chi/Q}_{NG}$ = highest sector annual average atmospheric dispersion at the unrestricted area boundary

= 1.83×10^{-6} sec/m^3 in the north-northeast sector

b. For I-131, tritium and particulates with half-lives greater than 8 days, Technical Specification 3.11.2.1.b limits the dose rate to ≤1500 mrem/yr to any organ. To demonstrate compliance with this limit, an evaluation is performed at a frequency corresponding to the | 1

sampling and analysis time period (e.g., normally once per 7 days for I-131). The following equation may be used for evaluation:

$$D_o = (\overline{\chi/Q}_I) \sum_i (P_i \bar{Q}'_i) \quad (2\text{-}13)$$

where:

D_o = average organ dose rate over the sampling time period (mrem/year)

$\overline{\chi/Q}_I$ = controlling sector annual average atmospheric dispersion at the site boundary for the inhalation pathway.

= 1.68×10^{-6} sec/m^3 in the north-northeast sector.

P_i = dose parameter for radionuclide i, (mrem/yr per μCi/m^3) for inhalation pathway from Table 5 of Appendix B. Values for P_i are derived in accordance with the methods described in NUREG-0133.

$\bar{Q}'_i$ = average release rate over the appropriate sampling period and analysis frequency for isotope i, I-131 or other radionuclide in particulate form with half-life greater than eight days (μCi/sec).

By substituting 1500 mrem/yr for D_o (equation 2-13) and solving for $\bar{Q}'_i$, an allowable release rate for I-131 can be determined. Based on the annual average meteorological dispersion (1.68×10^{-6} sec/m^3) and the child inhalation pathway ($P_i = 1.62 \times 10^7$ mrem/yr per μCi/m^3), the release rate for I-131 is 44.1 μCi/sec. An added conservatism

factor of 0.8 has been included in this calculation to account for any potential dose contribution from other radioactive particulate material. For a 7 day period which is the sampling and analysis frequency for I-131, the cumulative allowable release is 26.7 Ci. Therefore, as long as the I-131 releases in any 7 day period do not exceed 26.7 Ci, no additional analyses are needed to verify compliance with the Technical Specification 3.11.2.1.b limits on allowable release rate.

2.2.2 Unrestricted Area Dose to Individual

a. Technical specification 4.11.2.2 requires at least a monthly assessment of releases of noble gases to evaluate compliance with the quarterly dose limits of $\leq$5 mrad, gamma-air dose and $\leq$10 mrad, beta-air dose. The following equations may be used to calculate the gamma-air and beta-air doses:

$$D_\gamma = 3.17 \times 10^{-8} \sum_i M_i [(\overline{\chi/Q}_{NG}) \tilde{Q}_i] \qquad (2\text{-}14)$$

$$D_\beta = 3.17 \times 10^{-8} \sum_i N_i [(\overline{\chi/Q}_{NG}) \tilde{Q}_i] \qquad (2\text{-}15)$$

where:

D_γ = air dose due to gamma emissions for noble gas radionuclide i (mrad)

$\overline{\chi/Q}_{NG}$ = dispersion parameter for unrestricted areas

= 1.83×10^{-6} sec/m^3

$\tilde{Q}_i$ = cumulative release of noble gas radionuclide i over the period of interest (μCi)

D_β = air dose due to beta emissions from noble gas radionuclide i (mrad)

N_i = air dose factor due to beta emissions from noble gas radionuclide i (mrad/yr per $\mu Ci/m^3$) from Table 4 of Appendix B.

3.17×10^{-8} = conversion factor (yr/sec)

b. Technical Specification 4.11.2.3 requires an assessment at least once per 31 days to evaluate compliance with the quarterly dose limit of $\leq$7.5 mrem to any organ. The following equation may be used to evaluate the maximum organ dose due to releases of I-131, tritium and particulates with half-lives greater than 8 days. | 1

$$D_p = 3.17 \times 10^{-8} \sum_i \tilde{Q}_i' \left(R_{inh_i} \overline{\chi/Q}' + R_{veg_i} \overline{D/Q}'\right) \quad (2\text{-}16)$$

where:

D_p = dose or dose commitment to organ p, including the total body, from I-131 and radionuclides in particulate form with half-life greater than eight days (mrem)

$\overline{\chi/Q}'$ = 1.19×10^{-6} sec/m^3 for inhalation pathway and H-3 dose contribution via other pathways (from Table 7 of Appendix B)

$\overline{D/Q}'$ = 1.39×10^{-8} m^{-2} vegetation pathway (from Table 7 of Appendix B)

R_{inh_i} = inhalation dose factor for radionuclide i from Table 6 of Appendix B (mrem/year per $\mu Ci/m^3$). Values for the inhalation dose factor were derived in accordance with the methods described in NUREG-0133.

R_{veg_i} = vegetation pathways dose factor for radionuclide i from Table 6 of Appendix B (m^2 - mrem/year per $\mu Ci/sec$). Values for vegetation pathway dose factor were derived in accordance with the methods described in NUREG-0133.

$\tilde{Q}'_i$ = cumulative release of radionuclide i of I-131 or material in particulate form in long-term releases over the period of interest (μCi).

The location of exposure pathways and the maximum organ dose may be based on the available pathways in the surrounding environment of Davis-Besse as identified by the annual land-use census (Technical Specification 3.12.2). Table 7 of Appendix B will be supplemented yearly by including in the Semi-Annual Radioactive Effluent Report the applicable exposure pathways as identified by the census.

c. For the purpose of implementing RETS Technical Specification 3.11.3 on the EPA environmental radiation dose standard and 6.9.1.13 on reporting, dose calculations will be performed using the above equations with the substitution of average or actual meteorological parameters for the period of interest and applicable pathways.

2.3 Projected Personel Maximum Dose from Gaseous Effluents

The dose commitment to a person offsite due to radioactive material released in gaseous effluent may be projected by calculating the air dose for gamma and beta radiation and the most exposed organ dose commitments to a hypothetical person.

The dose commitment to a maximally exposed hypothetical person will be projected by calculating the doses accumulated during the most recent three months according to the method described in Section 2.2.2 and by assuming that the result represents the projected doses during the current month or quarter.

Alternatively, the 31 day dose commitment may be projected by using the equation:

$$P_t = \frac{T}{X} D_t \qquad (1\text{-}11)$$

1

where:

P_t = projected air dose commitment (mrem) from and B radiation, or dose to organ t (including total body).

T = number of days in the projected time period (i.e. 31 days, 91 days).

X = number of days to date in current quarter

D_t = accumulated personal dose to date during the current quarter via radioactive material in gaseous effluent (mrem)

2.4 Total Dose

2.4.1 Compliance with 40CFR190

Compliance with 40CFR190 as prescribed by Specification 3.11.4 will be demonstrated when one or more of Specifications 3.11.1.2a, 3.11.1.2b, 3.11.2.2a, 3.11.2.2b, 3.11.2.3a, or 3.11.2.3b has been exceeded by a factor of 2. Once this occurs, the Company has 30 days to submit a report in accordance with Specification 6.9.2.

2.4.2 Calculations Evaluating Conformance with 40CFR190

To perform the calculation to evaluate conformance with 40CFR190, an effort will be made to develop doses that are realistic by removing assumptions that might lead to overestimates of dose to a member of the public. To accomplish this, the following general rules will apply:

a. Environmental sampling data which demonstrates that no pathway exists may be used to delete a pathway to man.

b. Locations used to calculate doses to a member of the public will only be at actual residences.

c. When doses via direct radiation are added to doses via the inhalation pathway, they will be calculated for the same receptor location (i.e., the same distance in the same sector).

2.4.3 Calculation of the Total Body Dose

Estimates will be made for each of the following exposure pathways to the same location by age class. Only those age classes known to exist at a location are considered.

a. Direct Radiation

The component of dose to a Member of the Public due to direct radiation will be determined by first estimating the direct radiation dose at or near the site boundary, in each sector, using direct radiation measurements or radiation transport methodology. The dose at the calculational location is then determined by extrapolating the dose at the Site Boundary to the calculational location. The following method will be used.

$$D_{L,\theta} = D_{B,\theta} \frac{(X_{B,\theta})^2}{(X_{L,\theta})^2}$$

$D_{B,\theta}$ = Direct radiation dose at the site boundary in sector θ.

$D_{L,\theta}$ = Dose at calculational location in sector θ.

$X_{L,\theta}$ = Distance to the calculational location in sector θ.

$X_{B,\theta}$ = Distance to the site boundary (or TLD location) in sector θ in meters.

1

b. Inhalation Dose

The inhalation dose will be determined at the calculational locations for each age group according to the methods outlined in Sections 2.2 of this manual.

c. Ingestion Pathway

The dose via the ingestion pathway will be calculated at the consumer locations for the consumers at risk.

d. Other Uranium Fuel Cycle Sources

For purposes of the Special Report, it will be assumed tnat the contribution to the dose commitment from other Uranium fuel cycle sources is negligible.

1

2.4.4 Calculation of the Thyroid Dose

The dose to the thyroid will be calculated for each sector as the sum of the inhalation dose and the milk ingestion dose (if existing). The calculational methods will be those identified in Section 2.2 of this manual.

2.5 Meteorological Model

2.5.1 Long-Term Atmospheric Dispersion

Atmospheric dispersion for long-term releases is calculated using a mixed-mode, wake-split form of the straight-line flow Gaussian dispersion model, referenced in Regulatory Guide 1.111, Revision 1.

χ/Q = atmospheric dispersion (sec/m^3)

$$= \frac{2.03\ k\delta}{r}\left[\frac{1-E}{u\sigma_z}\exp\left[-\frac{h^2}{2\sigma_z^2}\right] + \frac{E}{u_g \Sigma}\right] \qquad (2\text{-}17)$$

where:

k = open terrain recirculation factor at distance r from Figure 2 of Appendix A.

δ = plume depletion factor at distance r for appropriate stability class and effective height from Figures 3-6 of Appendix A. (Note: This plume depletion factor applies only to releases of radioiodines. The depletion factor for noble gases is unity.)

E = fraction considered as ground level

1.0	for	$\frac{v}{u} \leq 1.0$
$2.58-1.58 \frac{v}{u}$	for	$1.0 < \frac{v}{u} \leq 1.5$
$0.3-0.06 \frac{v}{u}$	for	$1.5 < \frac{v}{u} \leq 5.0$
0	for	$\frac{v}{u} > 5.0$

v = station vent exit velocity (13.4 m/sec)

u = wind speed at vent height from the 75-m level of the main meteorological tower (m/sec)

u_g = wind speed at ground level from the 10-m level of the satellite meteorological tower (m/sec)

σ_z = vertical standard deviation of the plume at distance r for effective height under stability category indicated by temperature lapse rate ΔT (°C/100m) from Figure 7 of Appendix A.

ΔT = temperature differential with vertical separation between the 10-m and 75-m levels of the main meteorological tower (°K/100m)

h = effective height of release (m)

= $h_v + h_{pr} - h_t$

h_v = height of station vent

= 75.3m

h_{pr} = additional height due to plume rise (m) for stability classes A, B, C, D

$$\text{the lesser of} \left| \begin{array}{c} \left[1.44 \frac{v}{u}^{2/3} \frac{r}{d}^{1/3} d \right] - c_v \\ \text{or} \\ 3 \frac{vd}{u} \end{array} \right|$$

subject to, for stable conditions ($\Delta T > -0.5$ °K/100m):

$$\text{the lesser of} \begin{cases} 4 \left| \frac{F_m}{S} \right|^{1/4} \\ \text{or} \\ 1.5 \left| \frac{F_m}{u} \right|^{1/3} S^{-1/6} \end{cases}$$

d = diameter of station vent
= 2.12 m

c_v = correction for low vent exit velocity (m)

$$= \begin{cases} 3 \left| 1.5 - \frac{v}{u} \right| d & \text{for } \frac{v}{u} < 1.5 \\ 0 & \text{for } \frac{v}{u} \geq 1.5 \end{cases}$$

F_m = momentum flux parameter (m^4/sec^2)
$= \left(\frac{vd}{2}\right)^2$

S = restoring acceleration per unit vertical displacement for adiabatic motion in the atmosphere

8.7×10^{-4} sec^{-2} for $\Delta T \leq 1.5$ (E)

1.75×10^{-3} sec^{-2} for $\Delta T \leq 4.0$ (F)

2.45×10^{-3} sec^{-2} for $\Delta T > 4.0$ (G)

h_t = height of terrain at distance r in sector of interest (m)

r = downwind distance (m)

Σ = vertical standard deviation of the plume with building wake correction (m)

$$= \text{the lesser of } \left| \begin{array}{l} \left[\sigma_z^2 + (0.5)\frac{b^2}{\pi} \right]^{1/2} \\ \text{or} \\ \sqrt{3}\,\sigma_z \end{array} \right|$$

b = height of reactor building

= 73.5m

2.5.2 Long-Term Deposition

Relative deposition per unit area for long term releases is calculated for a mixed mode release.

D/Q = relative deposition per unit area (m^{-2})

$$= \frac{2.55k}{r} \left| (1-E)\, D_e + E D_g \right| \qquad (2\text{-}18)$$

where:

D_e = relative deposition rate for elevated releases from Figures 9 through 11 of Appendix A.

D_g = relative deposition rate for ground level releases from Figure 8 of Appendix A.

2.6 Definitions of Gaseous Effluents Parameters

b = height of reactor building (m) (Section 2.3.1)

C = count rate of the station vent monitor corresponding to grab sample radionuclide concentrations (cpm) (Section 2.1.1)

C' = count rate of station vent monitor corresponding to a 1.0 μCi/sec release rate of Xe-133 (cpm) (Section 2.1.1)

c = count rate of the waste gas decay system monitor for radionuclide concentrations to be discharged (cpm) (Section 2.1.2)

c' = count rate of the waste gas decay system monitor corresponding to a 1.0 μCi/sec release rate of Xe-133 (cpm) (Section 2.1.2)

c_v = effective plume height correction for low vent exit velocity (m) (Section 2.3.1)

D_e = relative deposition rate for elevated releases from Figure 6 of Appendix A (Section 2.3.2)

D_g = relative deposition rate for ground level releases from Figure 7 of Appendix A (Section 2.3.2)

D_o = average organ dose rate (mrem/year) (Section 2.2.1.b)

D_p = dose or dose commitment to organ p, including the total body, from I-131 and radionuclides in particulate form, with half-life greater than eight days (mrem) (Section 2.2.2.b)

D_s = average skin dose rate (mrem/year) (Section 2.2.1.a)

D_{tb} = average total body dose rate (mrem/year) (Section 2.2.1.a)

D_β = air dose due to beta emissions from noble gas radionuclide i (mrad) (Section 2.2.2.a)

D_γ = air dose due to gamma emissions from noble gas radionuclide i (mrad) (Section 2.2.2.a)

$\overline{D/Q}$ = relative deposition per unit area (m^{-2}) (Section 2.3.2)

d = diameter of station vent (m) (Section 2.3.1)

δ = plume depletion factor at distance r for appropriate stability class and effective height from Figures 3 and 4 of Appendix A (dimensionless) (Section 2.3.1)

E = fraction of release considered as ground level (dimensionless) (Section 2.3.1)

F_m = momentum flux parameter (m^4/sec^2) (Section 2.3.1)

h = effective height of release (m) (Section 2.3.1)

h_t = height of terrain at distance r in sector of interest (m) (Section 2.3.1)

h_v = height of station vent (m) (Section 2.3.1)

h_{pr} = additional plume height due to plume rise (m) (Section 2.3.1)

K = total body dose factor for Kr-89, (mrem/yr per $\mu Ci/m^3$) from Table 4 of Appendix B (Section 2.1.1)

K_i = total body dose factor due to gamma emissions from radionuclide (mrem/yr per $\mu Ci/m^3$) from Table 4 of Appendix B (Section 2.1.1)

k = open terrain recirculation factor at distance r from Figure 2 of Appendix A (dimensionless) (Section 2.3.1)

L = skin dose factor for Kr-89, the most restrictive radionuclide, from Table 4 of Appendix B (mrem/yr per $\mu Ci/m^3$) (Section 2.1.1)

L_i = skin dose factor due to beta emissions from radionuclide i (mrem/yr per $\mu Ci/m^3$) from Table 4 of Appendix B (mrem/yr per $\mu Ci/m^3$) (Section 2.1.1)

M = air dose factor for Kr-89, the most restrictive radionuclide, from Table 4 of Appendix B (mrad/yr per $\mu Ci/m^3$) (Section 2.1.1)

M_i = air dose factor due to gamma emissions from radionuclide i (mrad/yr per $\mu Ci/m^3$) from Table 4 of Appendix B (Section 2.1.1)

N_i = air dose factor due to beta emissions from noble gas radionuclide i (mrad/yr per $\mu Ci/m^3$) from Table 4 of Appendix B (Section 2.2.2.a)

P_i = dose parameter for radionuclide i, (mrem/yr per $\mu Ci/m^3$) for inhalation from Table 5 of Appendix B (Section 2.2.1.b)

$\dot{Q}_i$ = rate of release of noble gas radionuclide i (μCi/sec) (Section 2.1.1)

$\overline{Q}'_i$ = average release rate over appropriate sampling period of isotope i of I-131 or other radionuclide in particulate form, with half-life greater than eight (8) days (μCi/sec) (Section 2.2.1.b)

$\tilde{Q}_i$ = cumulative release of noble gas radionuclide i over the period of interest (μCi) (Section 2.2.2.a)

$\tilde{Q}'_i$ = cumulative release of radionuclide i of I-131 or material in particulate form over the period of interest (μCi) (Section 2.2.2.b)

$\dot{q}_i$ = rate of release of noble gas radionuclide i (μCi/sec) (Section 2.1.2)

R_{inh_i} = inhalation dose factor for radionuclide i from Table 6 of Appendix B (mrem/year per μCi/m^3) (Section 2.2.2.b).

R_{veg_i} = vegetation pathway dose factor for radionuclide i from Table 6 of Appendix B (m^2 - mrem/year per μCi/sec) (Section 2.2.2.b).

R_s = count rate per mrem/yr to the skin based on current isotope distribution (Section 2.1.1)

R_t = count rate per mrem/yr to the total body based on current isotope distribution (Section 2.1.1)

R'_s = conservative count rate per mrem/yr to the skin (Xe-133 detection Kr-89 dose) (Section 2.1.1)

R'_t = conservative count rate per mrem/yr to the total body (Xe-133 detection, Kr-89 dose) (Section 2.1.1)

r = downwind distance (m)

r_s = count rate per mrem/yr to the skin based on waste gas decay system isotope distribution (Section 2.1.2)

r_t = count rate per mrem/yr to the total body based on current waste gas decay system isotope distribution (Section 2.1.2)

r'_s = conservative count rate per mrem to the skin for waste gas decay system only (Section 2.1.2)

r'_t = conservative count rate per mrem to the total body for waste gas decay system only (Section 2.1.2)

S = restoring acceleration per unit vertical displacement for adiabatic motion in the atmosphere (sec^{-2}) (Section 2.3.1)

S_d = count rate of waste gas decay system noble gas monitor at alarm setpoint level (Section 2.1.2)

S_v = count rate of station vent noble gas monitor at alarm setpoint level (Section 2.1.1)

Σ = vertical standard deviation of the plume with building wake correction (m) (Section 2.3.1)

σ_z = vertical standard deviation of the plume at distance r for effective height under stability category indicated by ΔT from Figure 5 of Appendix A (m) (Section 2.3.1)

ΔT = temperature differential with vertical separation (°K/100m) (Section 2.3.1)

u = wind speed at vent height from the 75-m level of the main meteorological tower (m/sec) (Section 2.3.1)

u_g = wind speed at ground level from the 10-m level of the satellite meteorological tower (m/sec) (Section 2.3.1)

v = plant vent exit velocity (m/sec) (Section 2.3.1)

χ/Q = atmospheric dispersion (sec/m^3) (Section 2.3.1)

$\overline{\chi/Q}$ = highest sector annual average atmospheric dispersion value at the unrestricted area boundary (sec/m^3) (Section 2.1.1)

$\overline{\chi/Q}_I$ = controlling sector annual average atmospheric dispersion at the site boundry for the inhalation pathway (Section 2.2.1.b)

$\overline{\chi/Q}_{NG}$= highest sector annual average atmospheric dispersion at the unrestricted area boundary (sec/m^3) (Secton 2.2.2.a)

2.7 References to 2.0 Gaseous Effluents

2.7.1 J. S. Boegli, W. L. Britz, R. R. Belamy, and R. L. Waterfield. 1978. "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," NUREG-0133, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission.

2.7.2 United States Nuclear Regulatory Commission. 1977. "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Regulatory Guide 1.111, Revision 1.

3.0 RADIOLOGICAL ENVIRONMENTAL MONITORING

Sampling locations as required in Section 3/4.12.1 of the Radiological Effluent Technical Specifications are described in Table 8 of Appendix B and shown on maps in Appendix A, pages A-12 and A-16 through A-50.

3.1 Land Use Census

A land use census shall be conducted annually for the purpose of identifying changes in the use of the offsite area surrounding Davis-Besse which may substantially affect the radiological dose assessment or which may indicate needed adjustments to the Program. This census satisfies the criteria of 10 CFR Part 50, Appendix I, Section IV.B.3.

The census will include land within 5 miles of Davis-Besse and will be conducted at least annually. It will be conducted by either a door-to-door survey, aerial survey, or by consulting local agricultural authorities or by a combination thereof.

The locations of: 1) the nearest milk animal, 2) the nearest vegetable garden greater than 500 square feet, and 3) the nearest resident, within 5 miles of Davis-Besse in each of 16 sectors in cardinal compass point directions from the plant, are to be identified in the census. If a milk animal is not identified in a sector within 5 miles, one may conservatively assume that one is located at the 5-mile distance for purposes of evaluating maximum potential organ dose and identifying the controlling pathway, except in those sectors over Lake Erie.

If the land use census identifies a location(s) at which the dose or dose commitment calculated at the time is greater than the maximum calculated dose associated with the like pathway(s) at a location where sampling is conducted as specified by the monitoring program, then the pathways having maximum exposure

lpotential at the newly identified location will be added to the program, if samples are reasonably obtainable at the new location. Like pathways monitored (sampled) at a location, excluding control station location(s), having a lower associated calculated personal dose may be deleted from the program at the time the new pathway(s) and location(s) are added.

3.2 Sample Analyses

Radioactivity in environmental samples described in Table 8 of Appendix B may be analyzed either at Davis-Besse or at an offsite laboratory. In order to provide a comparative check on the accuracy and precision of these analyses, the laboratory participates in the USEPA Interlaboratory Comparison Program by analyzing radioactive samples distributed for the purpose.

Tables 9 and 10 of Appendix B identify the type and frequency of environmental sample collection.

4.0 REGULATORY GUIDE 1.21 - EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

4.1 Technical Specification Limits Used for Gaseous Effluents

Since the β-air dose is usually the most limiting for exposure to noble gases, this specification as shown in 3.11.2.2a will be used to determine the percent of limits reported in the Regulatory Guide 1.21 Report. The specification for the dose to a Member of the Public from I-131, tritium, and particulates with half-lives greater than 8-days is specified in 3.11.2.3.a for any organ.

4.2 Technical Specification Limits Used for Liquid Effluents

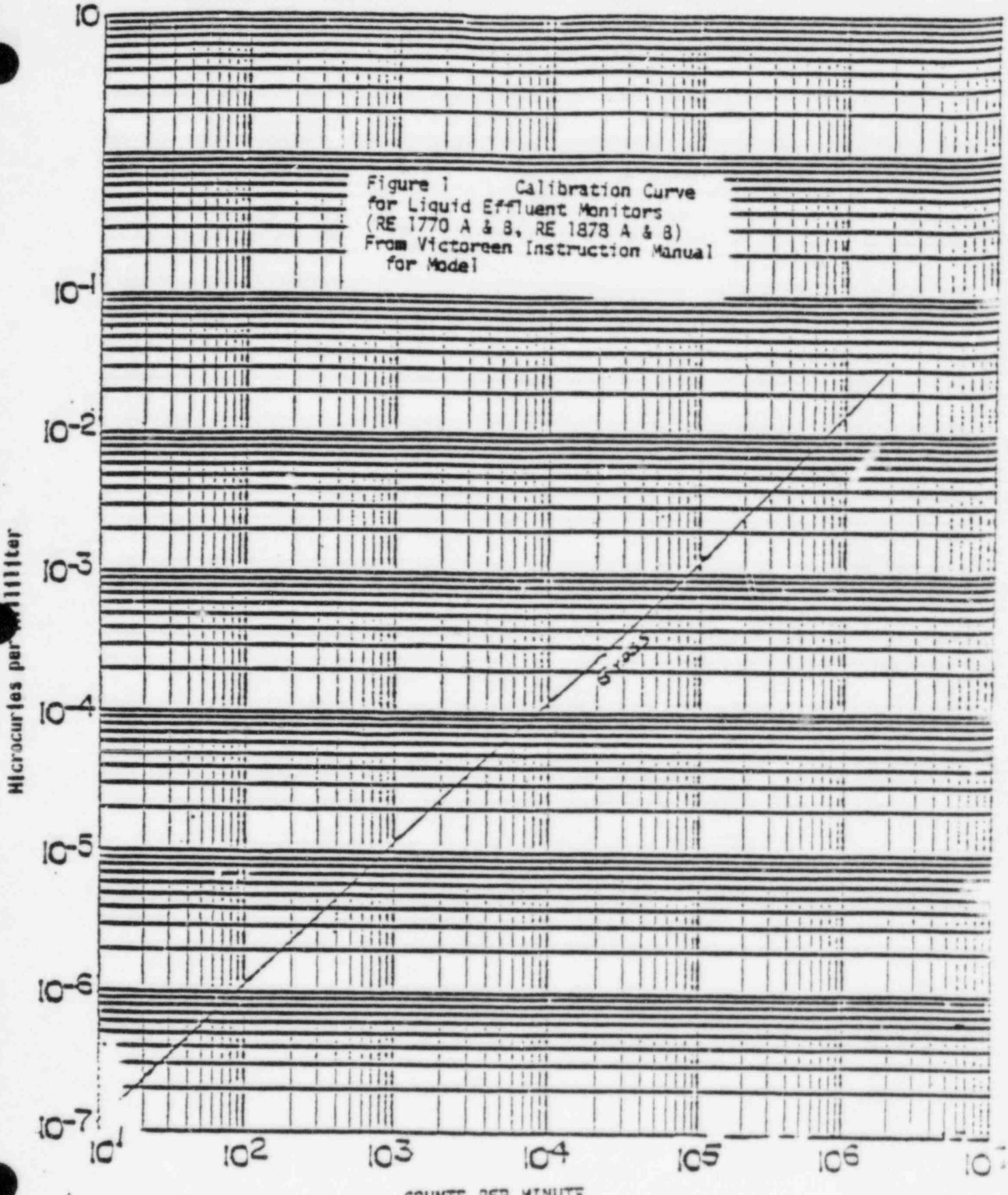
The specification for dose to a MEMBER OF THE PUBLIC used to determine the reported percent of limit from liquid effluents is shown in 3.11.1.2.a for the total body and to any organ.

The limit for the concentration of radioactive material released to UNRESTRICTED AREAS from liquid effluents, other than dissolved or entrained noble gases, are those specified in 10CFR Part 20.106. T. S. 3.11.1.1 specifies 2×10^{-4} microcuries/ml as the concentration limit for dissolved or entrained noble gases.

DBP 4306G

APPENDIX A

Figures



DAVIS-BESSE, UNIT 1

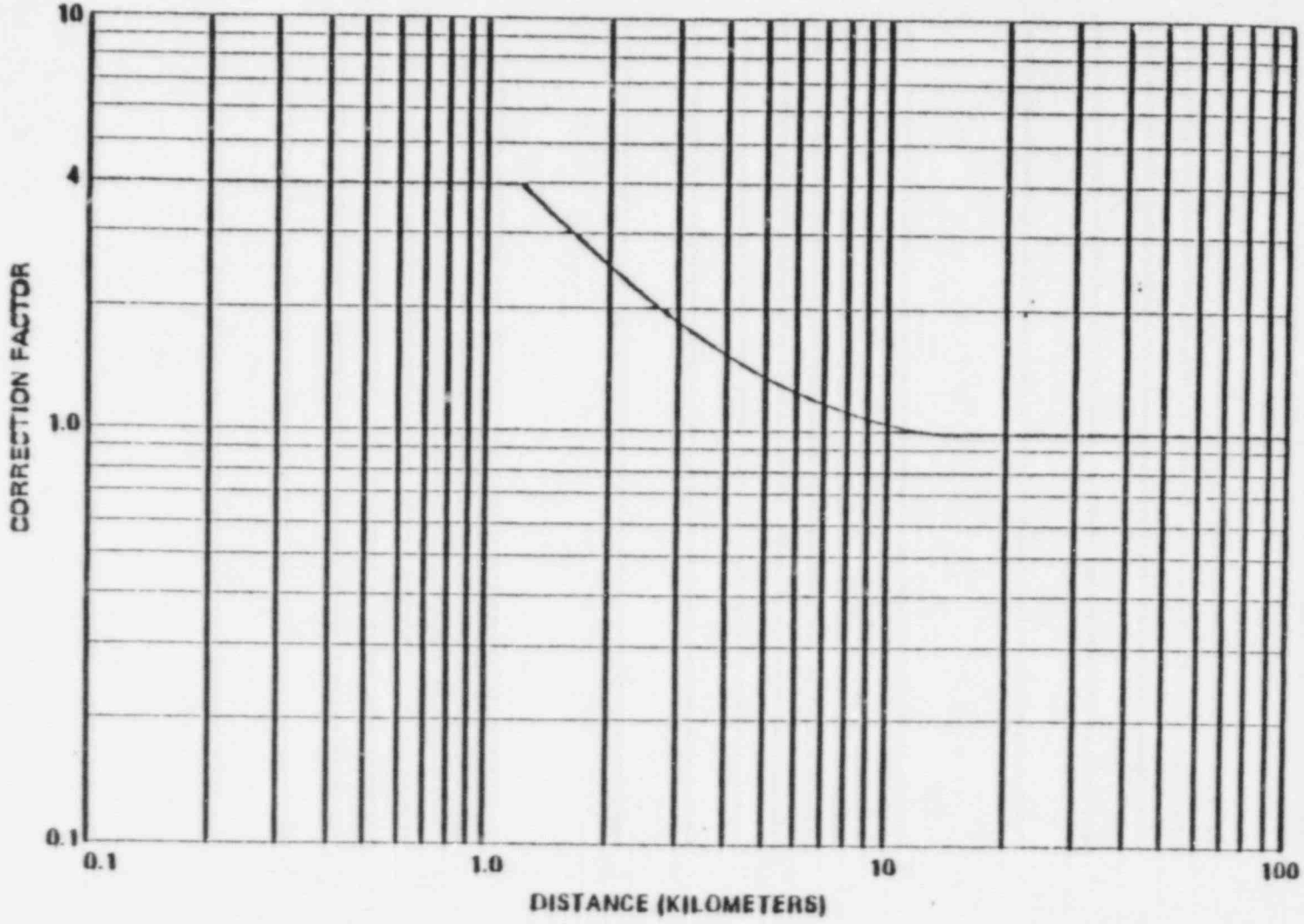


Figure 2 Open Terrain Correction Factor

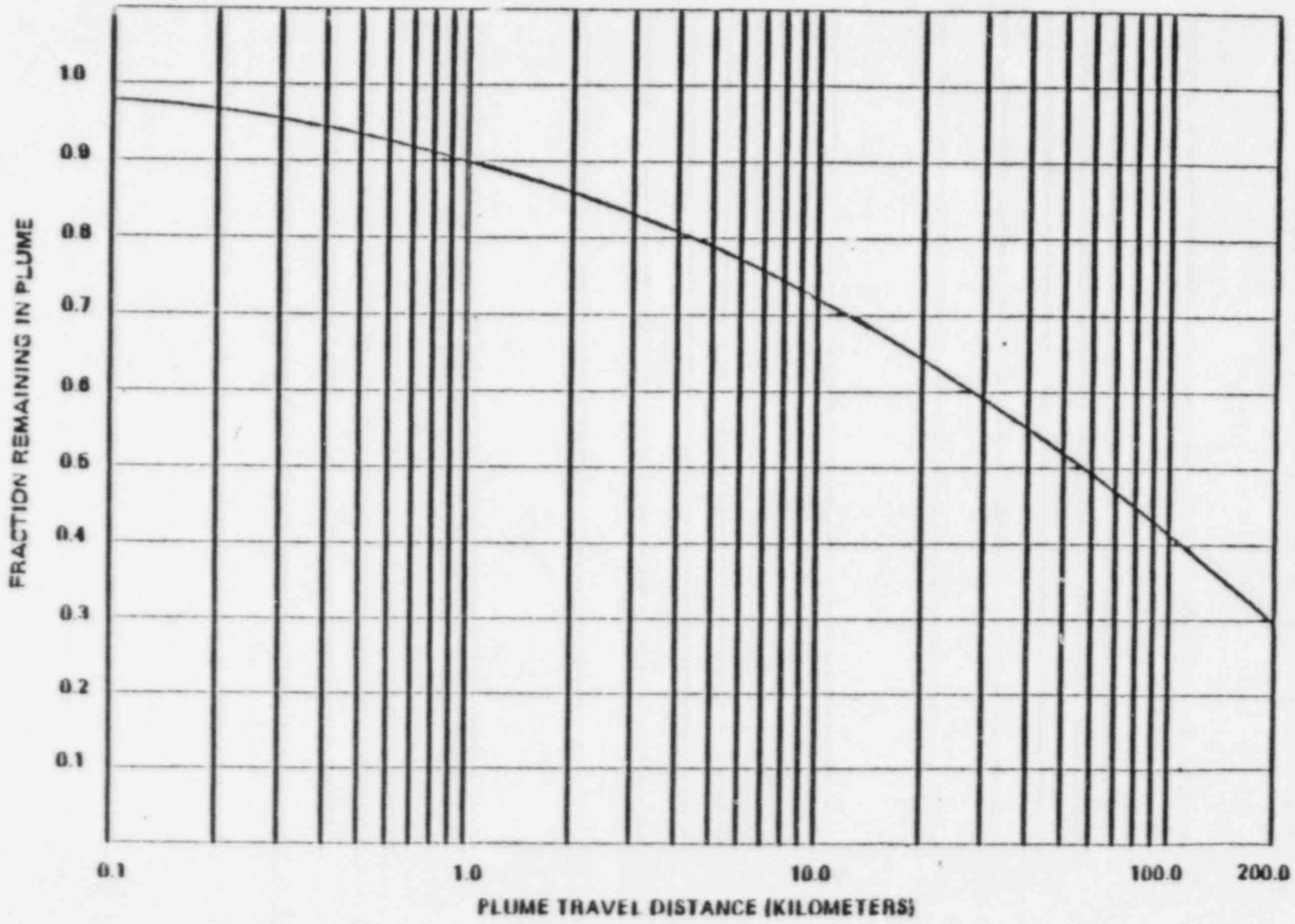


Figure 1 Plume Depletion Effect for Ground Level Releases (All Atmospheric Stability Classes)

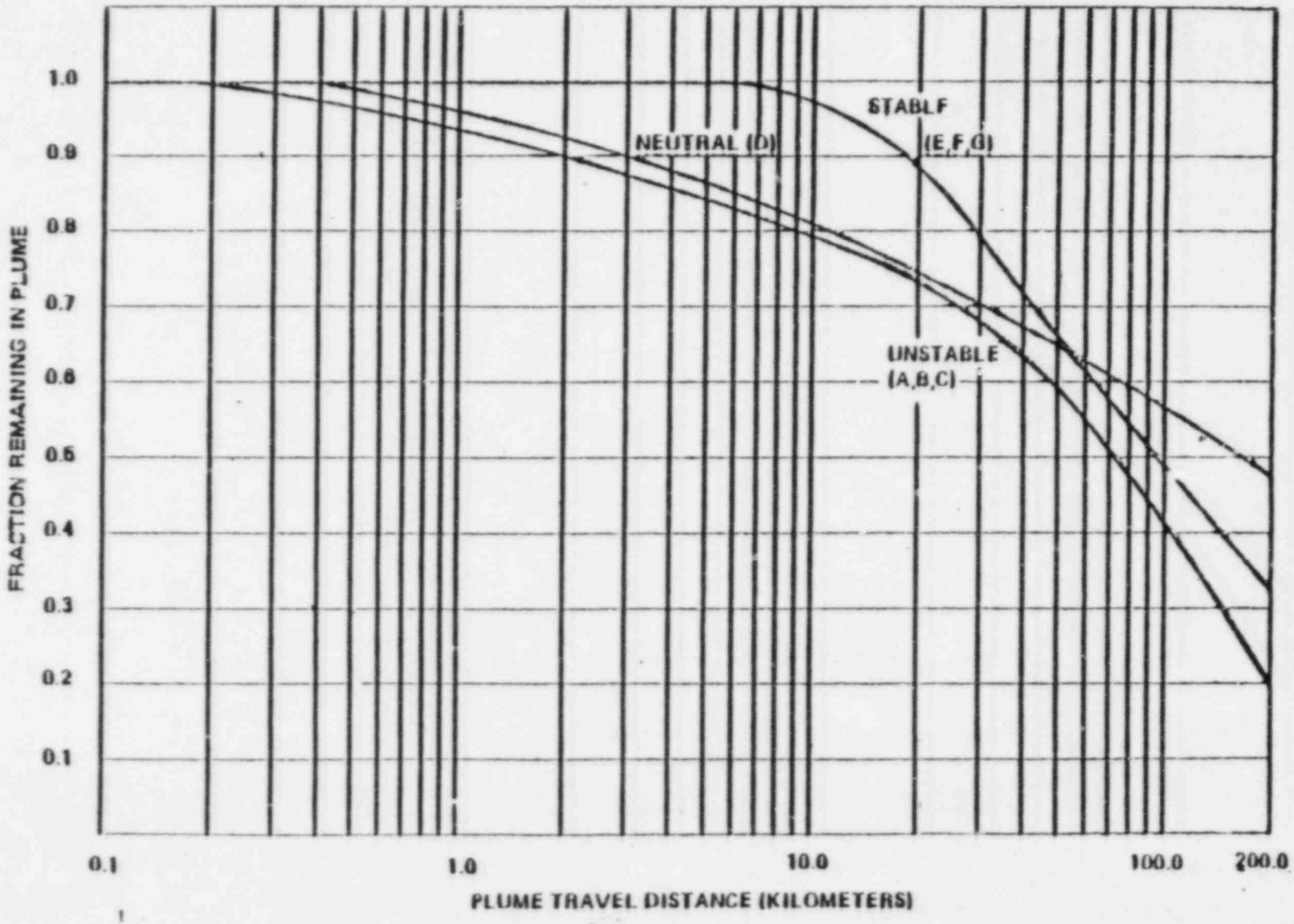


Figure 4 Plume Depletion Effec[illegible]. Releases (Letters denote Pasquill Stability Class)

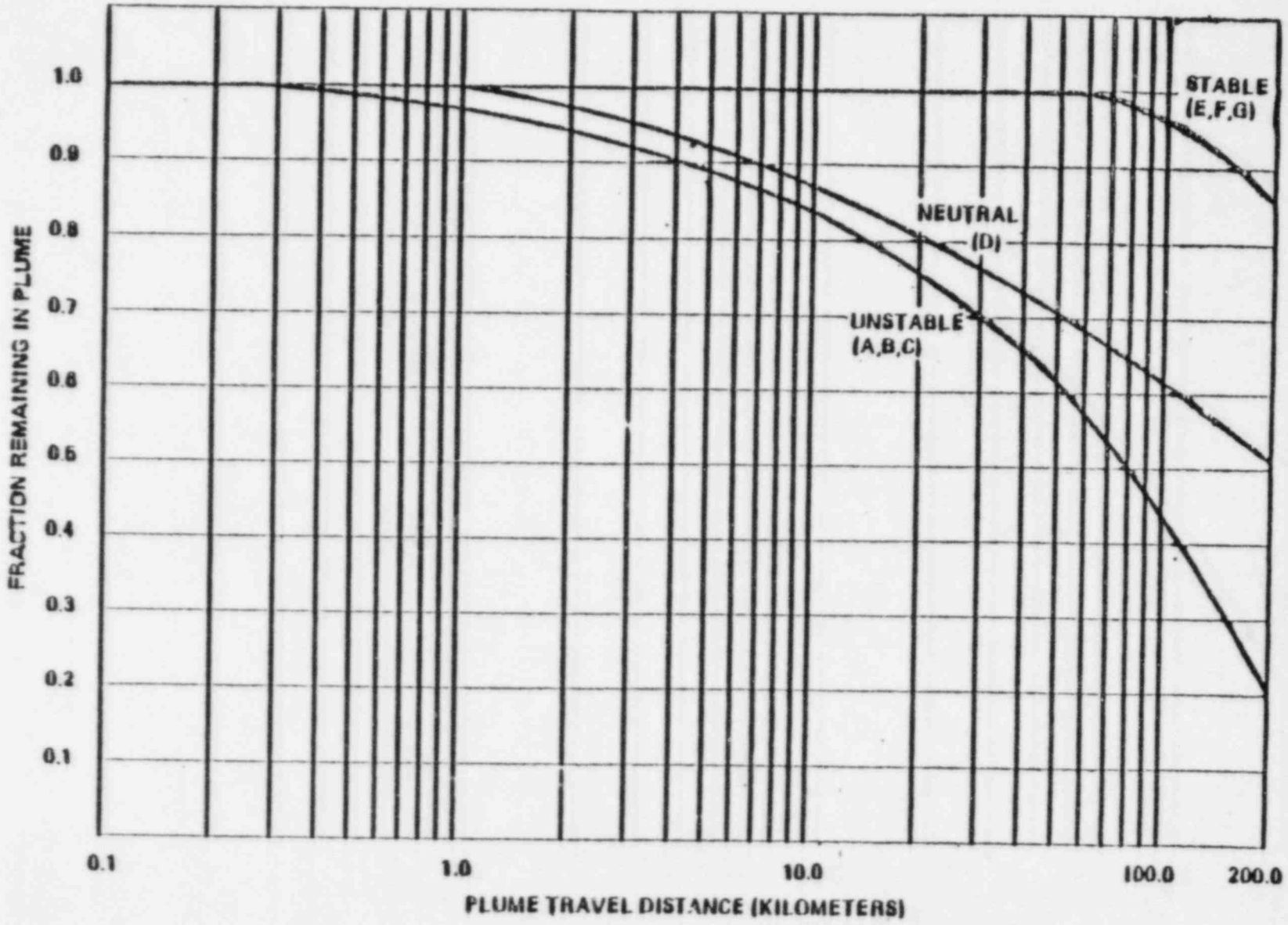


Figure 5 Plume Depletion Effect for 60 m Releases (Letters denote Pasquill Stability Class)

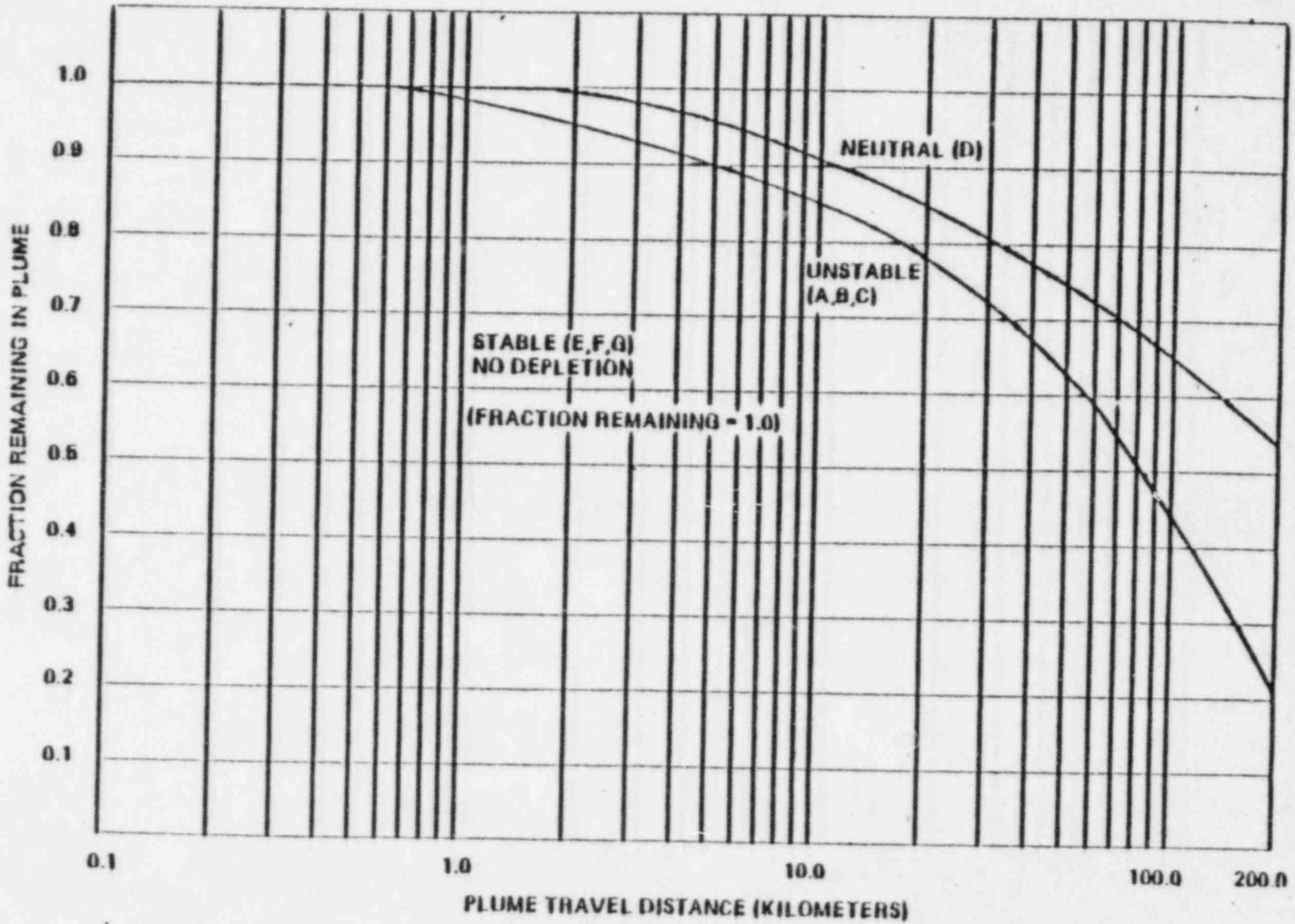


Figure 6 Plume Depletion Effect[illegible]n Releases (Letters denote Pasquill Stability Class)

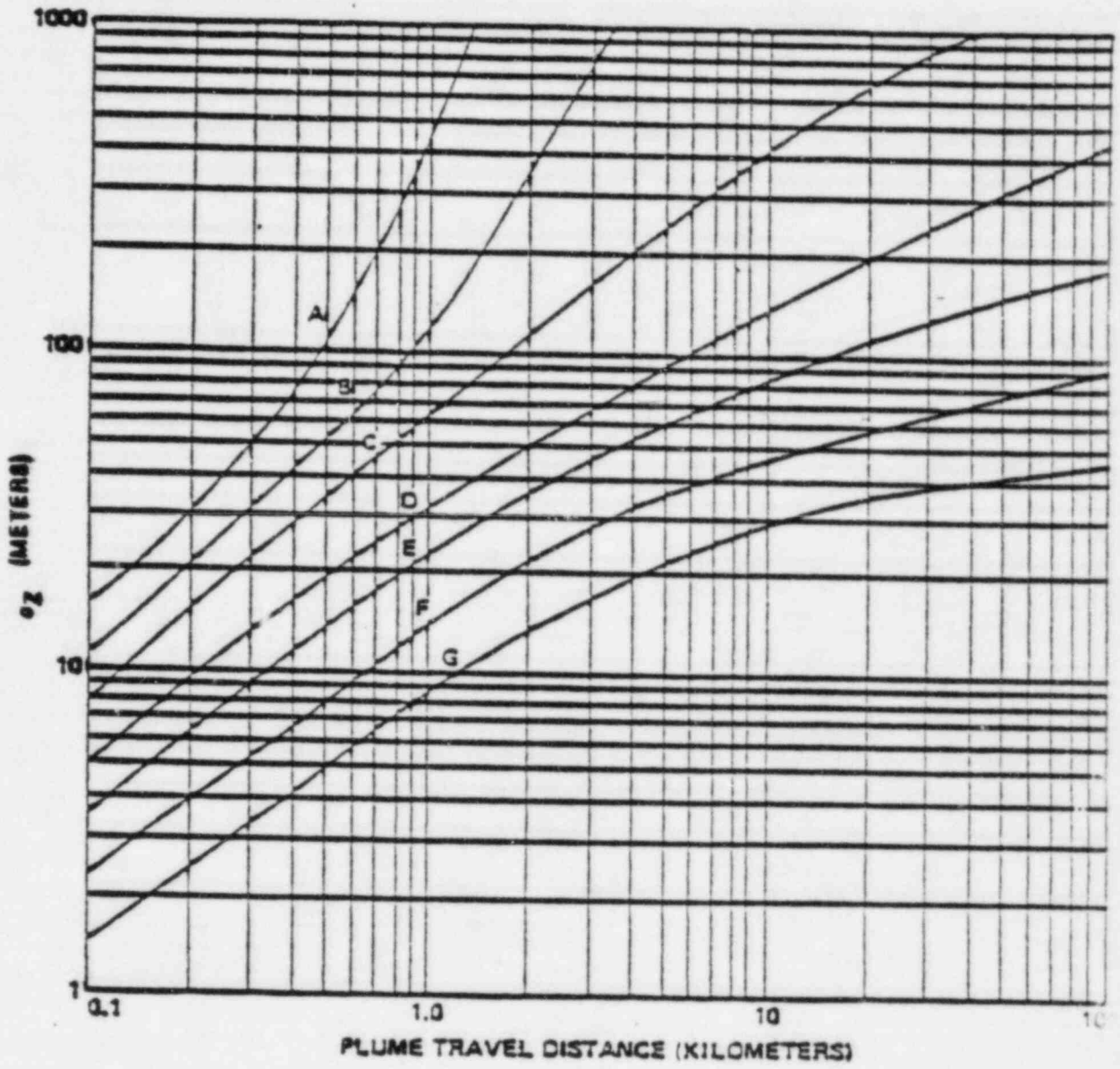


Fig. 7 Vertical Standard Deviation of Material in a Plume (Letters denote Pasquill Stability Class

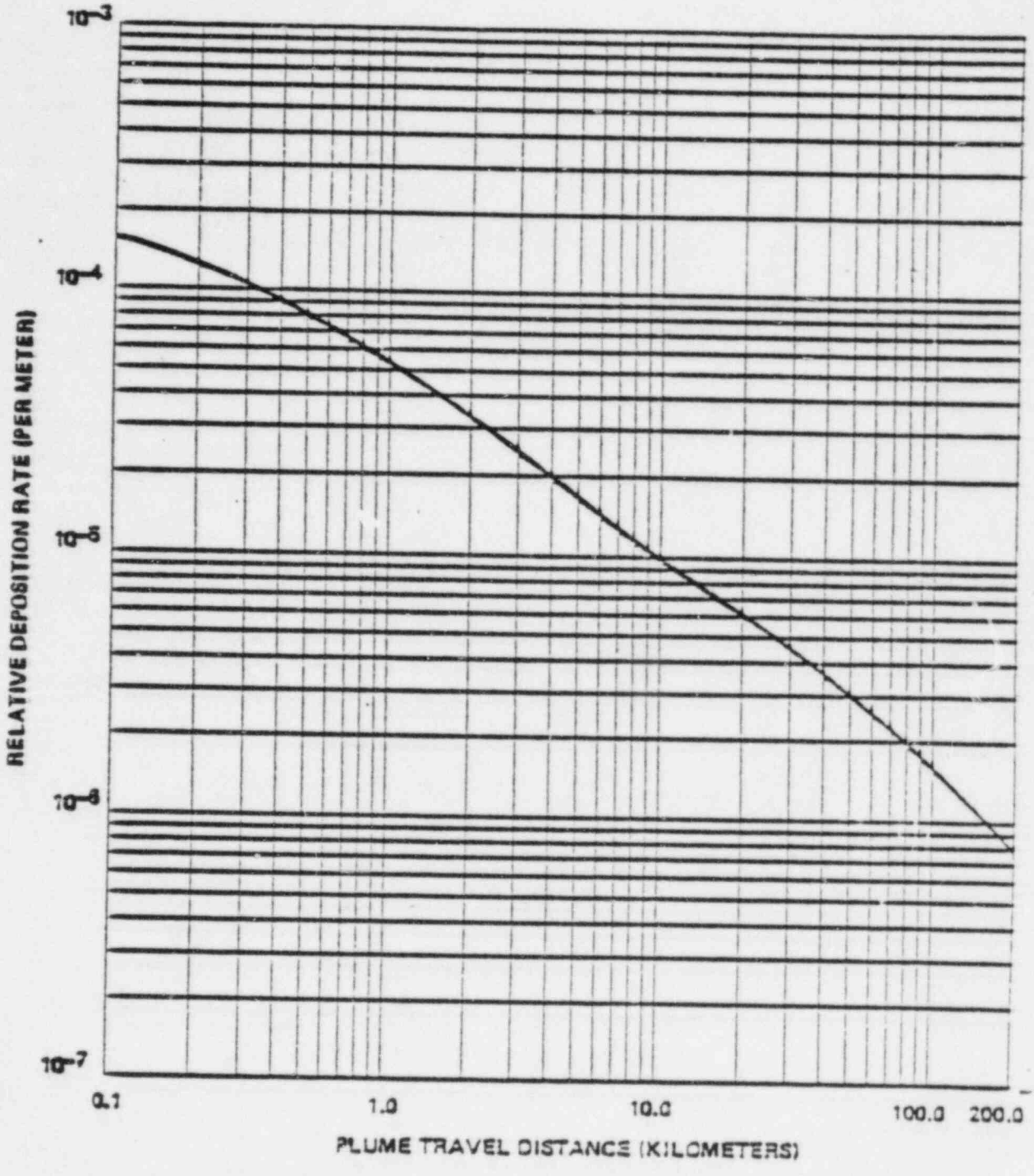


Figure 3 Relative Deposition for Ground-Level Releases (All Atmospheric Stability Classes)

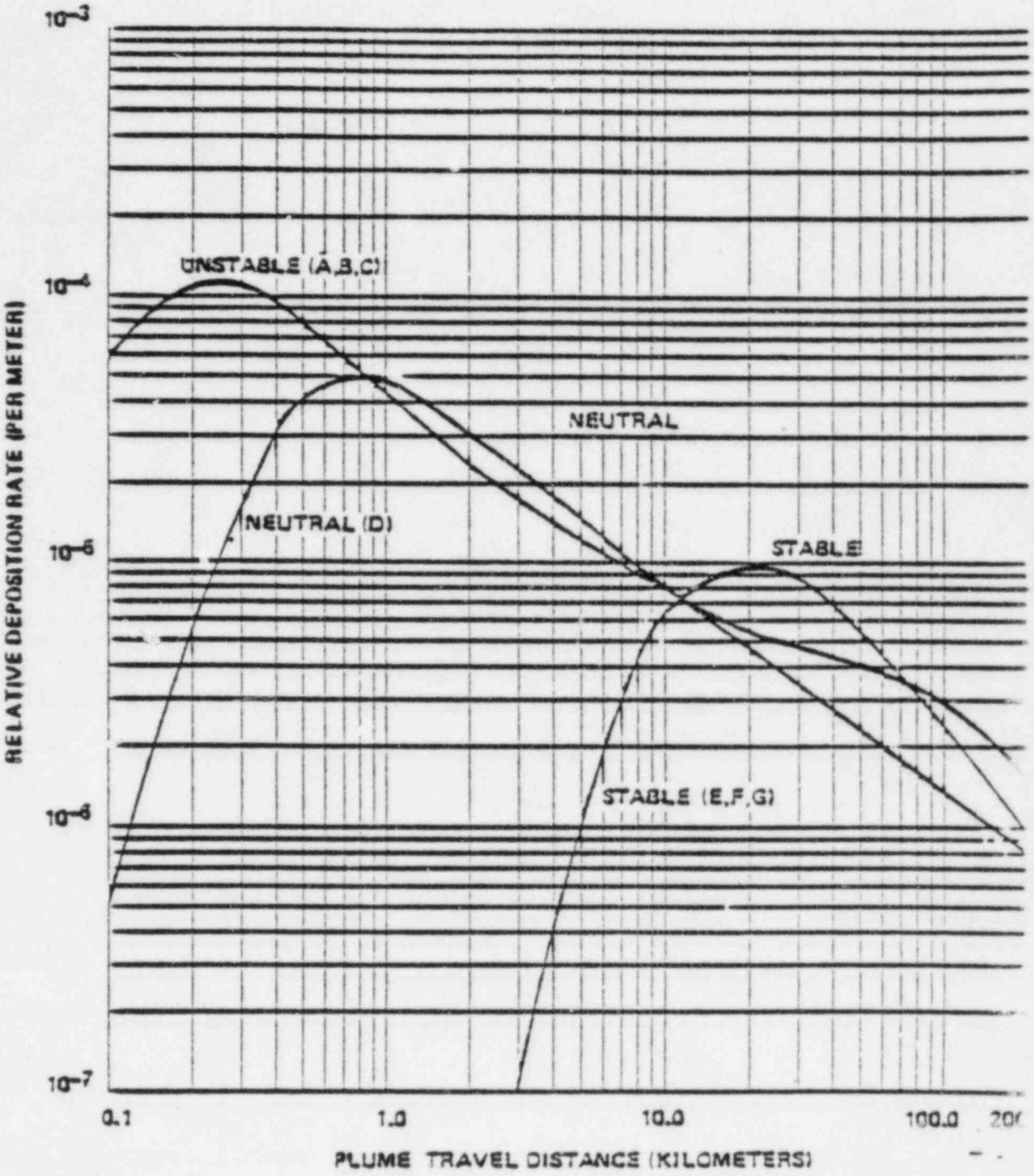


Figure 9 Relative Deposition for 30-m Releases (Letters denote Pasquill Stability Class)

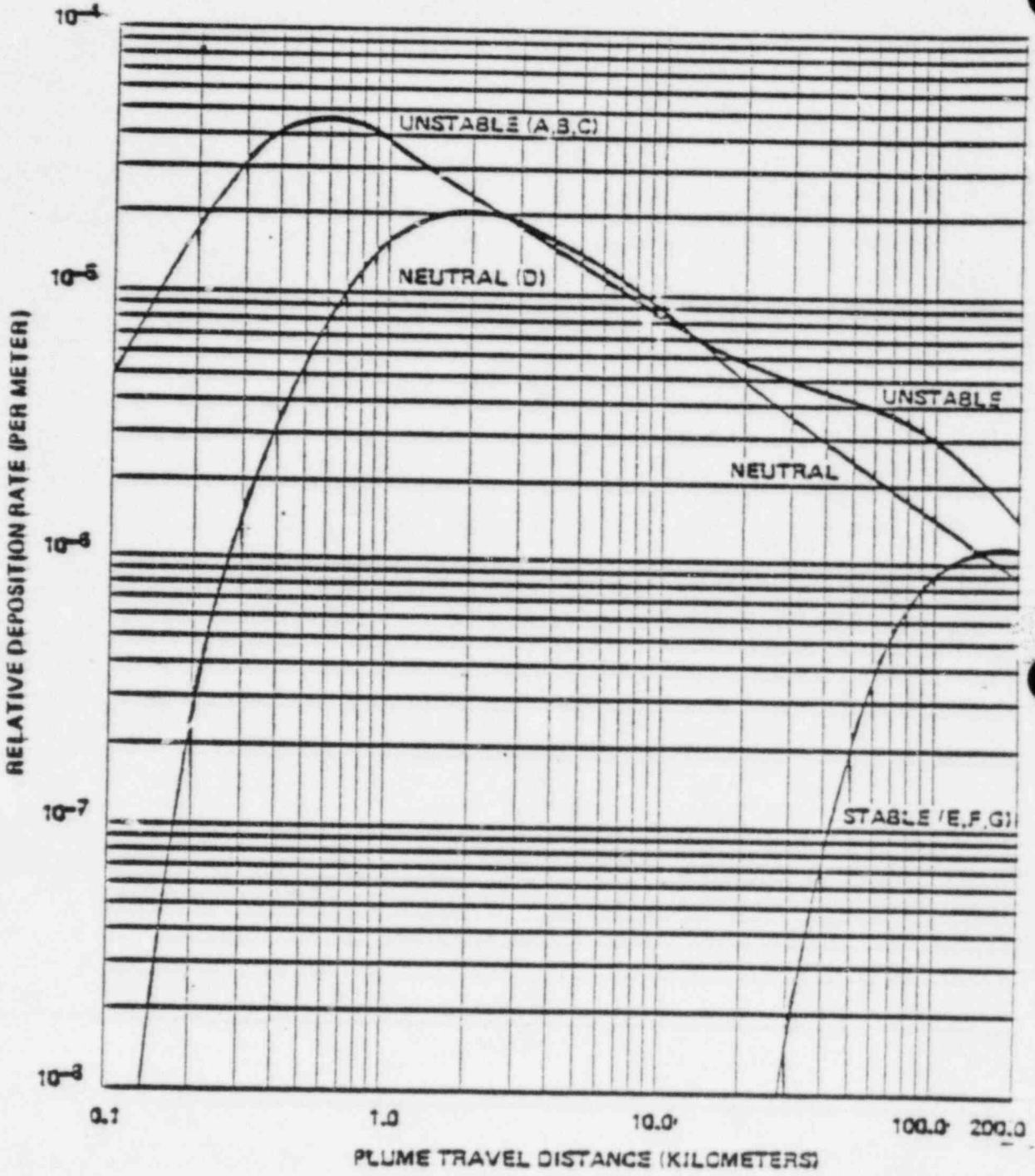


Figure 10 Relative Deposition for 60-m Releases (Letters denote Pasquill Stability Class)

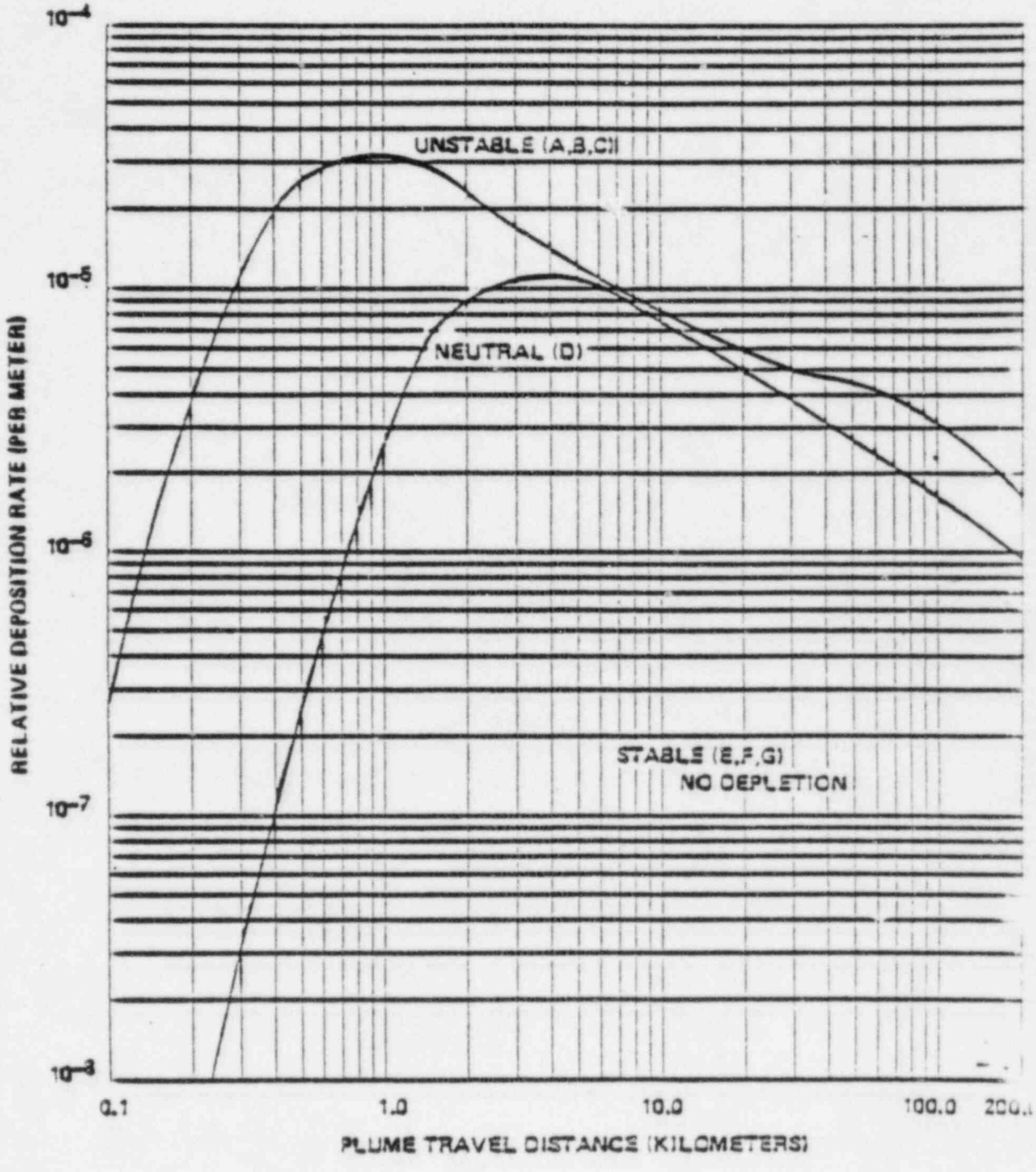


Figure 11 Relative Deposition for 100-m Releases (Letters denote Pasquill Stability Class)

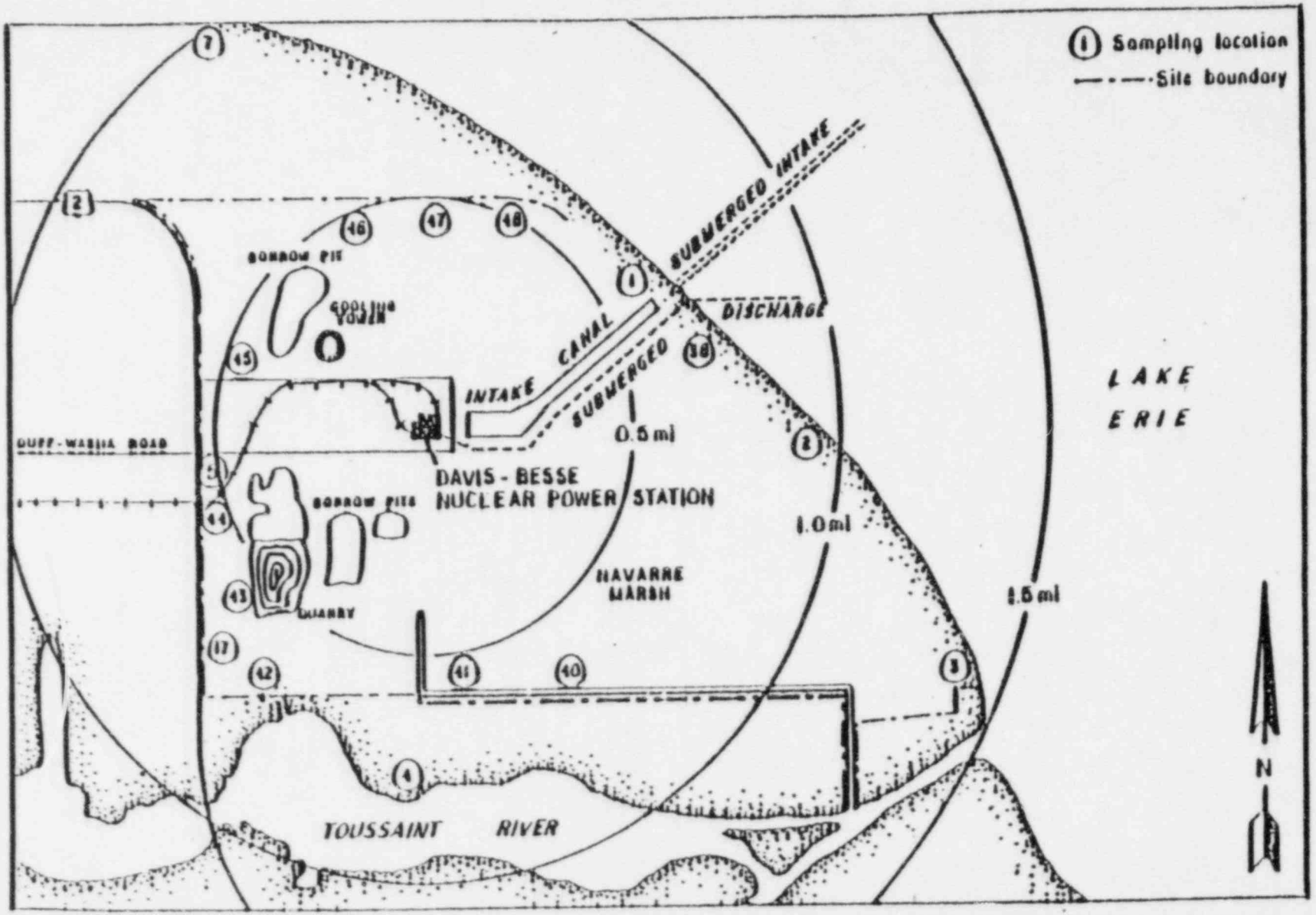


Figure 12 Sampling locations on the site periphery of the Davis-Besse Nuclear Power Station, Unit No. 1.

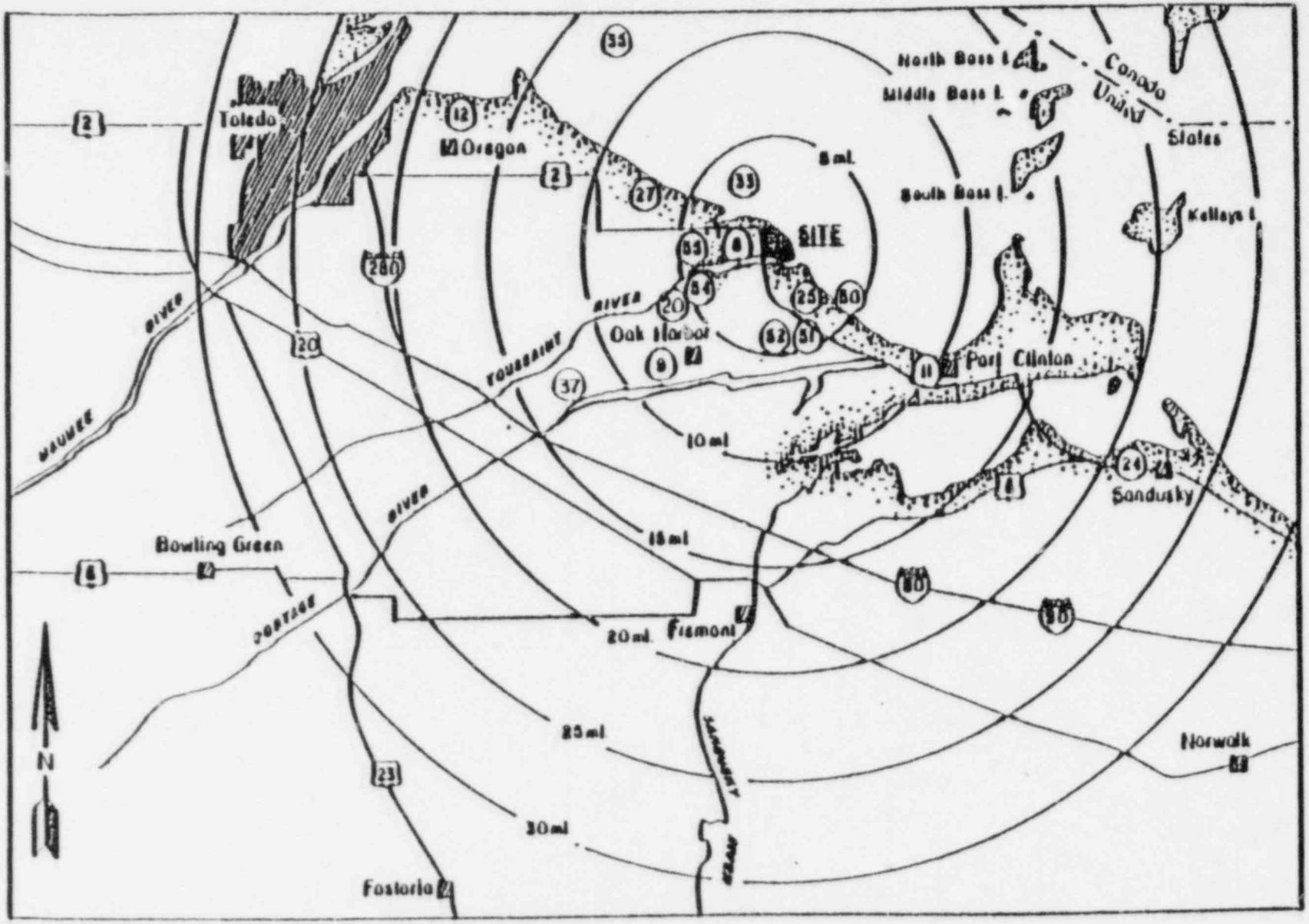


Figure 13 Sampling locations (excepting those on the site periphery), Davis-Besse Nuclear Power Station, Unit No. 1.

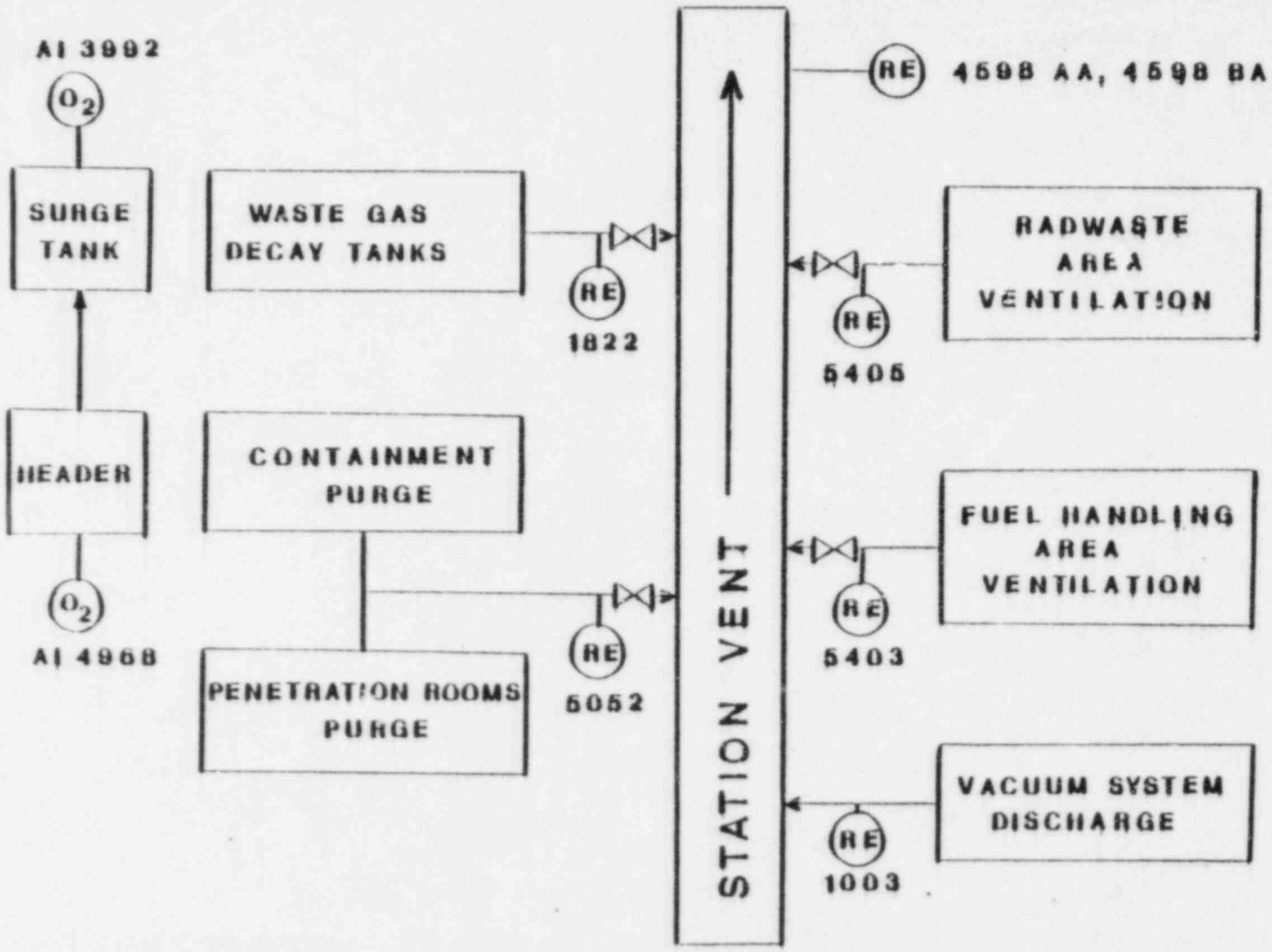


FIGURE 14. DAVIS-BESSE GASEOUS DISCHARGE

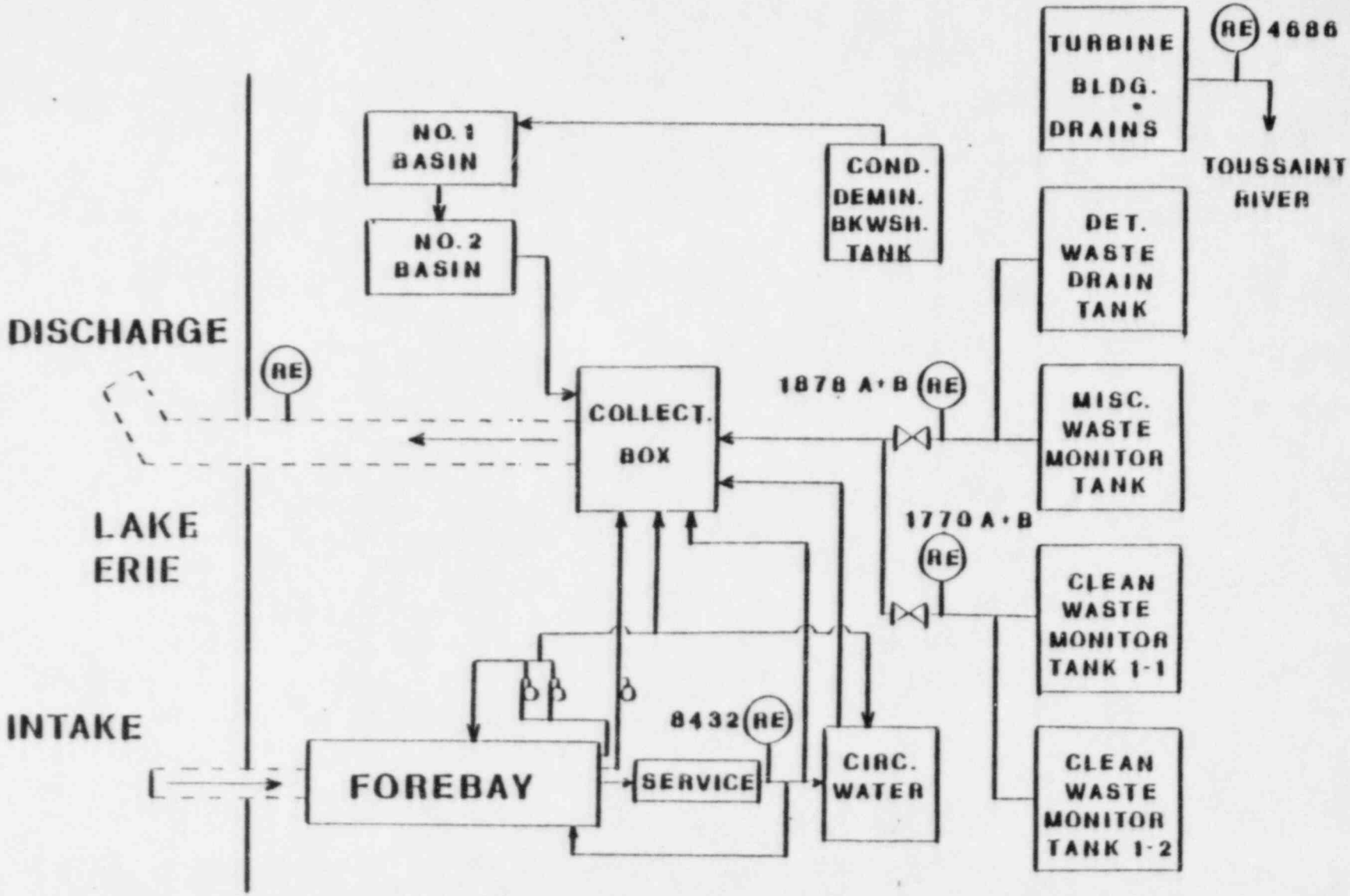
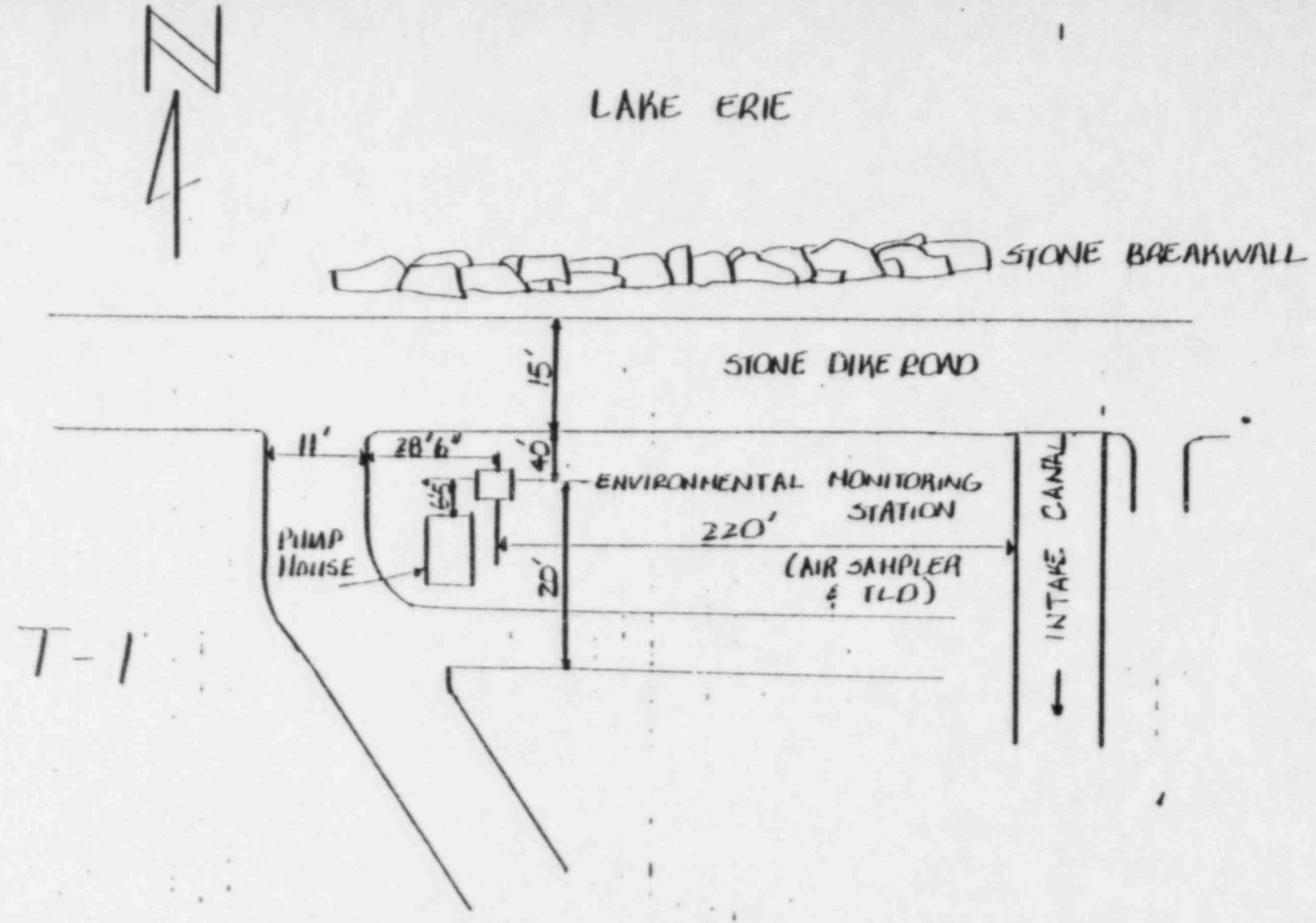
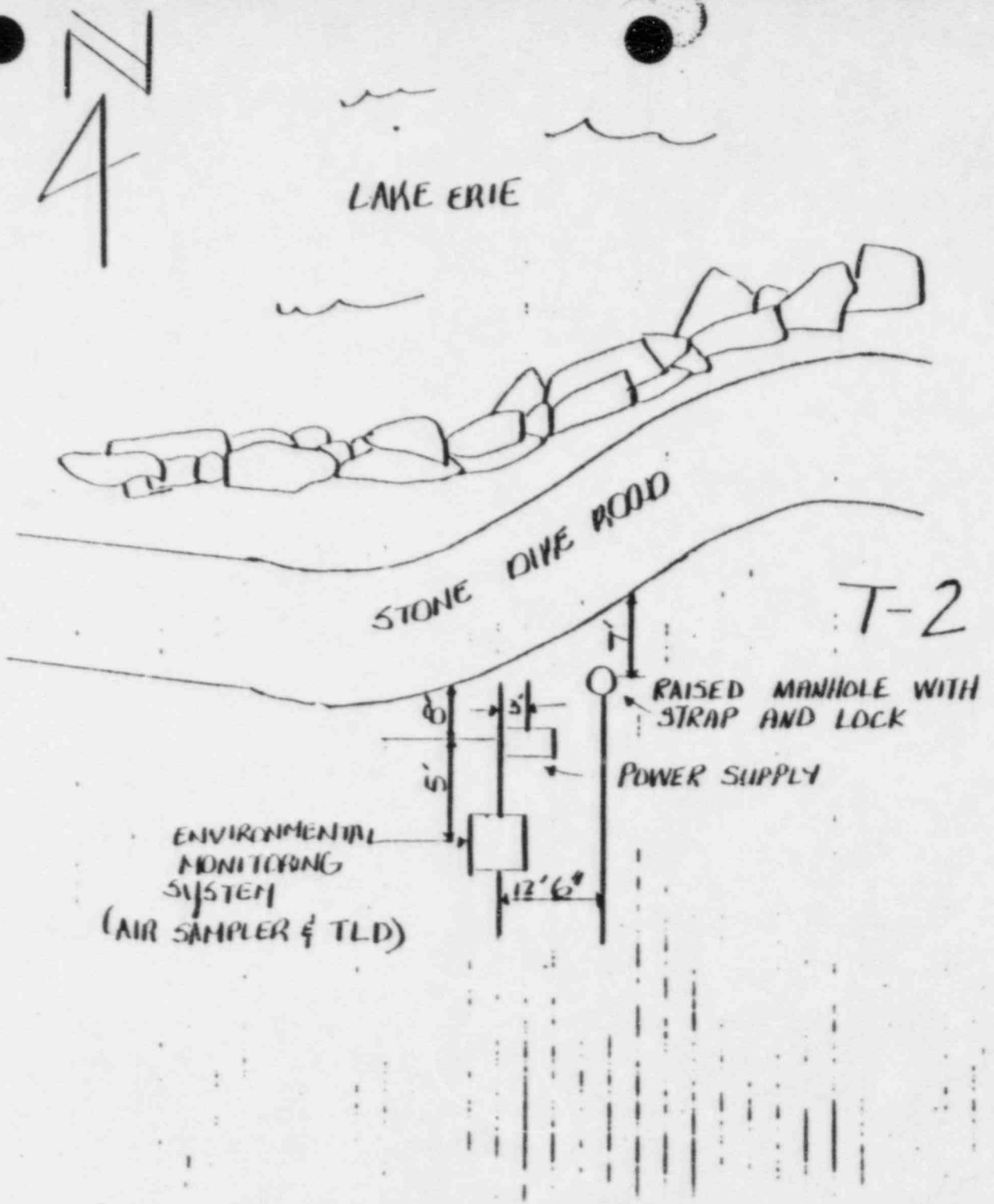


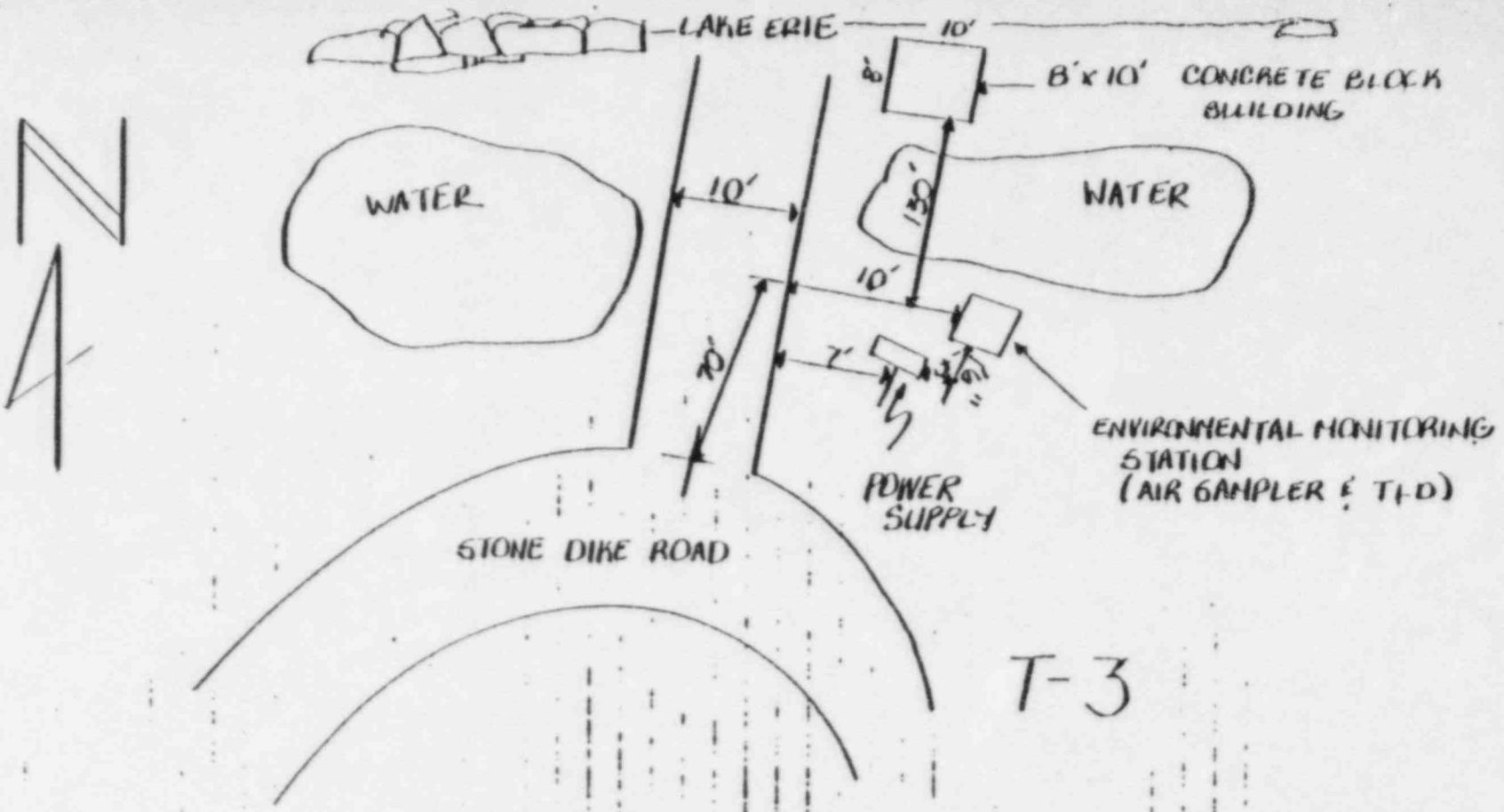
FIGURE 15. DAVIS - BESSE UNIT ONE LIQUID DISCHARGE



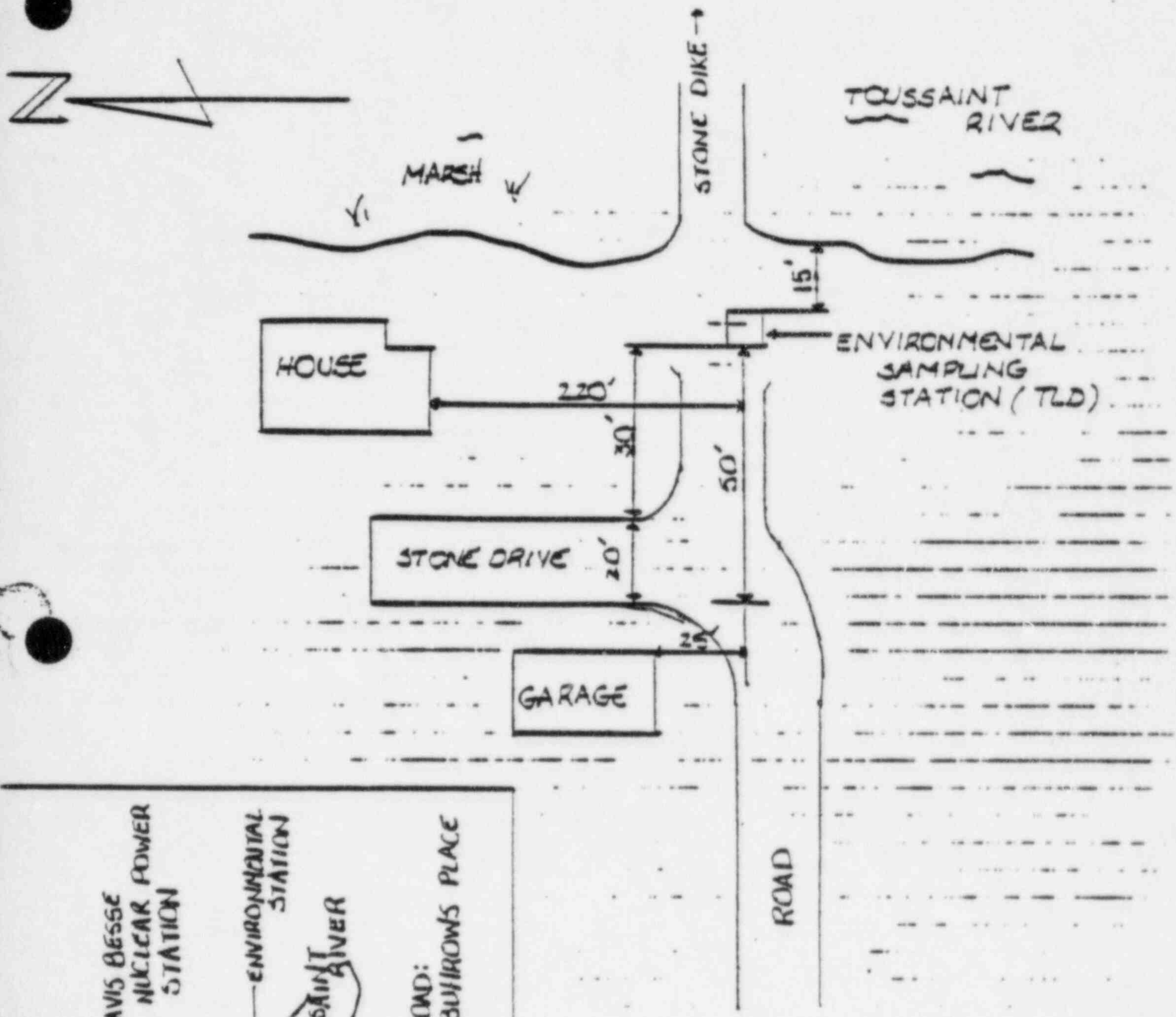


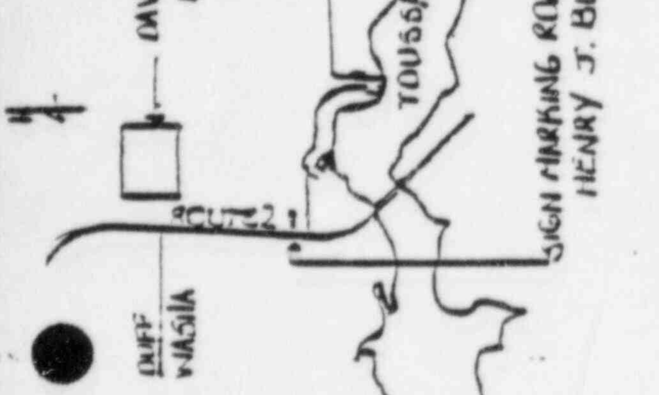
CATS-BESS, UNIT 1

A-17


LAKE ERIE
10'
8'x10' CONCRETE BLOCK BUILDING
WATER
10'
WATER
10'
10'
2'
ENVIRONMENTAL MONITORING STATION (AIR SAMPLER & T.L.D)
POWER SUPPLY
STONE DIKE ROAD
N

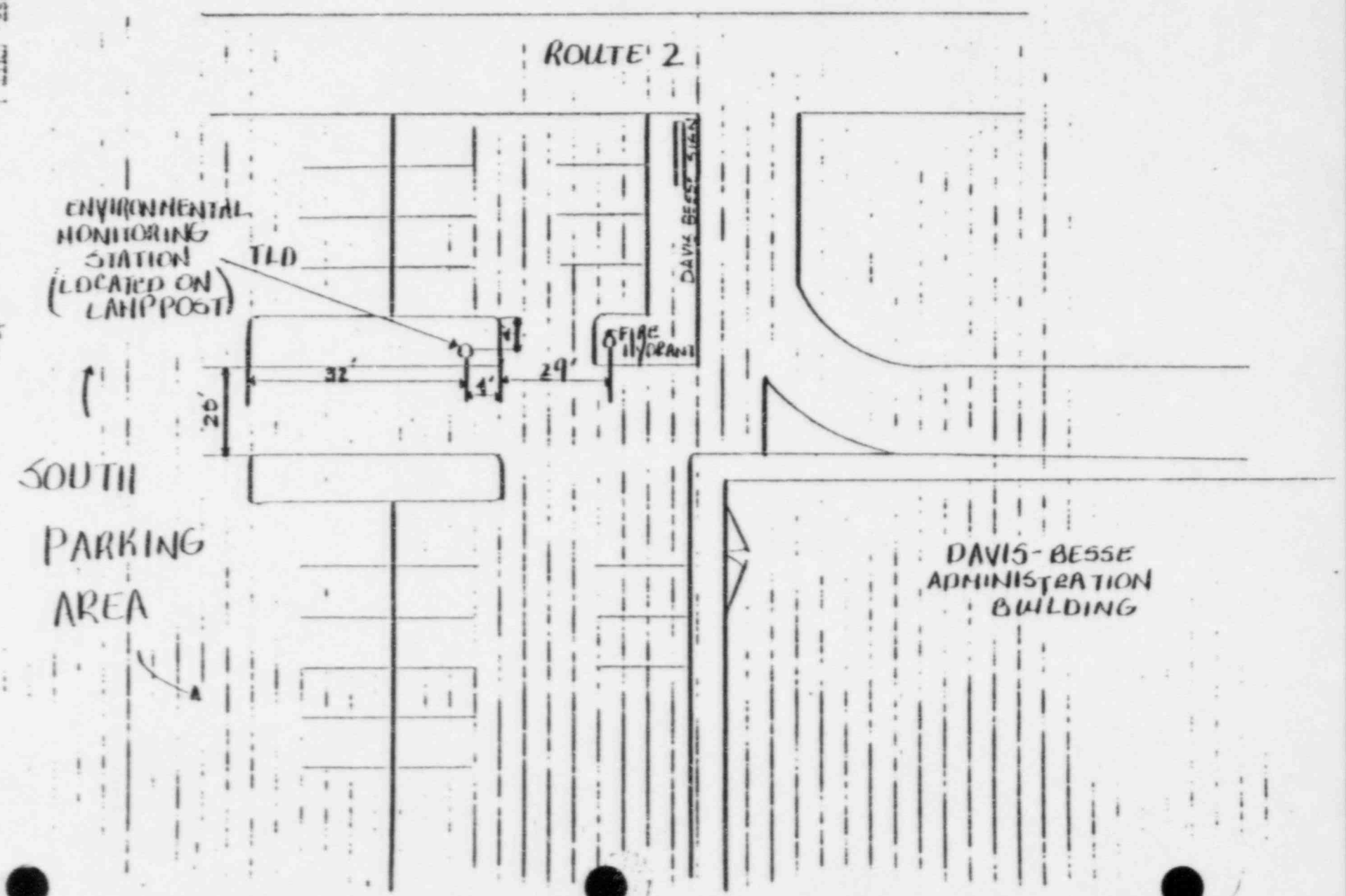
T-3


STONE DIKE
TOUSSAINT RIVER
MARSH
15'
HOUSE
ENVIRONMENTAL SAMPLING STATION (TLD)
220'
30'
50'
STONE DRIVE
20'
25'
GARAGE
ROAD


DAVIS BESSE NUCLEAR POWER STATION
ENVIRONMENTAL STATION
TOUSSAINT RIVER
ROUTE 2
SIGN MARKING ROAD: HENRY J. BURROWS PLACE
DUFF WASHA

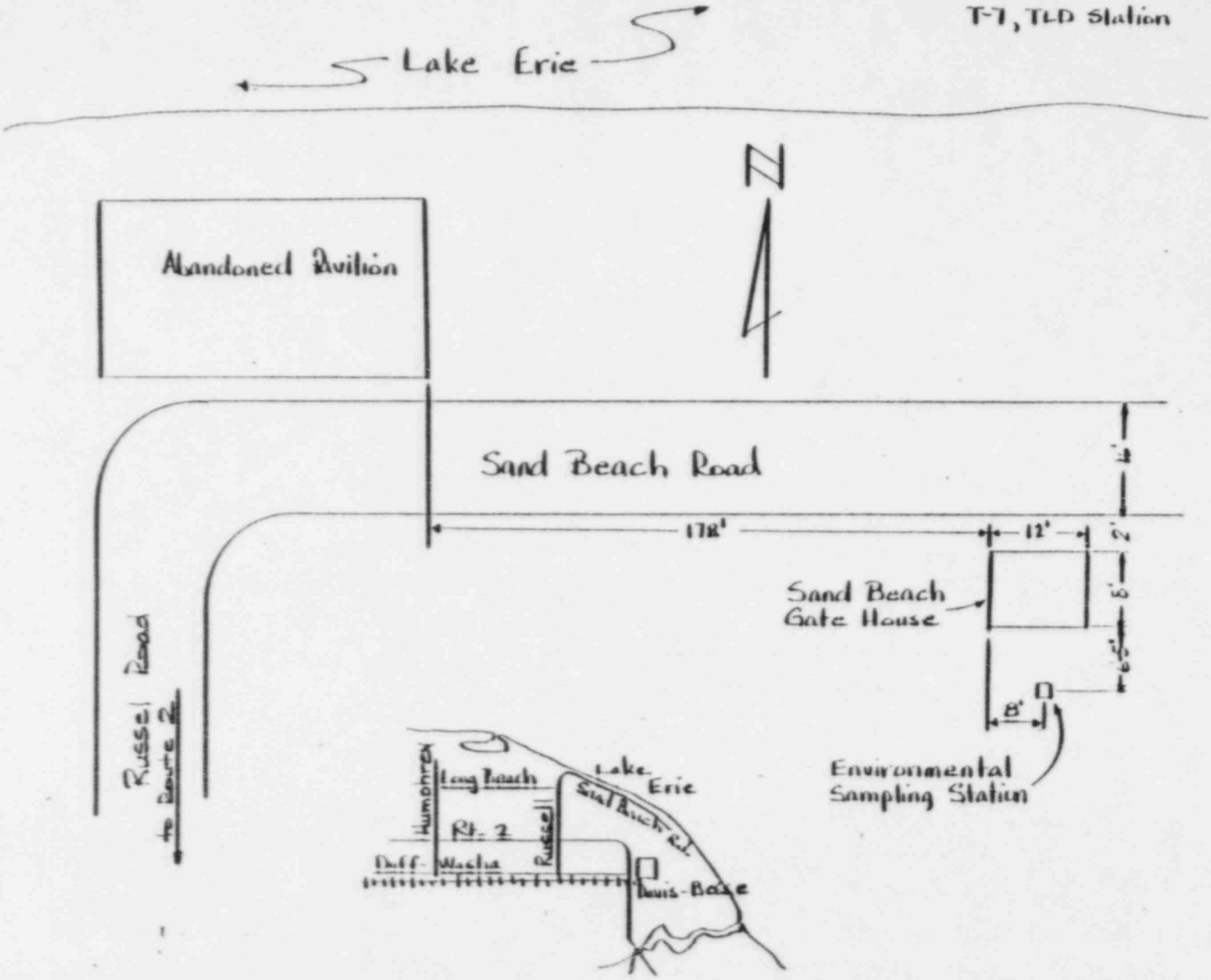
T-4

A-Z T-5


ROUTE 2
DAVIS BESSE SIGN
ENVIRONMENTAL MONITORING STATION (LOCATED ON LAMPPOST)
TLD
6" FIRE HYDRANT
40'
32'
1'
29'
20'
SOUTH PARKING AREA
DAVIS-BESSE ADMINISTRATION BUILDING

Lease No. 54

T-1, TLD Station



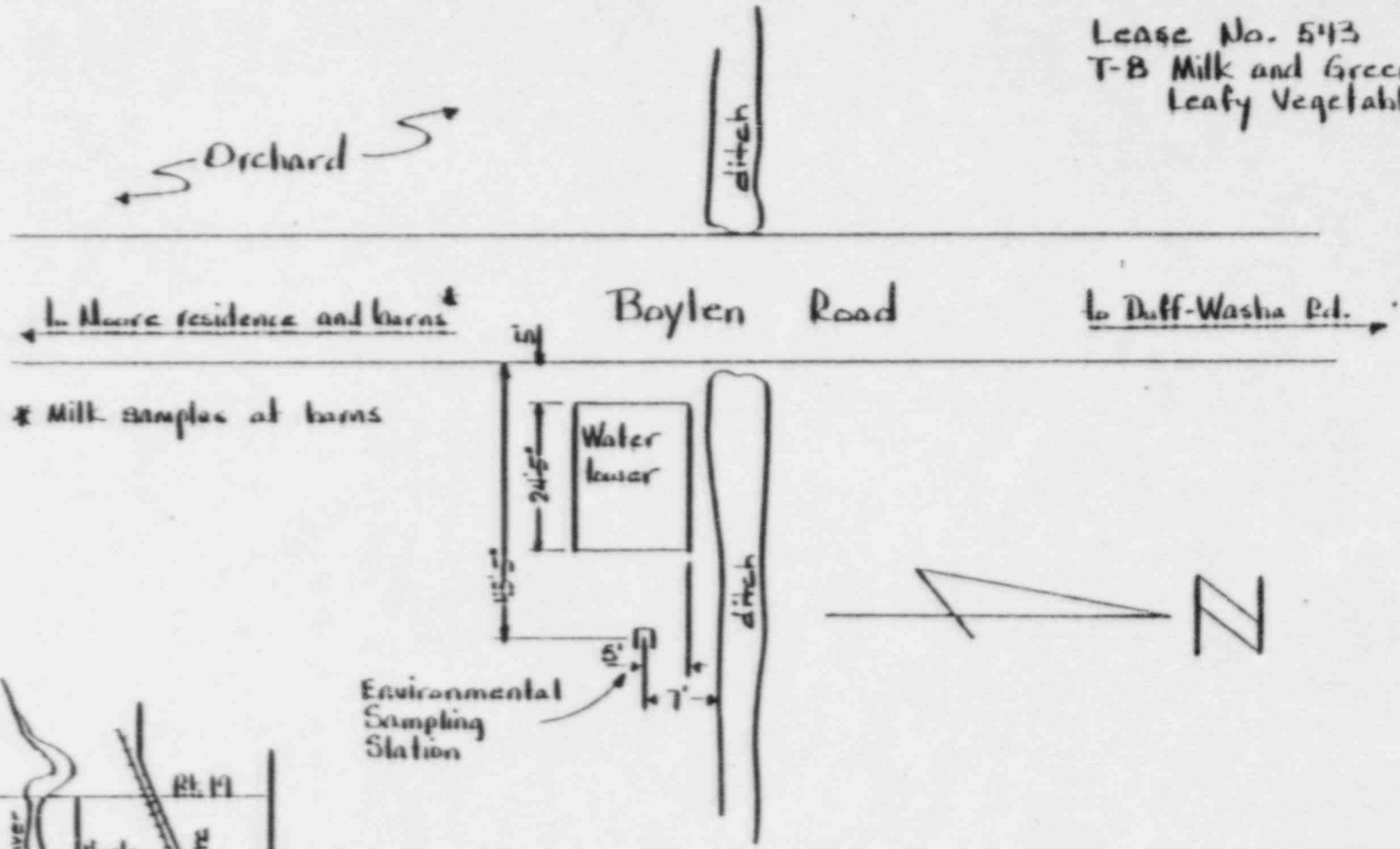
DAVIS-BESSE, UNIT 1

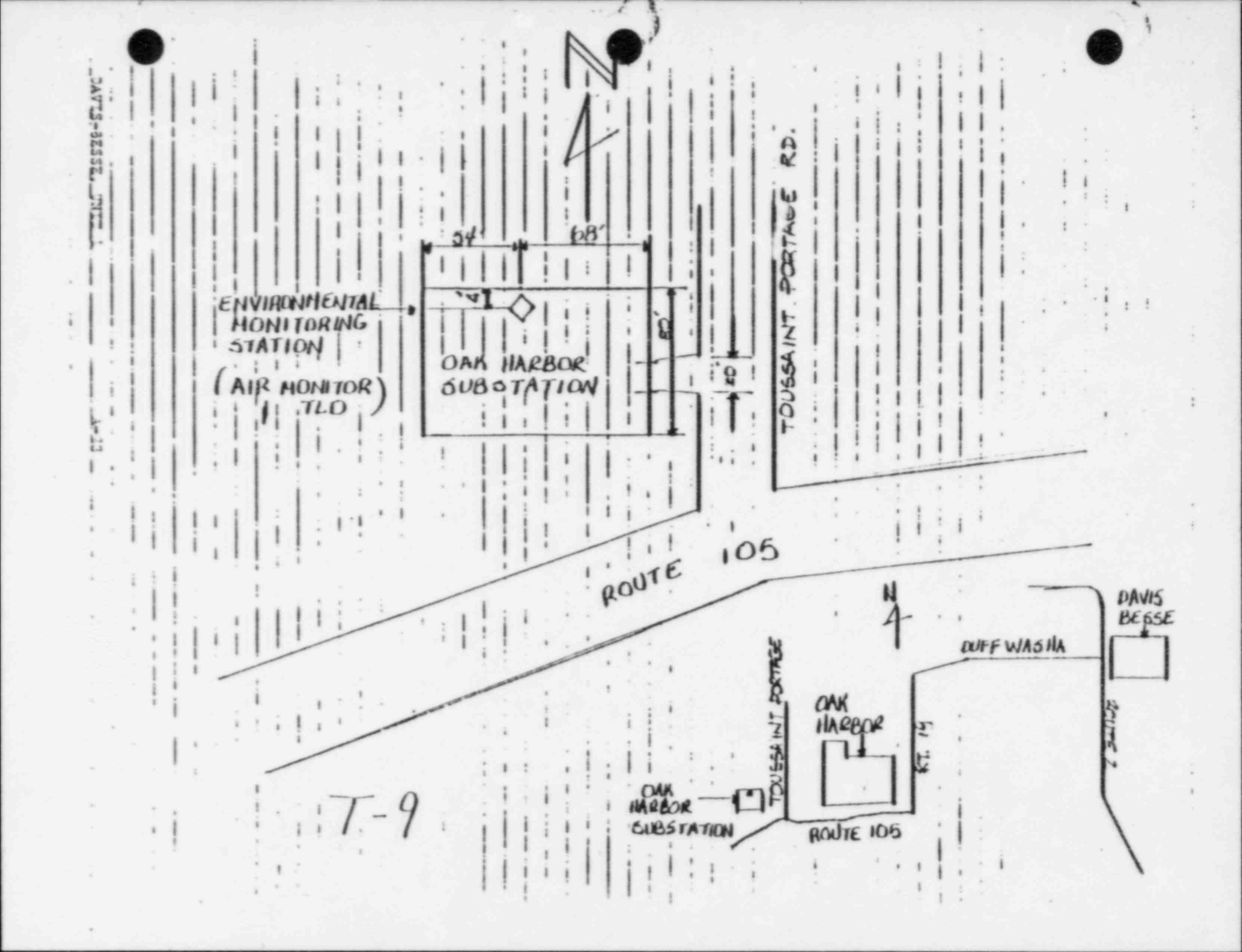
A-11

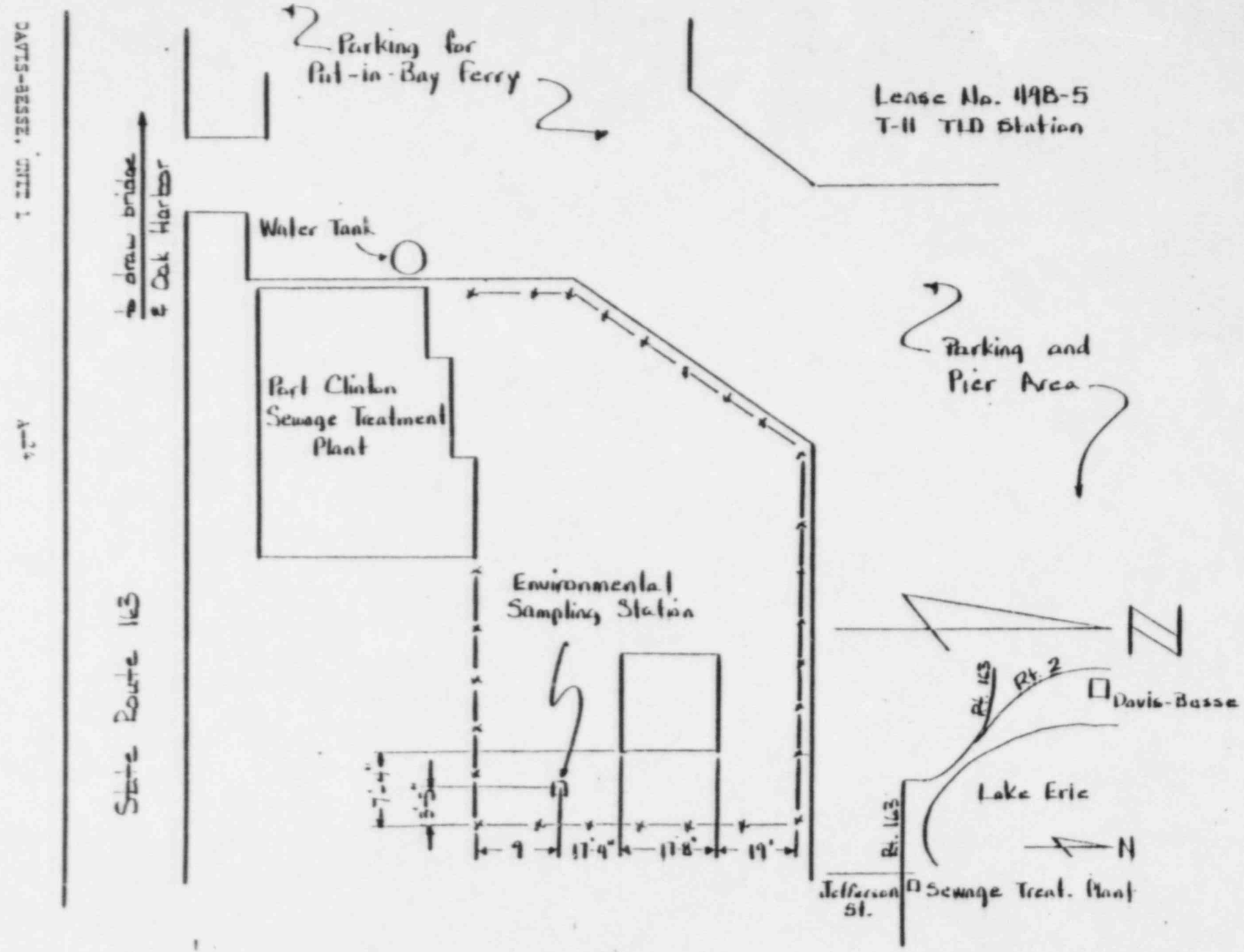
DAVIS-BESSE, UNIT 1

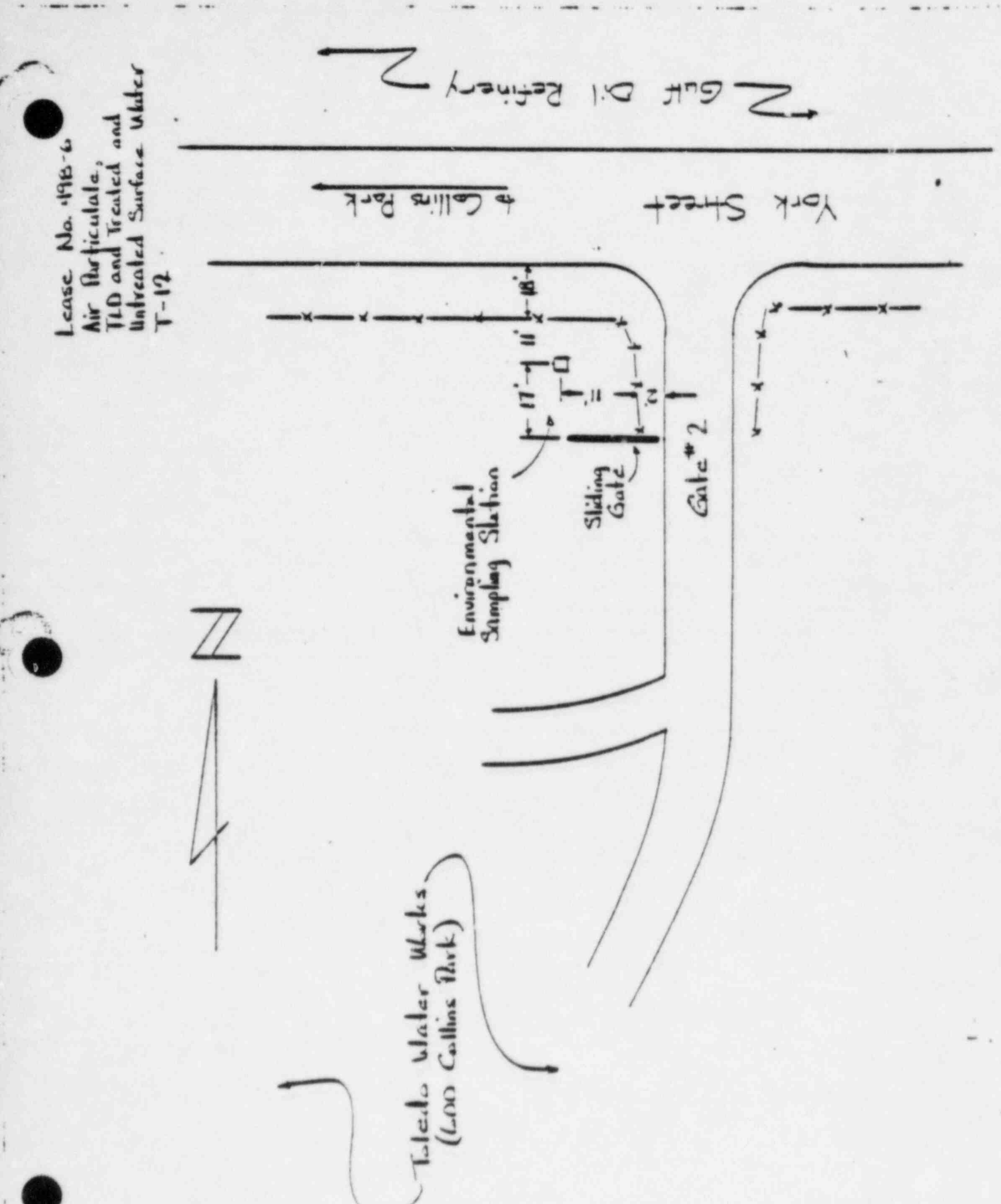
A-112

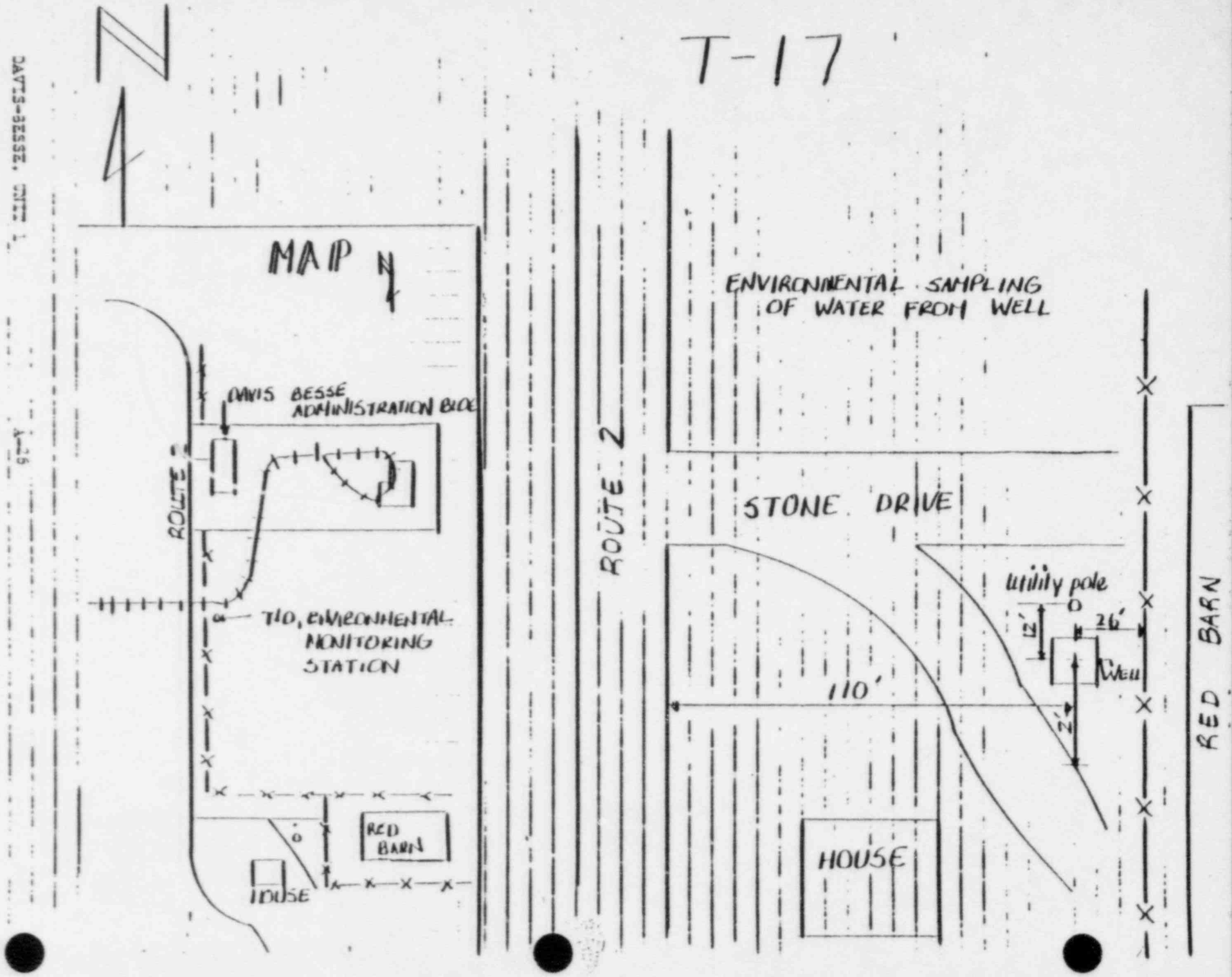
Lease No. 543
T-B Milk and Green
Leafy Vegetables

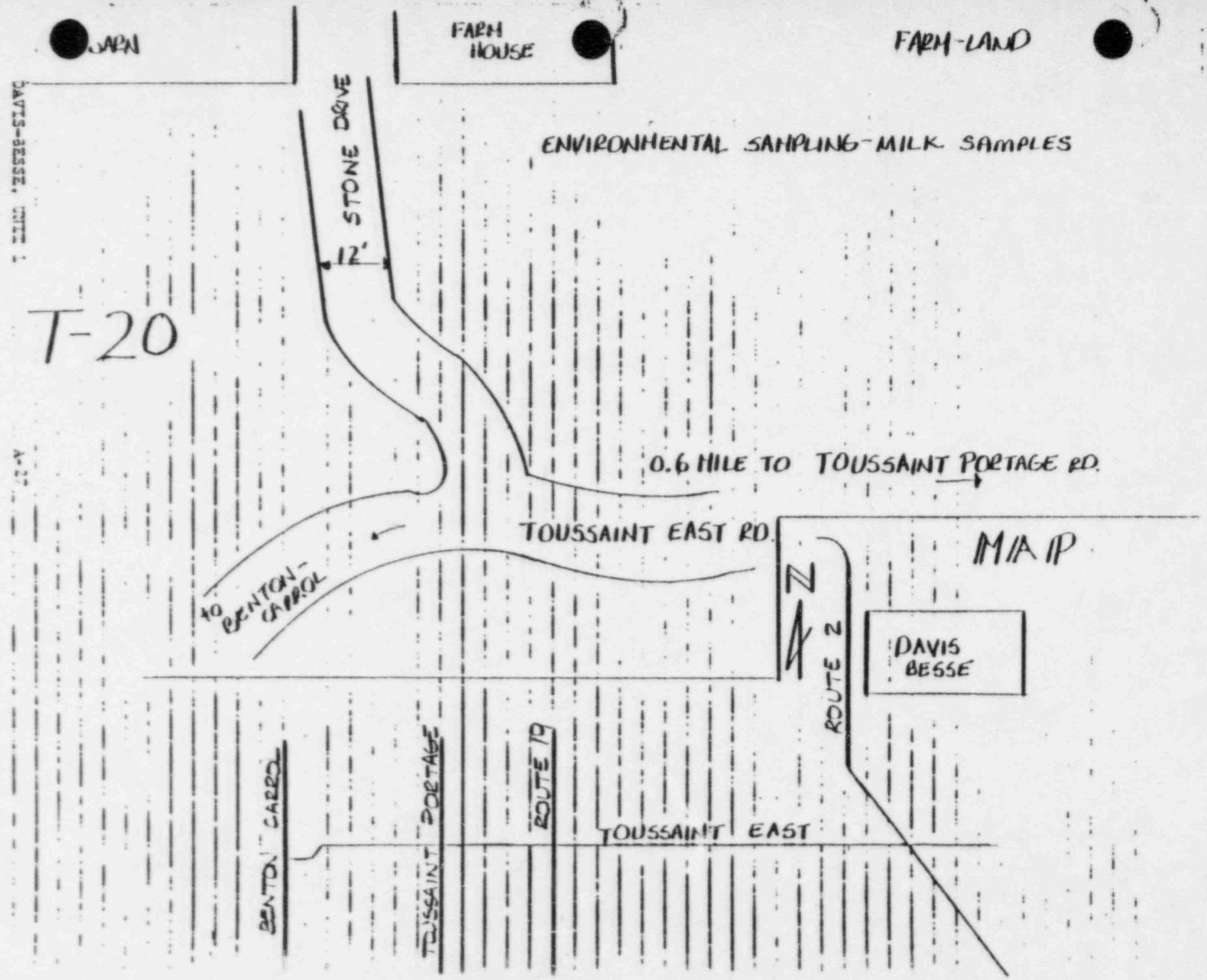


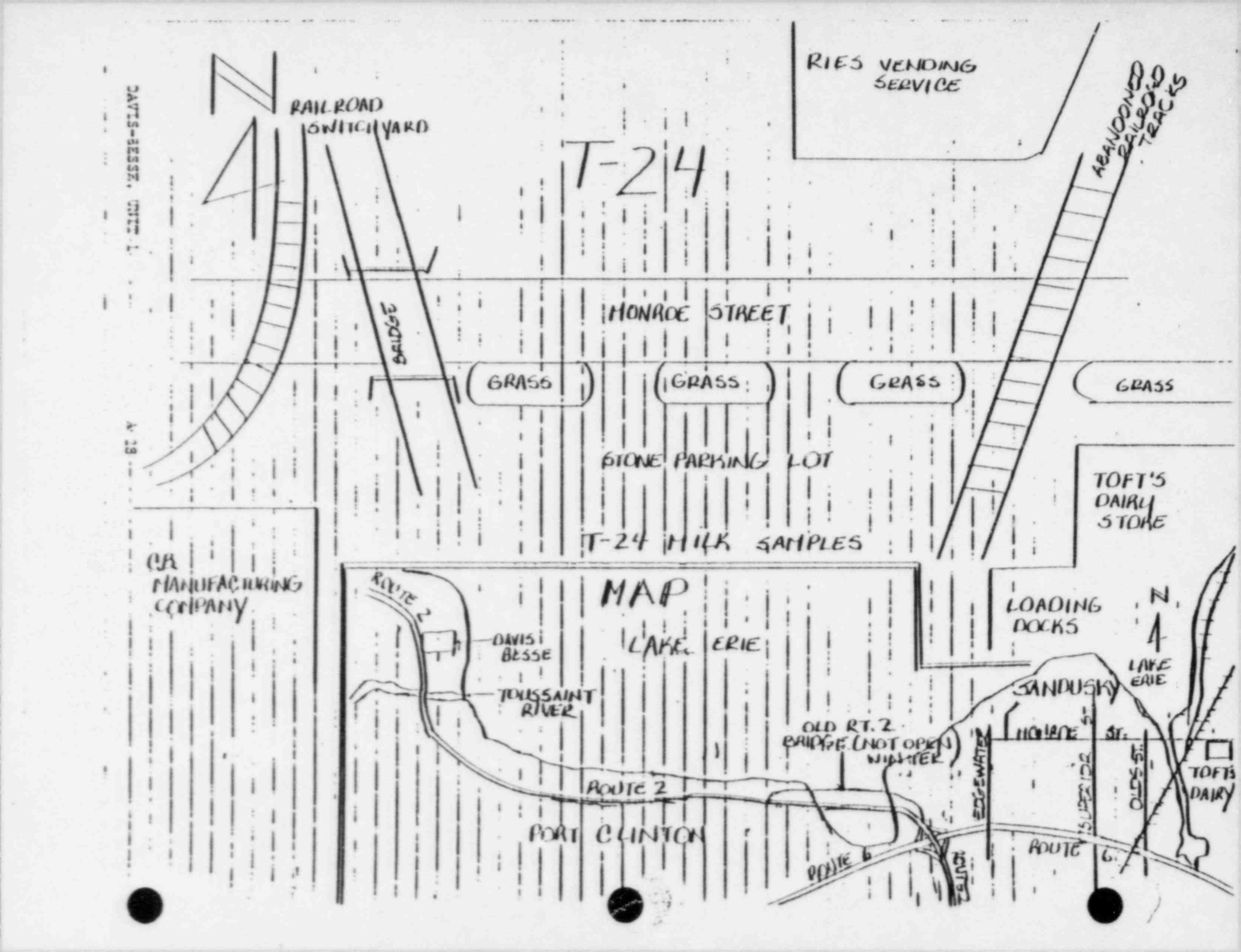

ENVIRONMENTAL MONITORING STATION
(AIR MONITOR)
TLD
54'
68'
4'
80'
20'
OAK HARBOR SUBSTATION
TOUSSAINT PORTAGE RD.
ROUTE 105
N
DAVIS BESSE
DUFF WASHA
OAK HARBOR
TOUSSAINT PORTAGE
OAK HARBOR SUBSTATION
ROUTE 105
T-9

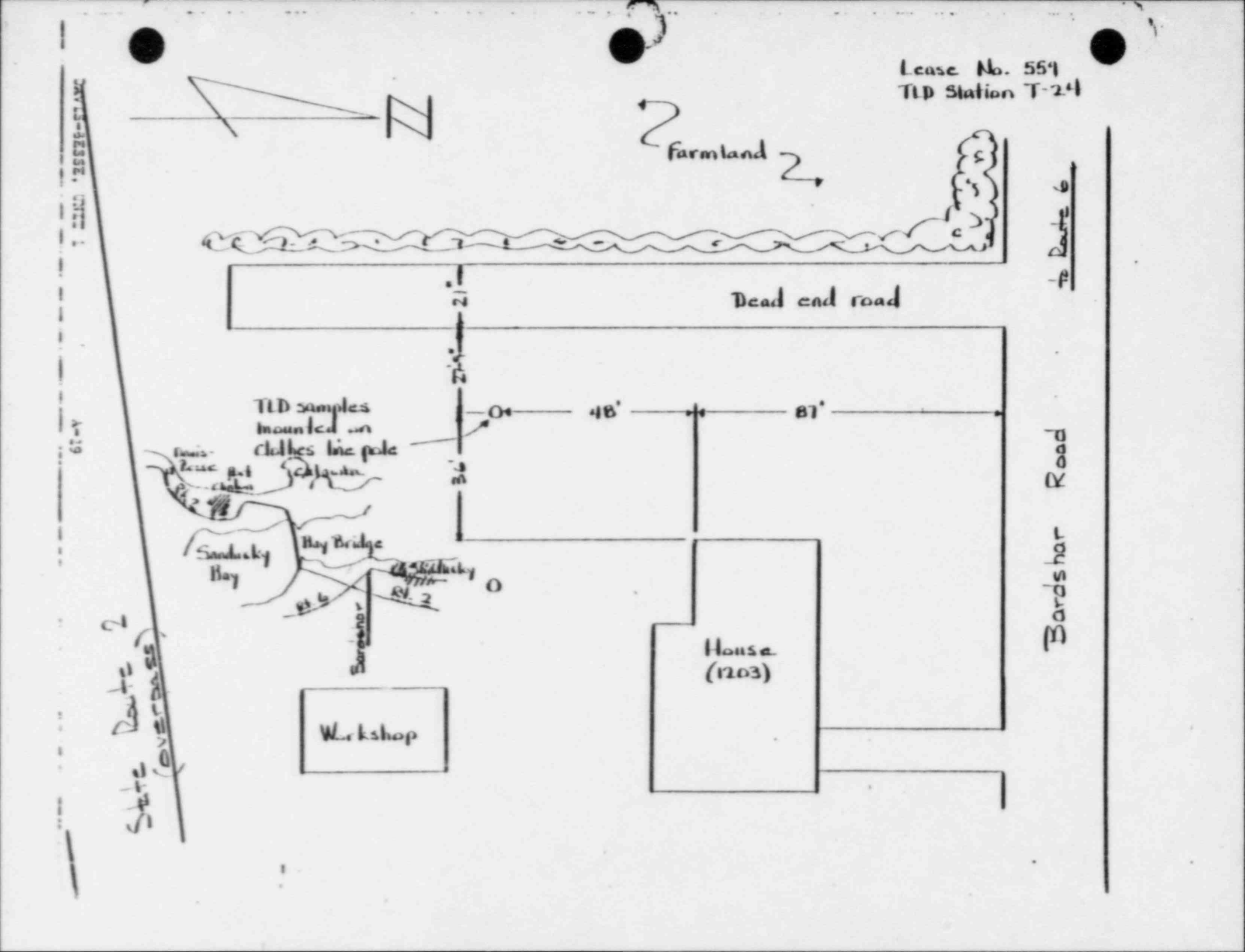

Parking for
Put-in-Bay Ferry
Lease No. 498-5
T-11 TLD Station
to draw bridge
& Oak Harbor
Water Tank
Port Clinton
Sewage Treatment
Plant
Parking and
Pier Area
Environmental
Sampling Station
State Route 163
7'-4"
5'-5"
9
11'-4"
11'8"
19'
N
Rt. 163
Rt. 2
Davis-Besse
Lake Eric
Rt. 163
N
Jefferson
St.
Sewage Treat. Plant


Lease No. 498-6
Air Particulate, TLD and Treated and Untreated Surface Water
T-12
Gulf Oil Refinery
Collins Park
York Street
Environmental Sampling Station
Sliding Gate
Gate #2
17'
11'
18'
N
Toledo Water Works
(400 Collins Park)


T-17
MAP
DAVIS BESSE ADMINISTRATION BLDG
ROUTE 2
TLD, ENVIRONMENTAL MONITORING STATION
RED BARN
HOUSE
ENVIRONMENTAL SAMPLING OF WATER FROM WELL
STONE DRIVE
utility pole
12'
26'
WELL
110'
2'
HOUSE
RED BARN
DAVIS-BESSE, UNIT 1
A-26


BARN
FARM HOUSE
FARM-LAND
ENVIRONMENTAL SAMPLING - MILK SAMPLES
DAVIS-BESSE, UNIT 1
T-20
STONE DRIVE
12'
0.6 MILE TO TOUSSAINT PORTAGE RD.
TOUSSAINT EAST RD.
MAP
TO BENTON-CARROL
N
ROUTE 2
DAVIS BESSE
BENTON CARROL
TOUSSAINT PORTAGE
ROUTE 19
TOUSSAINT EAST


DAVIS-BESSE, UNIT 1
N
RAILROAD SWITCH YARD
BRIDGE
T-24
RIES VENDING SERVICE
ABANDONED RAILROAD TRACKS
MONROE STREET
GRASS
GRASS
GRASS
GRASS
STONE PARKING LOT
TOFT'S DAIRY STORE
T-24 MILK SAMPLES
CR MANUFACTURING COMPANY
MAP
LAKE ERIE
ROUTE 2
DAVIS BESSE
TOUSSAINT RIVER
LOADING DOCKS
N
LAKE ERIE
SANDUSKY
OLD RT. 2 BRIDGE (NOT OPEN WINTER)
MONROE ST.
EDGEWATER
SUPERIOR
OCEAN ST.
TOFTS DAIRY
ROUTE 2
PORT CLINTON
ROUTE 6
ROUTE 6


Lease No. 559
TLD Station T-24
N
Farmland
To Route 6
Dead end road
21'
24'
TLD samples mounted on Clothes line pole
0
48'
87'
36'
Sandusky Bay
Bay Bridge
Sandusky
Rt. 2
Rt. 6
Rt. 2
Boreshor
Workshop
House (1203)
Bardshar Road
State Route 2 (overpass)

T-25 Guera Leafy Veg.
T-62 TLD Station
Lease No. 563

House
(7898)

N

Stone drive

16'-8"

4'

63'

TLD samples are mounted on TV. type antenna with security light on top

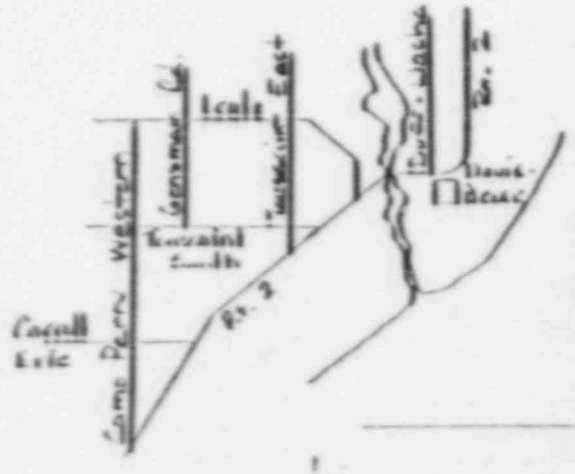
Barn & Garage

Stone drive

72'

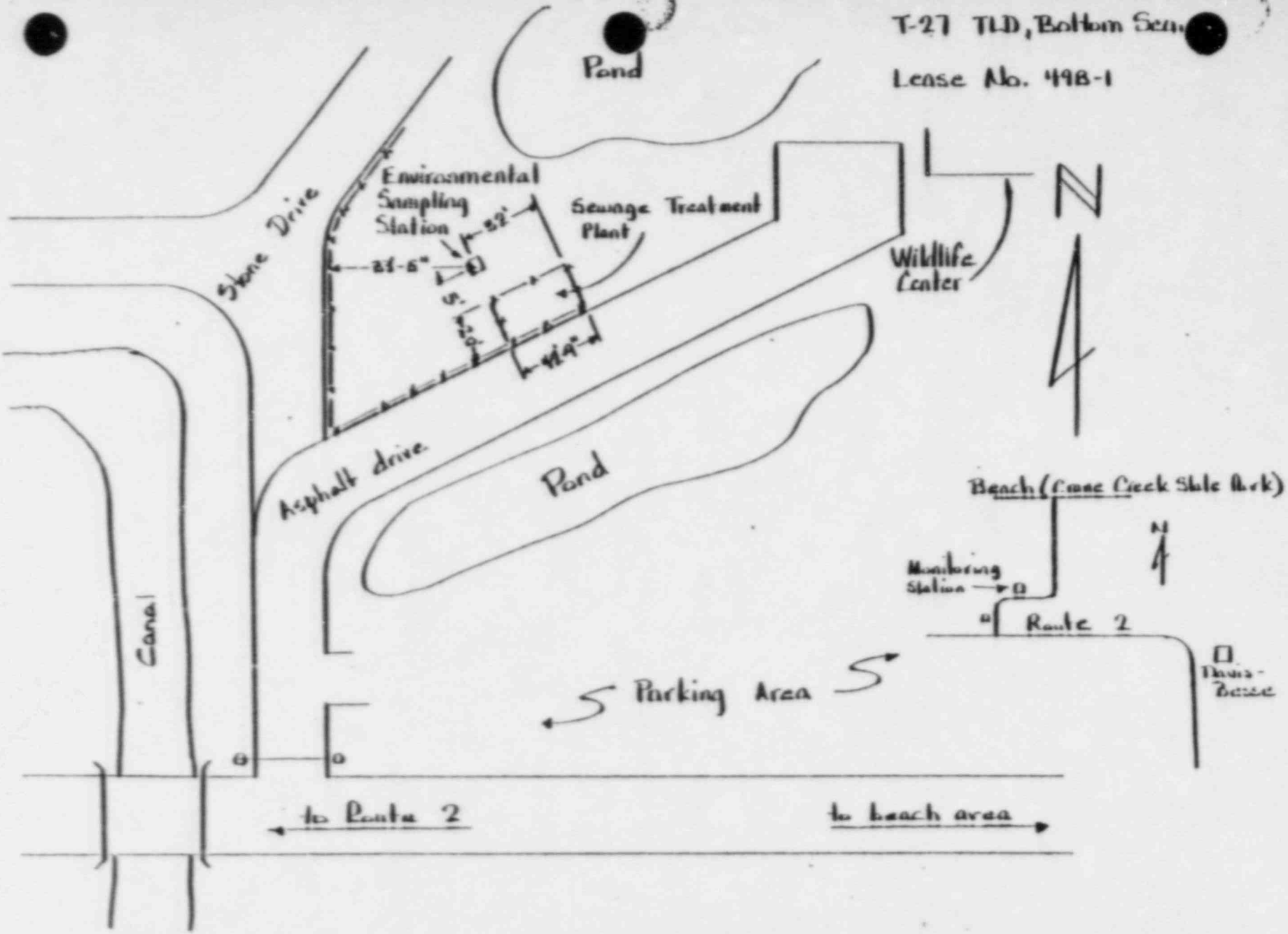
Camp Perry Western Road

to Tousscint South Rd.



T-27 TLD, Bottom Sea

Lease No. 498-1



Station is located on-site in the Water Treatment Building.

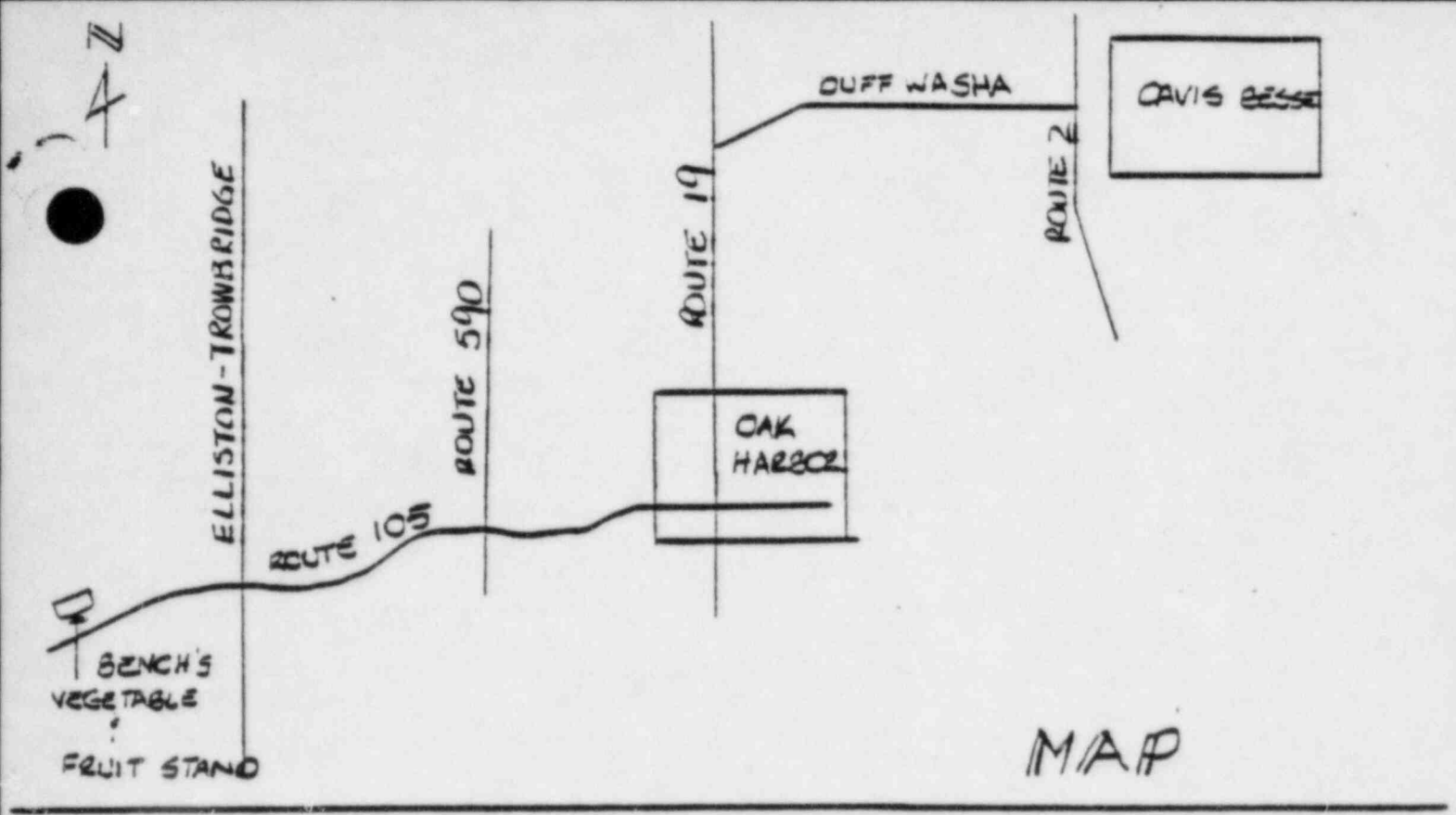
The Water Treatment Building is located within the Protected Area of the Station.

T-33

Fish samples

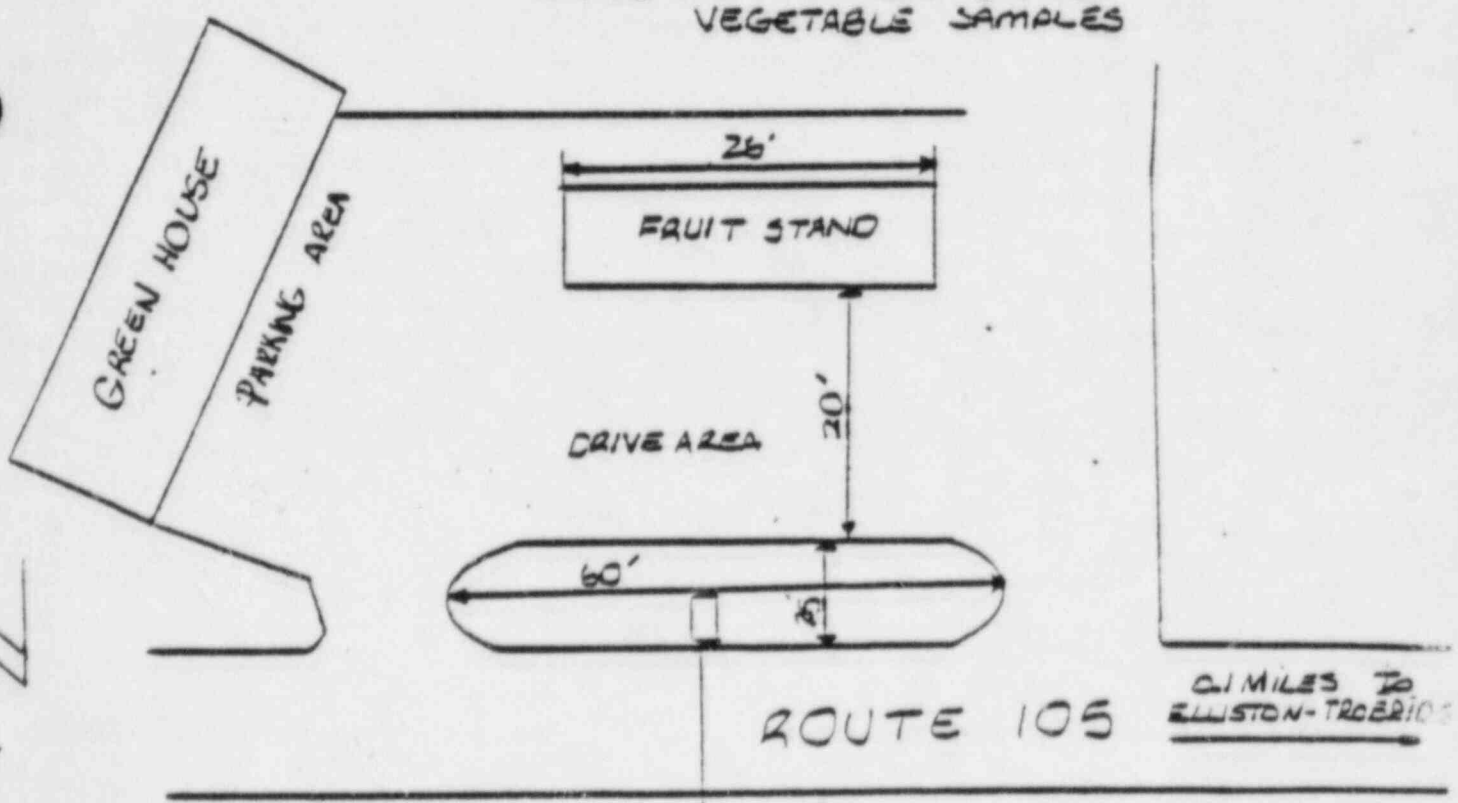
T-33 is located in Lake Erie within an 8.0 km radius of the site.

T-35 is located in Lake Erie at a distance greater than a 16 km radius from the site.



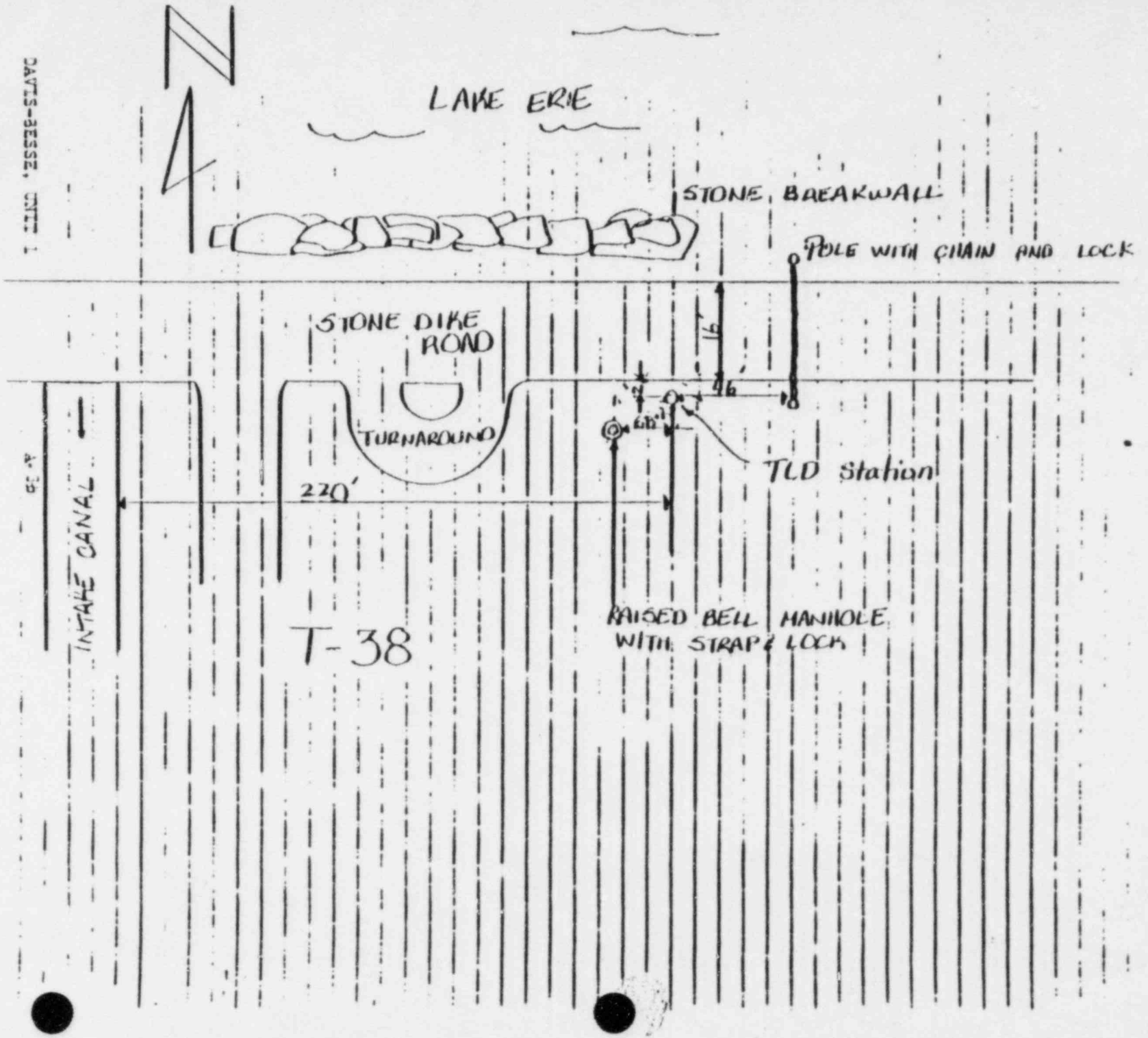
MAP

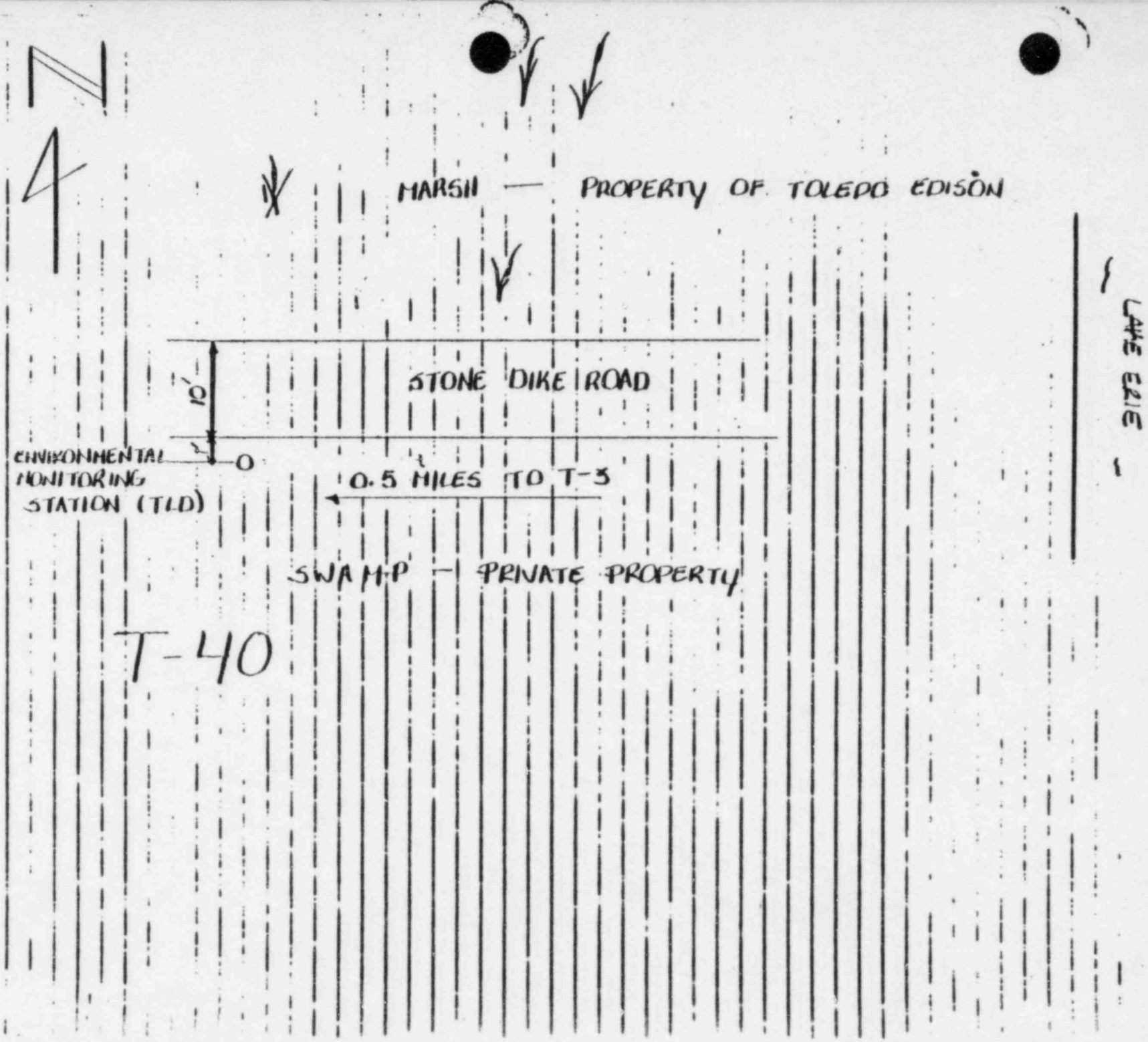
ENVIRONMENTAL MONITORING:
VEGETABLE SAMPLES

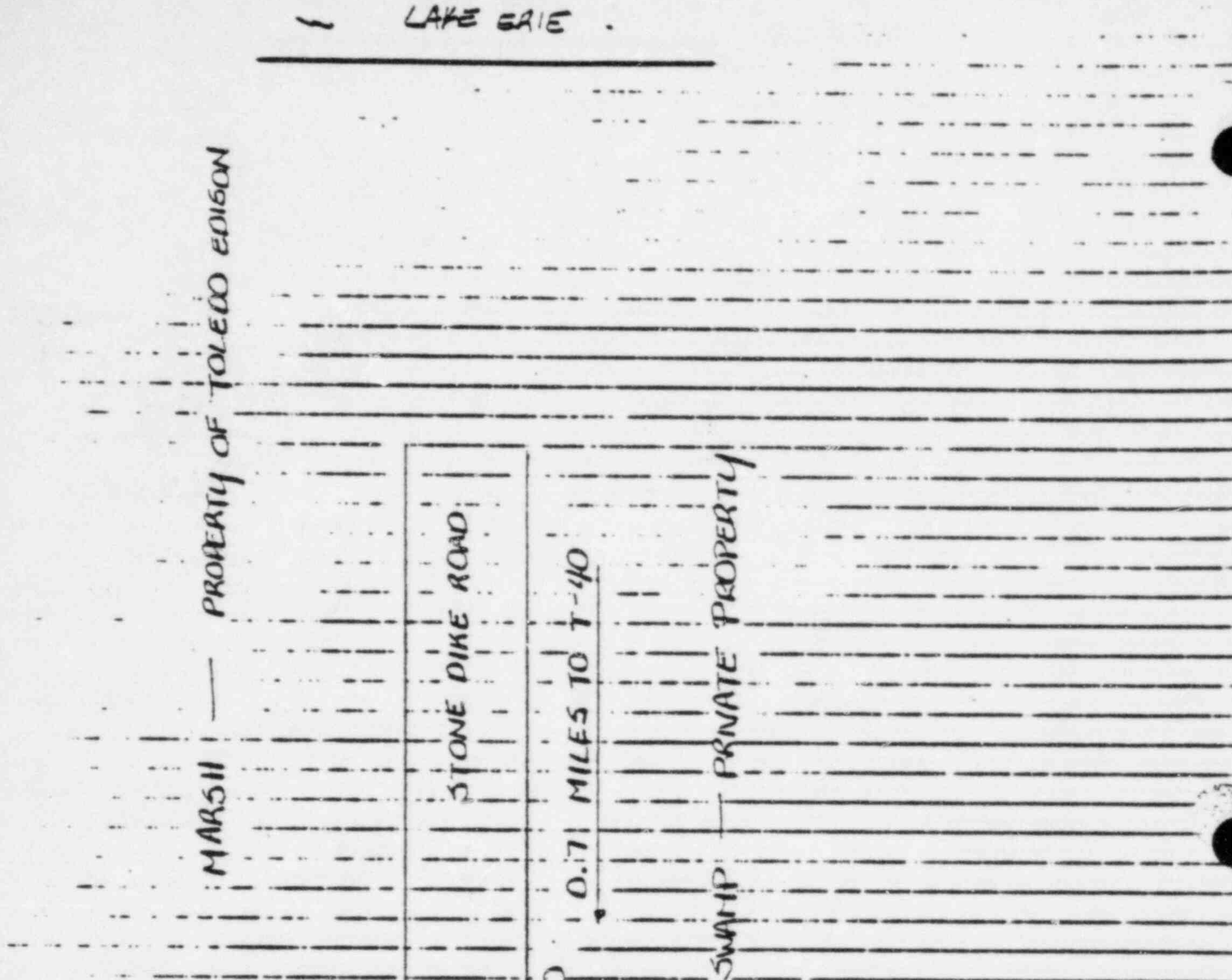


SIGN: BEDDING PLANTS, VEGETABLES AND FLOWERS DRIVE IN

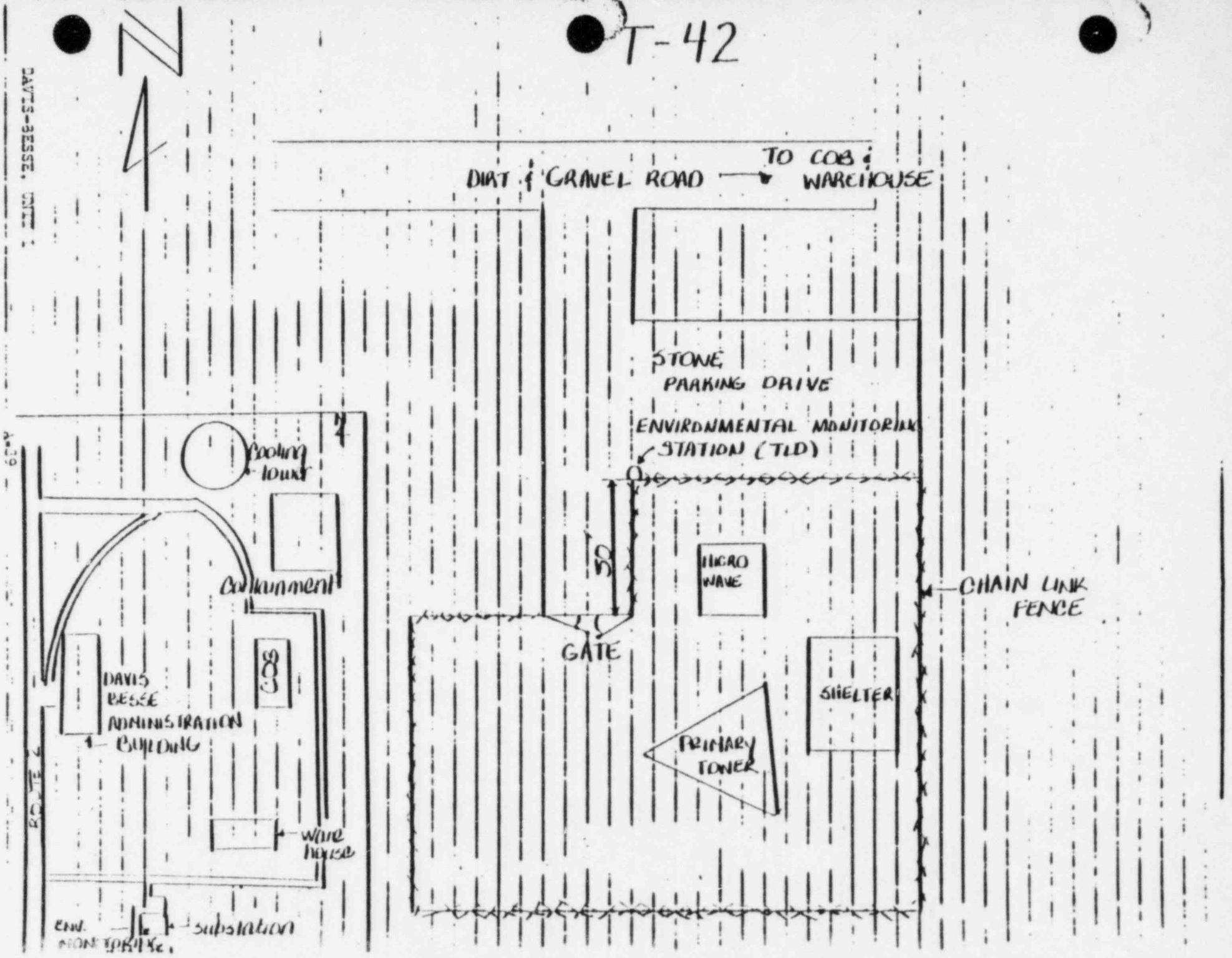
T-37

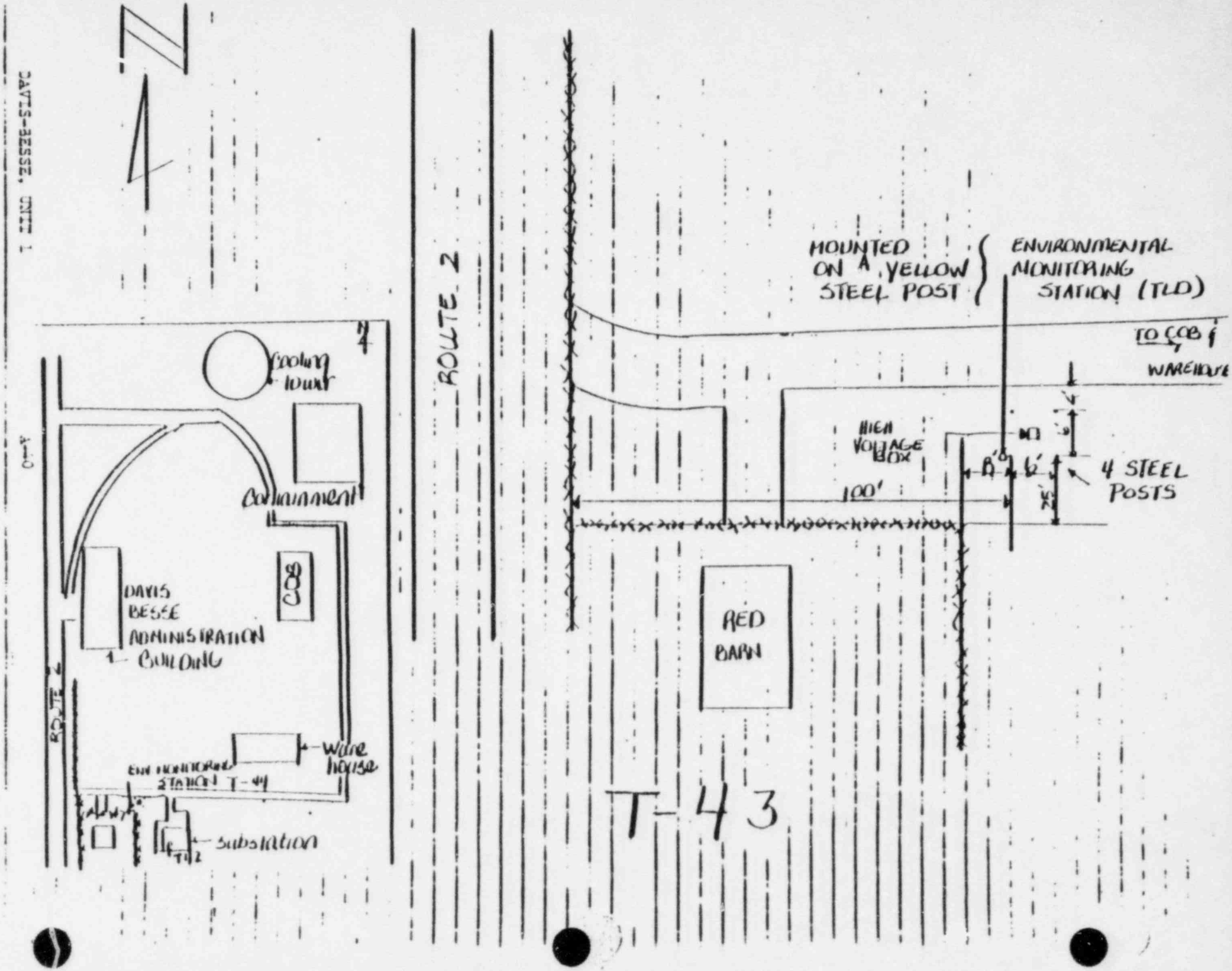

DAVIS-BESSE, UNIT 1
N
LAKE ERIE
STONE BREAKWALL
POLE WITH CHAIN AND LOCK
STONE DIKE ROAD
TURNAROUND
INTAKE CANAL
220'
T-38
TLD Station
RAISED BELL MANHOLE WITH STRAP & LOCK

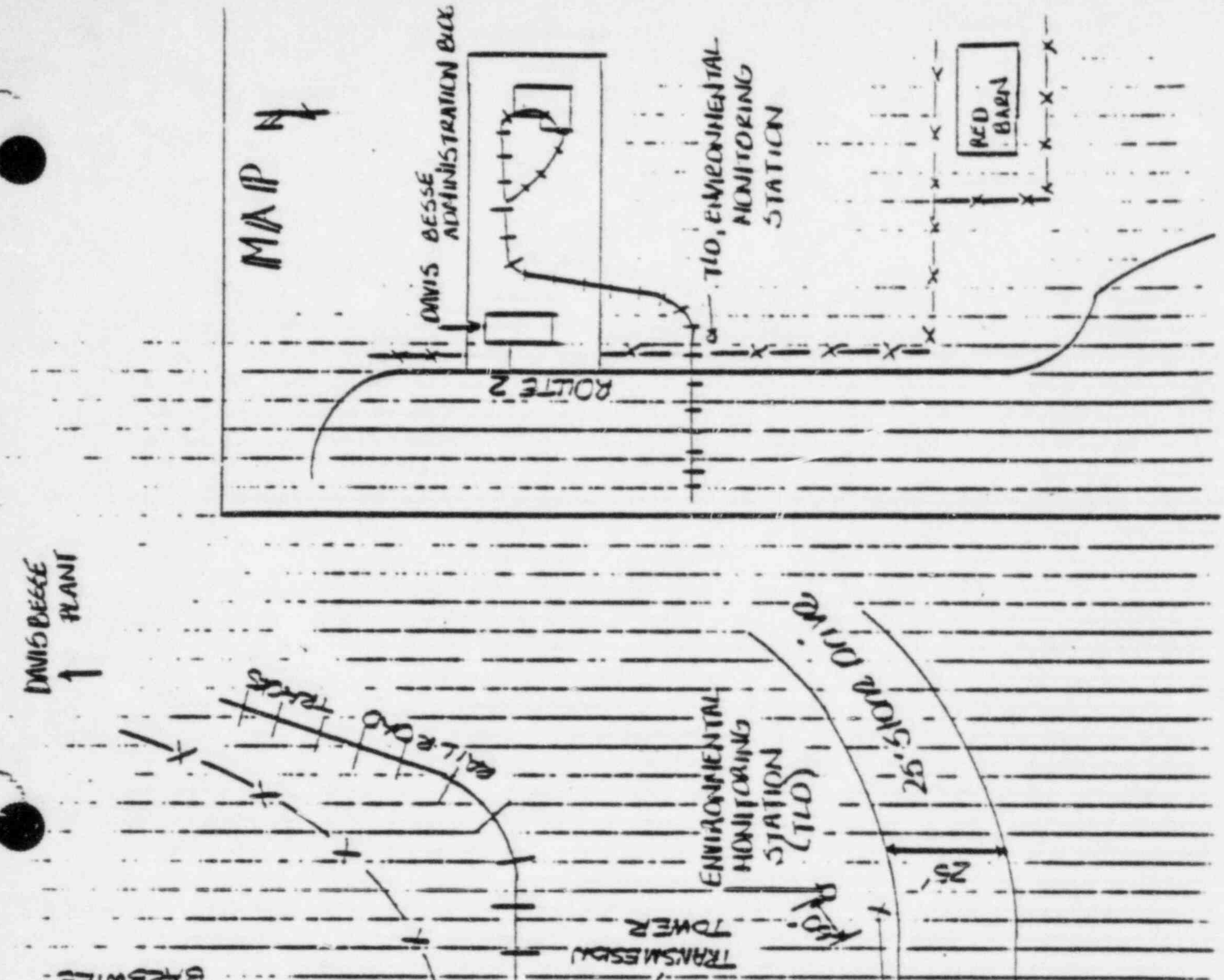

N
MARSH — PROPERTY OF TOLEDO EDISON
LAKE ERIE
STONE DIKE ROAD
10'
ENVIRONMENTAL MONITORING STATION (TLD)
0
0.5 MILES TO T-3
SWAMP — PRIVATE PROPERTY
T-40


LAKE ERIE
MARSH — PROPERTY OF TOLEDO EDISON
STONE DIKE ROAD
0.7 MILES TO T-40
SWAMP — PRNATE PROPERTY
ENVIRONMENTAL MONITORING STATION (TLD)
T-41
N

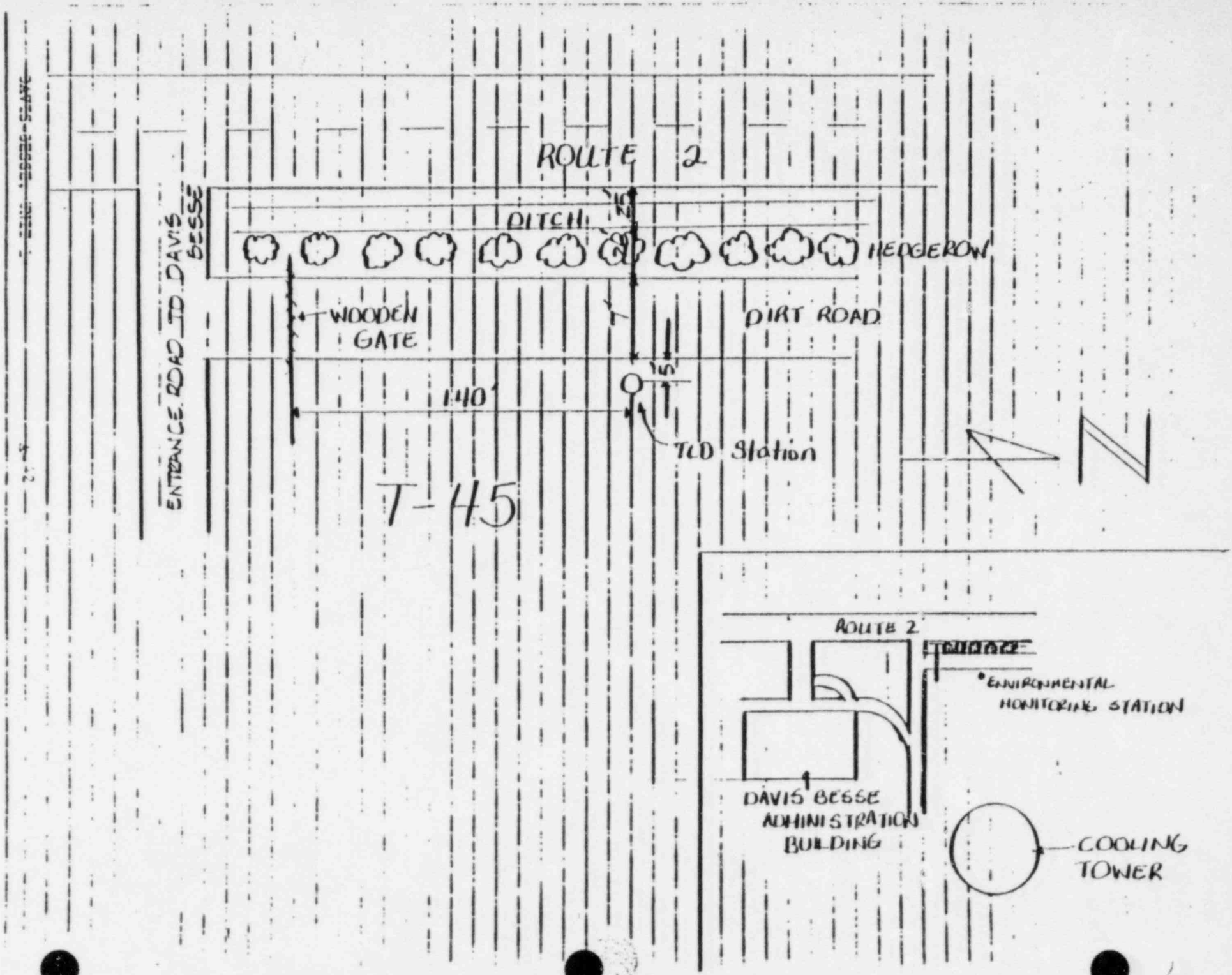
T-42

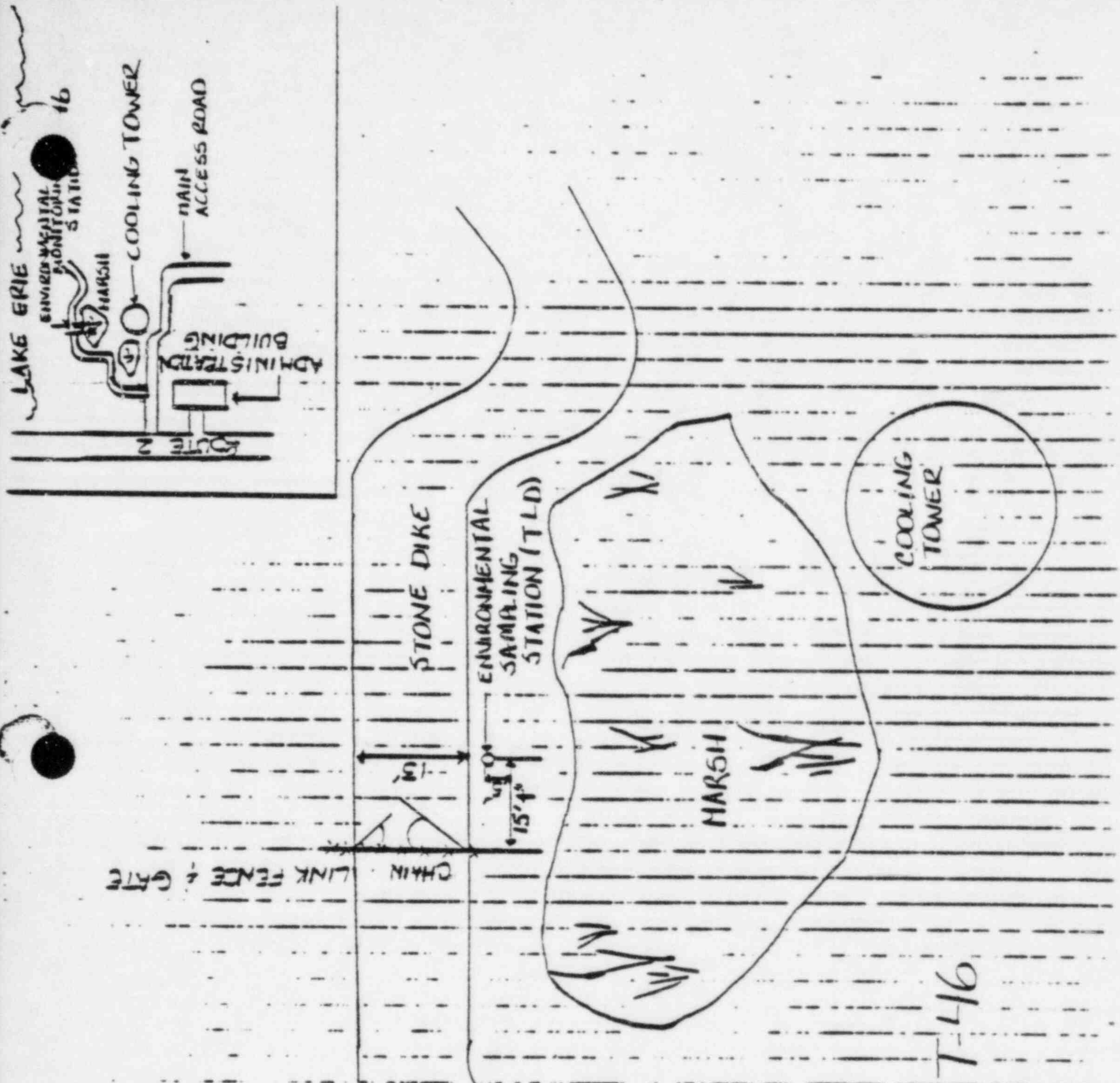

N
DAVIS-BESSE, UNIT 1
DIRT & GRAVEL ROAD
TO COB & WAREHOUSE
STONE PARKING DRIVE
ENVIRONMENTAL MONITORING STATION (TLD)
Cooling Tower
Containment
DAVIS BESSE ADMINISTRATION BUILDING
Service Building
Warehouse
Env. Monitoring
Substation
50'
MICRO WAVE
GATE
PRIMARY TOWER
SHELTER
CHAIN LINK FENCE

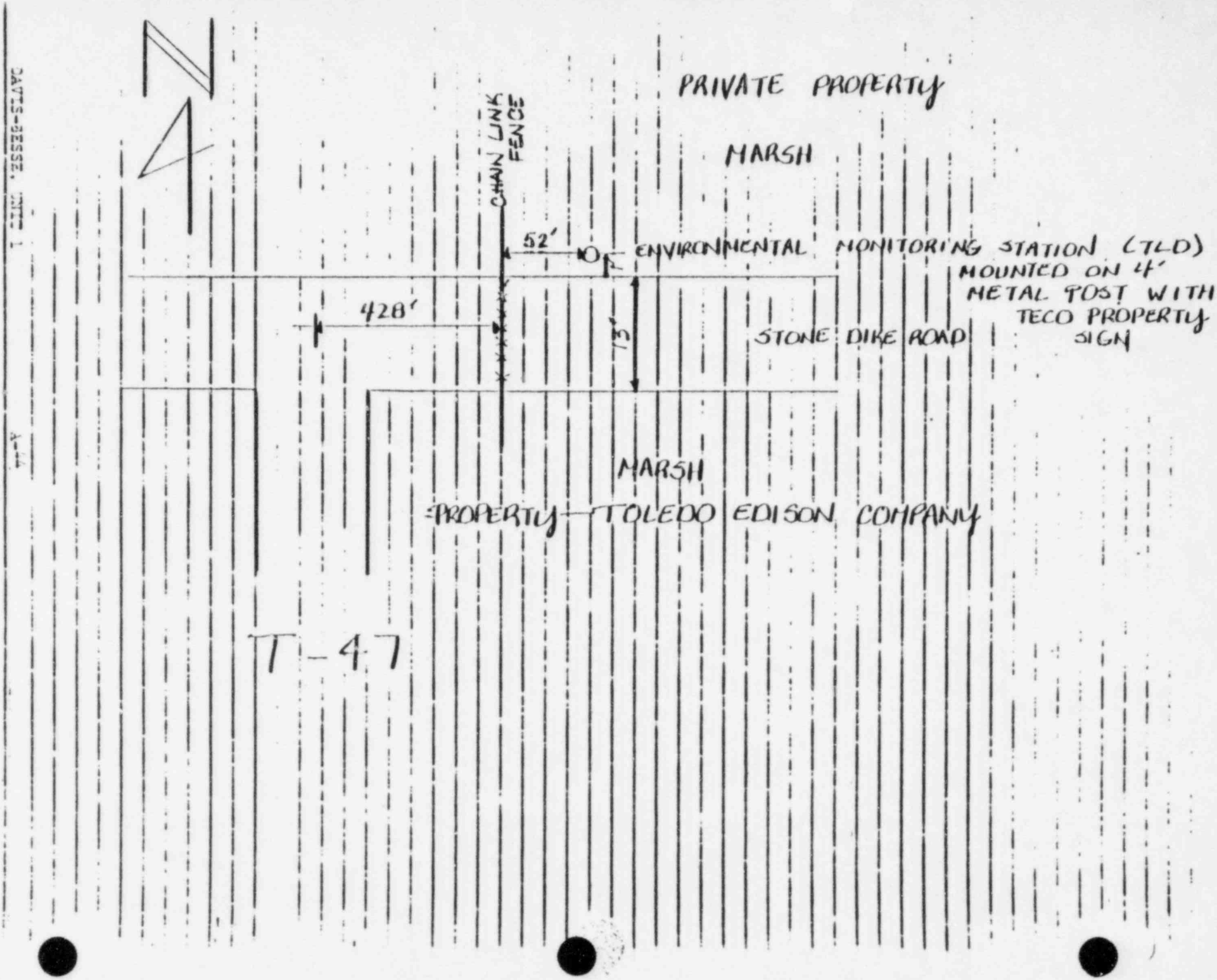

DAVIS-BESSE, UNIT 1
Z-4
ROUTE 2
Cooling tower
Containment
DAVIS BESSE ADMINISTRATION BUILDING
COB
Warehouse
ENVIRONMENTAL STATION T-44
Substation
T-43
RED BARN
HIGH VOLTAGE BOX
100'
4 STEEL POSTS
MOUNTED ON A YELLOW STEEL POST
ENVIRONMENTAL MONITORING STATION (TLD)
TO COB &
WAREHOUSE

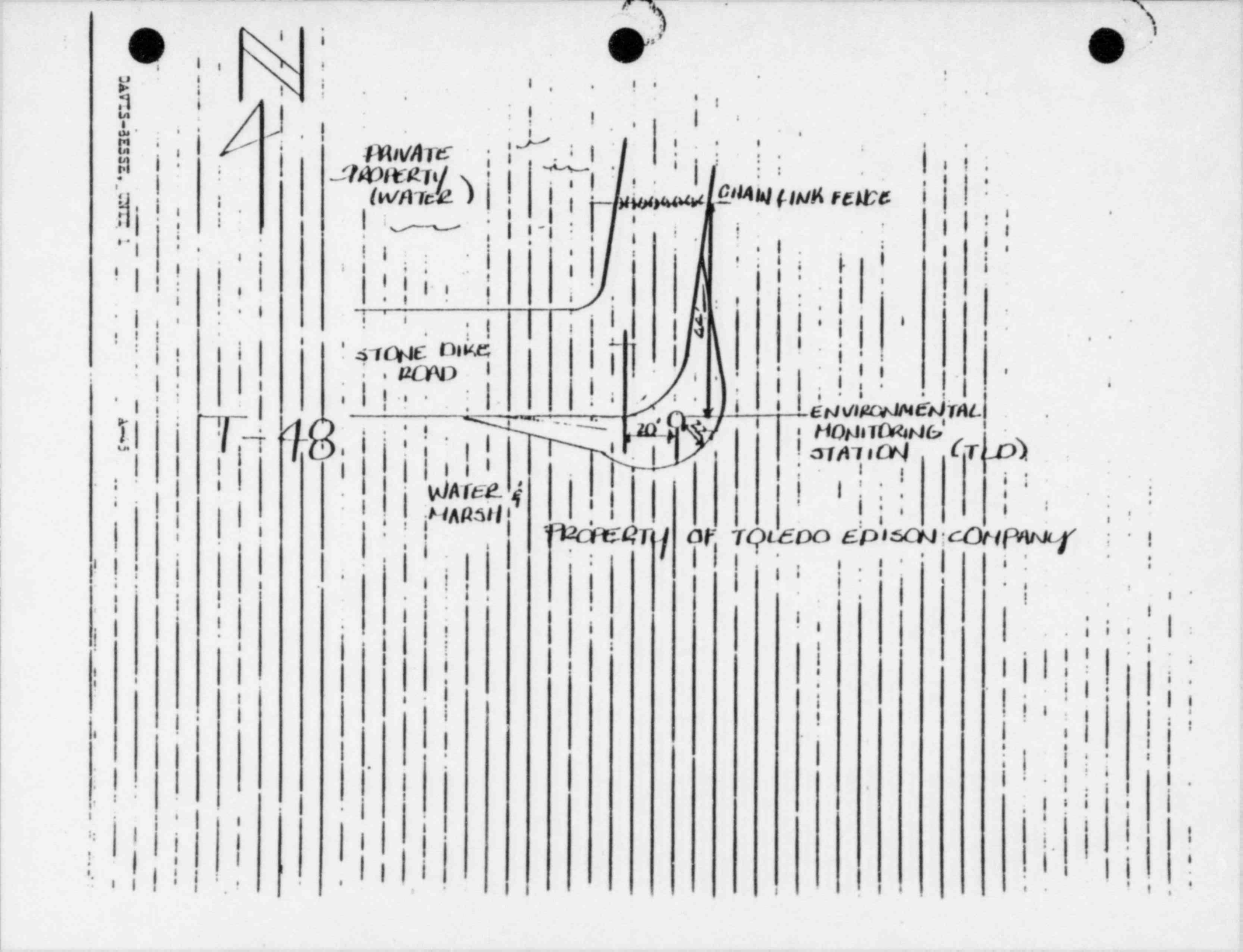


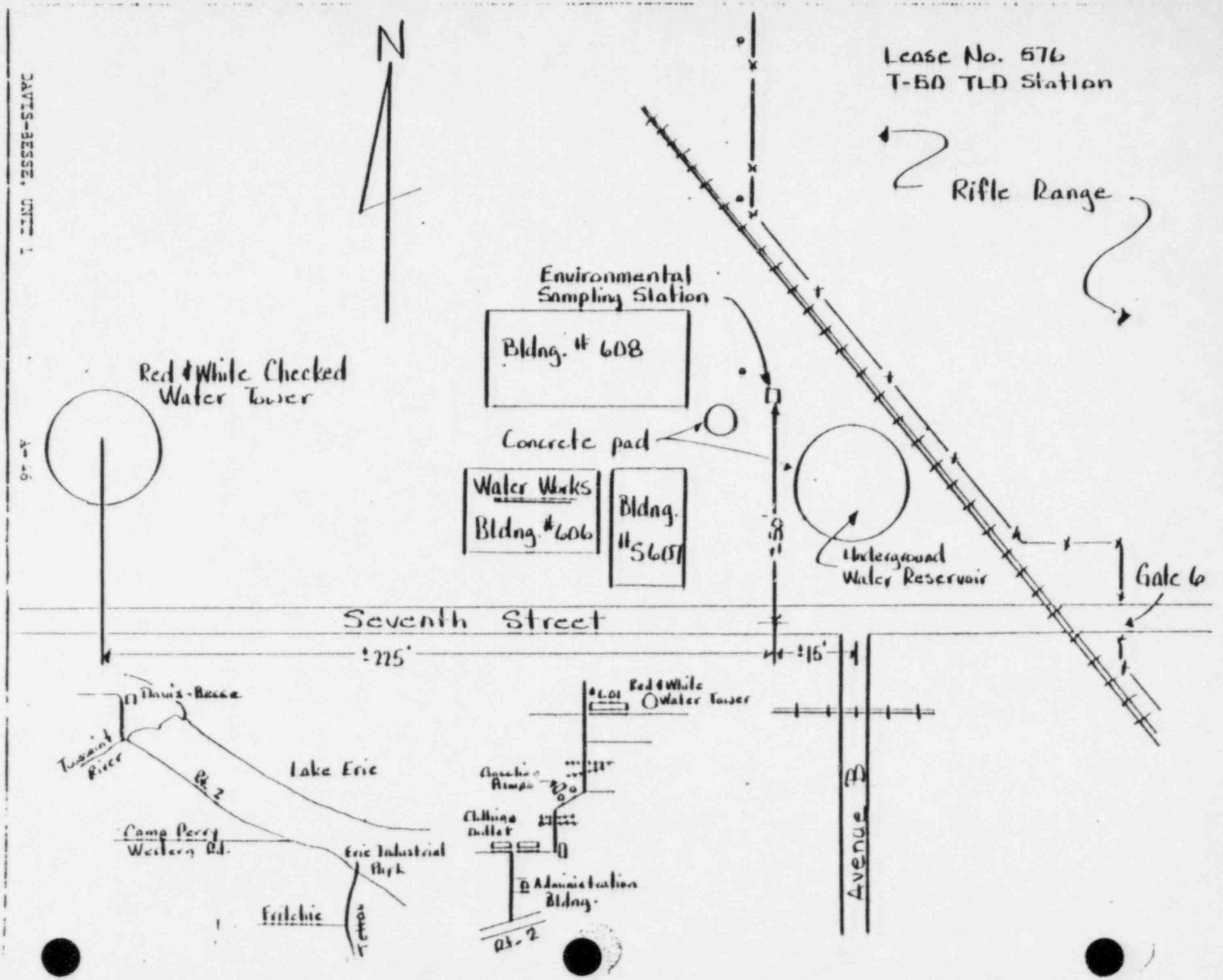
MAP
DAVIS BESSE ADMINISTRATION BLDG
TLD, ENVIRONMENTAL MONITORING STATION
RED BARN
ROUTE 2
DAVIS BESSE PLANT
RAILROAD TRACKS
ENVIRONMENTAL MONITORING STATION (TLD)
CHAIN LINK FENCE & BARBWIRE
TRANSMISSION TOWER
25'
65'
130'
180'


ROUTE 2
DITCH
25'
HEDGEROW
ENTRANCE ROAD TO DAVIS BESSE
WOODEN GATE
DIRT ROAD
7'
5'
140'
TLD Station
T-45
N
ROUTE 2
ENVIRONMENTAL MONITORING STATION
DAVIS BESSE ADMINISTRATION BUILDING
COOLING TOWER

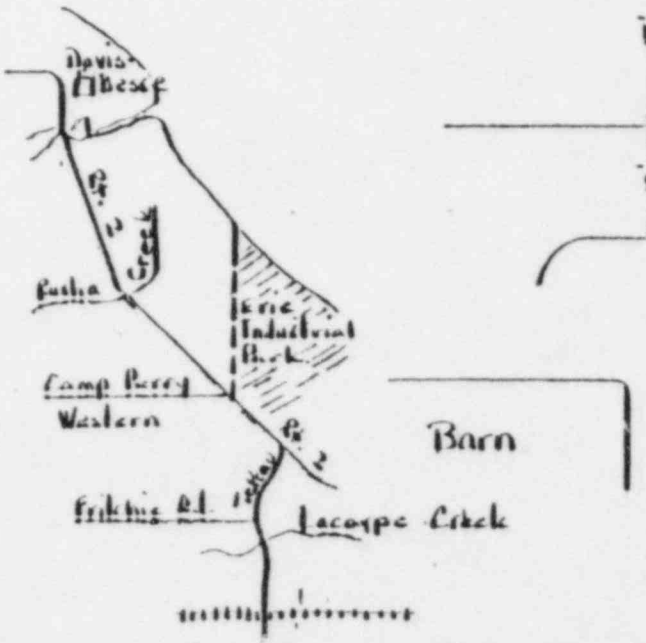

LAKE ERIE
ENVIRONMENTAL MONITORING STATION
MARSH
COOLING TOWER
MAIN ACCESS ROAD
ADMINISTRATION BUILDING
ROUTE 2
16
STONE DIKE
ENVIRONMENTAL SAMPLING STATION (TLD)
13'
15'4"
CHAIN LINK FENCE & GATE
MARSH
COOLING TOWER
T-16

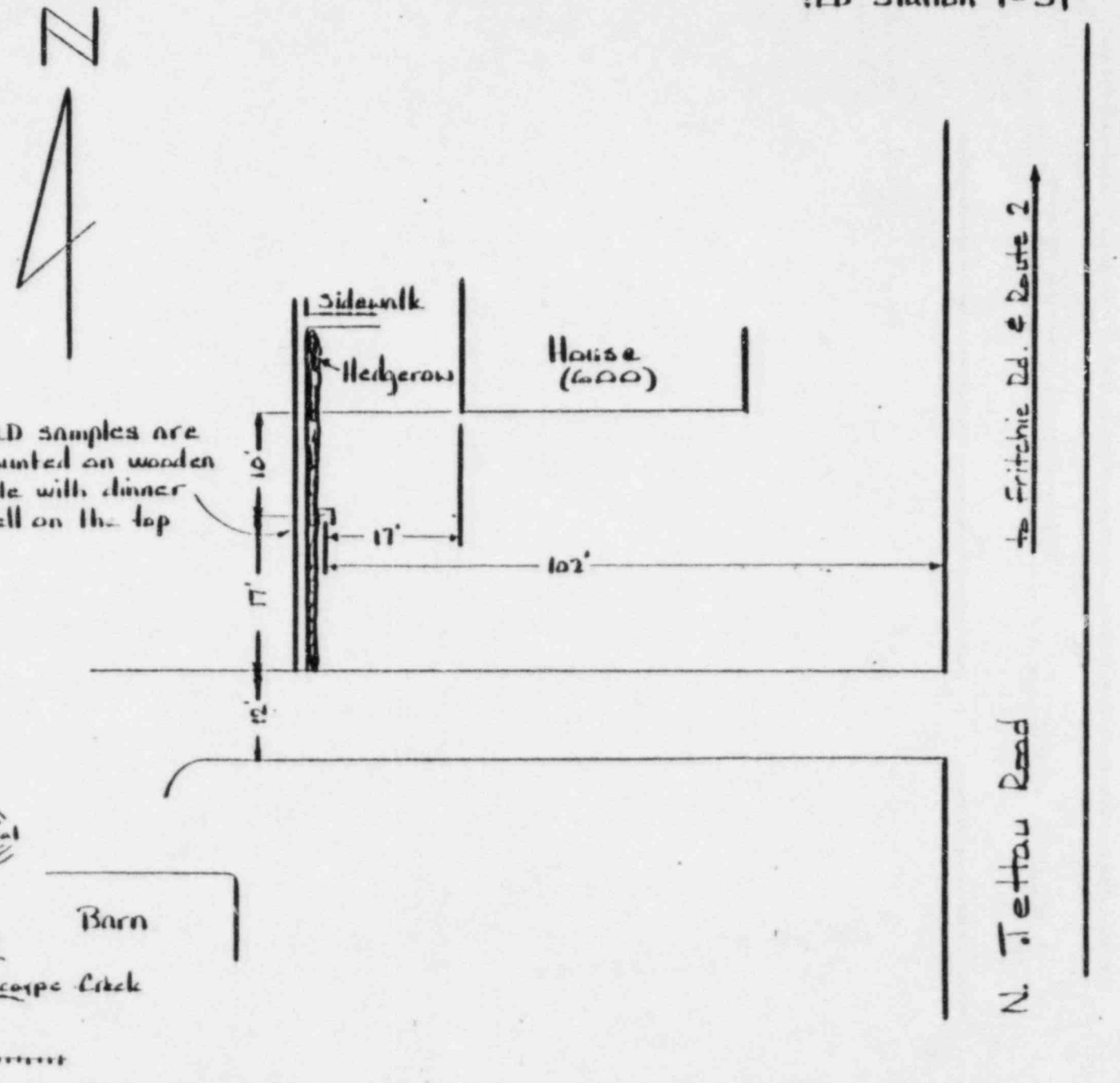

N
PRIVATE PROPERTY
MARSH
CHAIN LINK FENCE
52'
ENVIRONMENTAL MONITORING STATION (TLD) MOUNTED ON 4' METAL POST WITH TECO PROPERTY SIGN
428'
13'
STONE DIKE ROAD
MARSH
PROPERTY — TOLEDO EDISON COMPANY
T-47

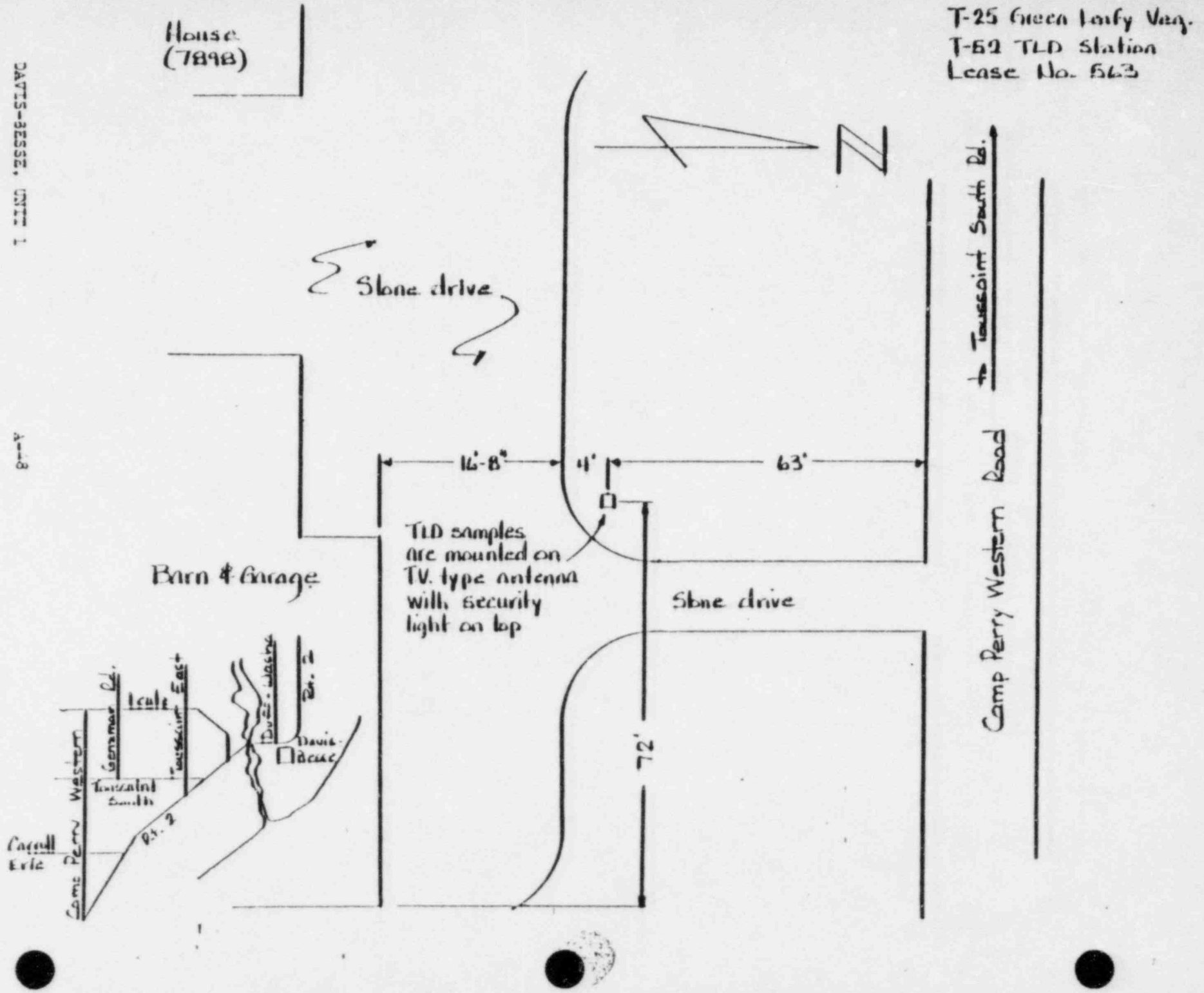

N
PRIVATE PROPERTY (WATER)
CHAIN LINK FENCE
STONE DIKE ROAD
T-18
20'
ENVIRONMENTAL MONITORING STATION (TLD)
WATER & MARSH
PROPERTY OF TOLEDO EDISON COMPANY


Lease No. 576
T-60 TLD Station
N
Rifle Range
Environmental
Sampling Station
Bldng. # 608
Red & White Checked
Water Tower
Concrete pad
Water Works
Bldng. #606
Bldng.
#5607
Underground
Water Reservoir
Gate 6
Seventh Street
±225'
±15'
±50'
Davis-Besse
Toussaint
River
Lake Erie
Rt 2
Camp Perry
Western Rd.
Erie Industrial
Park
Fairchie
Creek
Red & White
Water Tower
Aquatic
Ramp
Clothing
Outlet
Administration
Bldng.
Rt-2
Avenue
DAVIS-BESSE, UNIT 1
A-46

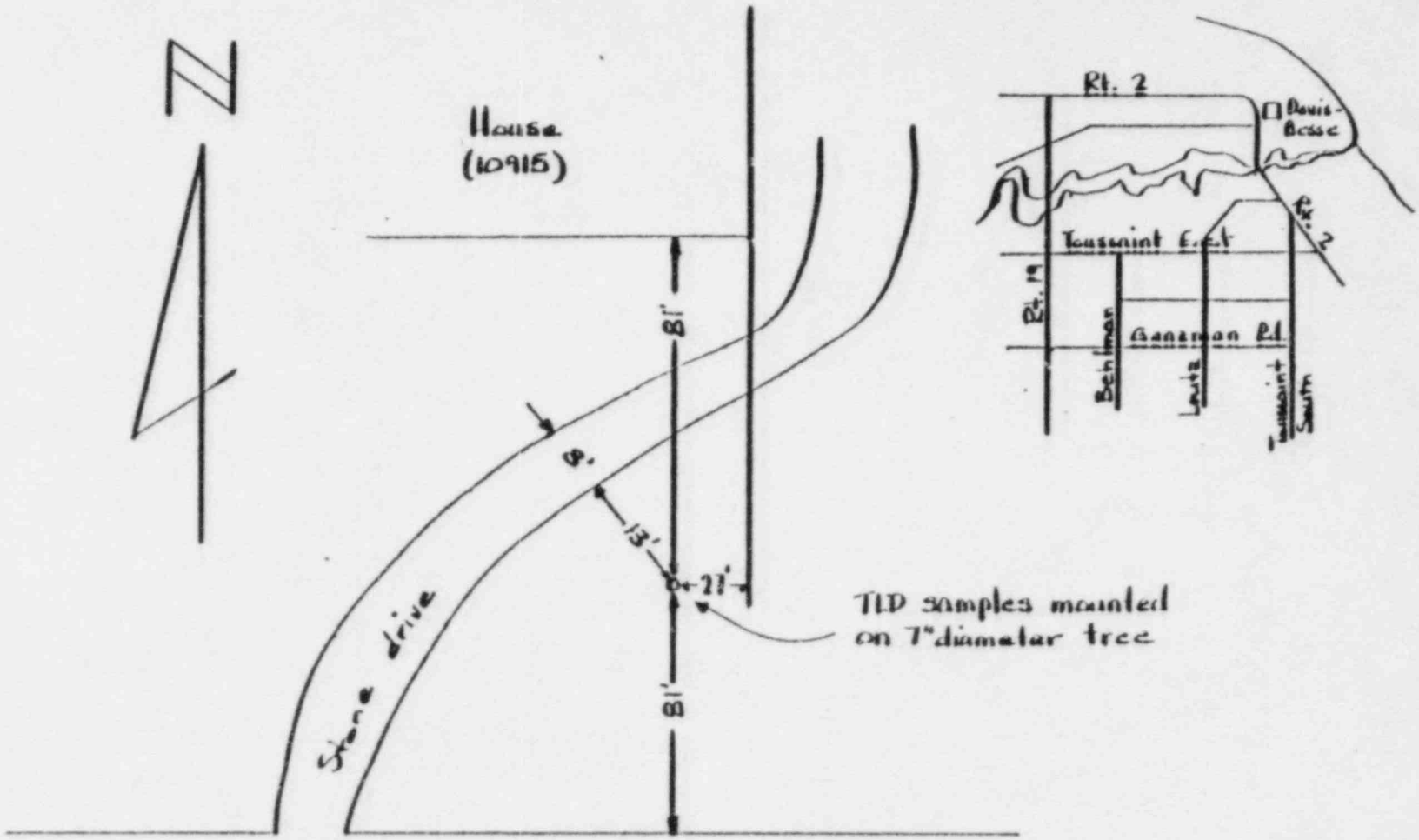
Lease No. 564
TLD Station T-51






T-25 Green Leafy Veg.
T-52 TLD Station
Lease No. 563
House
(7898)
N
Stone drive
16'-8"
4'
63'
TLD samples are mounted on TV. type antenna with security light on top
Barn & Garage
Stone drive
72'
Camp Perry Western Road
Tawesdint South Rd.
Rt. 2
Rt. 2
Cargill Erie
Camp Perry Western
Genesee Rd.
Irvine
Tawesdint East
Tawesdint South
Davis-Besse
DAVIS-BESSE, UNIT 1

Lease No. 561
TLD Station T-54



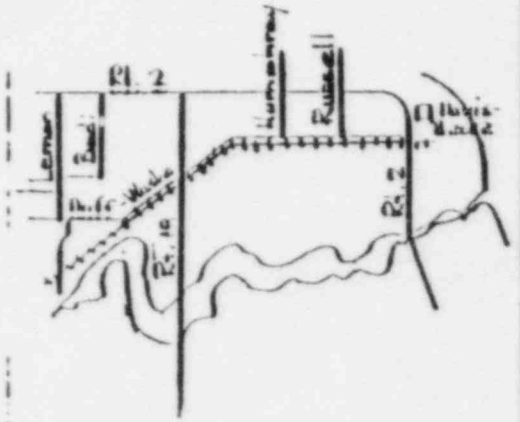
Lease No. 565
TLD Station T-55

DAVIS-BESSE, UNIT 1

1"=30'

N

State Route 2



Lemon Road

House
(5967 Lemon Rd.)

44'

TLD samples
mounted on
4"x4" wood post

14'

Stone Drive

20'

41'

in

APPENDIX B

Tables

TABLE 1

BIOACCUMULATION FACTORS

(pCi/kg per pCi/liter)

ELEMENT	FRESHWATER FISH
H	9.0E-01
C	4.6E+03
NA	1.0E+02
P	3.0E+03
CR	2.0E+02
MN	4.0E+02
FE	1.0E+02
CO	5.0E+01
NI	1.0E+02
CU	5.0E+01
ZN	2.0E+03
BR	4.2E+02
RB	2.0E+03
SR	3.0E+01
Y	2.5E+01
ZR	3.3E+00
NB	3.0E+04
MO	1.0E+01
TC	1.5E+01
RU	1.0E+01
RH	1.0E+01
TE	4.0E+02
I	1.5E+01
CS	2.0E+03
BA	4.0E+00
LA	2.5E+01
CE	1.0E+00
PR	2.5E+01
ND	2.5E+01
W	1.2E+03
NP	1.0E+01

Values in this Table are taken from Regulatory Guide 1.109 except for Phosphorus which is taken from NUREG/CR-1336.

Table 2

INGESTION DOSE FACTORS FOR ADULTS
(MREM PER UCI INGESTED)

NUCLIDE		BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H	3	NO DATA	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07	1.05E-07
C	14	2.84E-06	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07
NA	24	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06
P	32	1.93E-04	1.20E-05	7.4eE-06	NO DATA	NO DATA	NO DATA	2.17E-05
CR	51	NO DATA	NO DATA	2.eeE-09	1.57E-09	5.8eE-10	3.53E-09	6.a9E-07
MN	54	NO DATA	4.57E-06	8.72E-07	NO DATA	1.3eE-06	NO DATA	1.40E-05
MN	56	NO DATA	1.15E-07	2.04E-08	NO DATA	1.4eE-07	NO DATA	3.67E-06
FE	55	2.75E-06	1.90E-06	4.4aE-07	NO DATA	NO DATA	1.06E-06	1.09E-06
FE	59	4.34E-06	1.02E-05	3.91E-06	NO DATA	NO DATA	2.85E-06	3.40E-05
CO	58	NO DATA	7.49E-07	1.67E-06	NO DATA	NO DATA	NO DATA	1.51E-05
CO	60	NO DATA	2.14E-06	4.72E-06	NO DATA	NO DATA	NO DATA	4.02E-05
NI	63	1.30E-04	9.01E-06	4.36E-06	NO DATA	NO DATA	NO DATA	1.88E-06
NI	65	5.23E-07	6.3eE-08	3.13E-08	NO DATA	NO DATA	NO DATA	1.74E-06
CU	64	NO DATA	8.33E-08	3.91E-08	NO DATA	2.10E-07	NO DATA	7.10E-06
ZN	65	4.84E-06	1.54E-05	6.9eE-06	NO DATA	1.03E-05	NO DATA	9.70E-06
ZN	69	1.03E-08	1.97E-08	1.37E-09	NO DATA	1.23E-08	NO DATA	2.9eE-09
BR	83	NO DATA	NO DATA	4.02E-08	NO DATA	NO DATA	NO DATA	5.79E-08
BR	84	NO DATA	NO DATA	5.21E-08	NO DATA	NO DATA	NO DATA	4.09E-13
BR	85	NO DATA	NO DATA	2.14E-09	NO DATA	NO DATA	NO DATA	LT E-24
RB	86	NO DATA	2.11E-05	9.83E-06	NO DATA	NO DATA	NO DATA	4.1eE-06
RB	88	NO DATA	6.05E-08	3.21E-08	NO DATA	NO DATA	NO DATA	8.3eE-19
RB	89	NO DATA	4.01E-08	2.82E-08	NO DATA	NO DATA	NO DATA	2.33E-21
SR	89	3.08E-04	NO DATA	8.84E-06	NO DATA	NO DATA	NO DATA	4.94E-05
SR	90	7.58E-03	NO DATA	1.8eE-03	NO DATA	NO DATA	NO DATA	2.19E-04
SR	91	5.67E-06	NO DATA	2.27E-07	NO DATA	NO DATA	NO DATA	2.70E-05
SR	92	2.15E-06	NO DATA	9.30E-08	NO DATA	NO DATA	NO DATA	4.2eE-05
Y	90	9.e2E-09	NO DATA	2.58E-10	NO DATA	NO DATA	NO DATA	1.02E-04
Y	91M	9.09E-11	NO DATA	3.52E-12	NO DATA	NO DATA	NO DATA	2.67E-10
Y	91	1.41E-07	NO DATA	3.77E-09	NO DATA	NO DATA	NO DATA	7.76E-05
Y	92	8.45E-10	NO DATA	2.47E-11	NO DATA	NO DATA	NO DATA	1.48E-05

Reference: Regulatory Guide. 1.109. Table E-11

TABLE 2, continued

INGESTION DOSE FACTORS FOR ADULTS
(MREM PER PCI INGESTED)

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Y 93	2.68E-07	NO DATA	7.40E-11	NO DATA	NO DATA	NO DATA	8.50E-05
ZR 95	3.04E-08	7.75E-09	8.30E-09	NO DATA	1.53E-08	NO DATA	3.09E-05
ZR 97	1.44E-07	3.39E-10	1.55E-10	NO DATA	5.12E-10	NO DATA	1.05E-06
NB 95	6.22E-09	3.44E-09	1.86E-09	NO DATA	3.42E-09	NO DATA	2.10E-05
MO 99	NO DATA	4.31E-06	8.20E-07	NO DATA	9.76E-06	NO DATA	9.99E-06
TC 99M	2.47E-10	6.98E-10	8.89E-09	NO DATA	1.06E-08	3.42E-10	4.13E-07
TC101	2.54E-10	3.46E-10	3.59E-09	NO DATA	6.59E-09	1.87E-10	1.10E-21
RU103	1.85E-07	NO DATA	7.97E-08	NO DATA	7.06E-07	NO DATA	2.16E-05
RU105	1.54E-08	NO DATA	6.08E-07	NO DATA	1.99E-07	NO DATA	9.42E-06
RU106	2.75E-06	NO DATA	3.44E-07	NO DATA	5.31E-06	NO DATA	1.78E-04
AG110M	1.60E-07	1.44E-07	8.79E-08	NO DATA	1.91E-07	NO DATA	6.04E-05
TE125M	2.65E-06	9.71E-07	3.57E-07	9.06E-07	1.09E-05	NO DATA	1.07E-05
TE127M	6.77E-06	2.42E-06	8.25E-07	1.73E-06	2.75E-05	NO DATA	2.27E-05
TE127	1.10E-07	3.95E-08	2.38E-08	8.15E-08	4.46E-07	NO DATA	8.68E-06
TE129M	1.15E-05	4.29E-06	1.42E-06	3.95E-06	4.30E-05	NO DATA	5.79E-05
TE129	3.14E-08	1.18E-08	7.40E-09	2.41E-08	1.32E-07	NO DATA	2.37E-08
TE131M	1.73E-06	8.44E-07	7.05E-07	1.34E-06	8.57E-06	NO DATA	8.40E-05
TE131	1.97E-08	9.23E-09	6.22E-09	1.62E-08	5.63E-08	NO DATA	2.79E-09
TE132	2.52E-06	1.63E-06	1.53E-06	1.80E-06	1.57E-05	NO DATA	7.71E-05
I 130	7.56E-07	2.23E-06	8.40E-07	1.89E-04	3.44E-06	NO DATA	1.92E-06
I 131	4.16E-06	5.75E-06	3.41E-06	1.95E-03	1.02E-05	NO DATA	1.57E-06
I 132	2.03E-07	5.43E-07	1.90E-07	1.90E-05	8.65E-07	NO DATA	1.02E-07
I 133	1.42E-06	2.47E-06	7.53E-07	3.63E-04	4.31E-06	NO DATA	2.22E-06
I 134	1.06E-07	2.88E-07	1.03E-07	4.99E-06	4.58E-07	NO DATA	2.51E-10
I 135	4.43E-07	1.16E-06	4.25E-07	7.65E-05	1.86E-06	NO DATA	1.31E-06
CS134	8.22E-05	1.44E-04	1.21E-04	NO DATA	4.79E-05	1.59E-05	2.59E-06
CS136	6.51E-06	2.57E-05	1.85E-05	NO DATA	1.43E-05	1.96E-06	2.92E-06
CS137	7.97E-05	1.09E-04	7.14E-05	NO DATA	3.70E-05	1.23E-05	2.11E-06
CS138	5.52E-08	1.09E-07	5.40E-08	NO DATA	8.01E-08	7.91E-09	4.65E-13
BA139	9.70E-08	6.91E-11	2.84E-09	NO DATA	6.44E-11	3.92E-11	1.72E-07

TABLE 2, Continued

INGESTION DOSE FACTORS FOR ADULTS
(MREM PER PCI INGESTED)

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
BA140	2.03E-05	2.55E-08	1.33E-08	NO DATA	8.67E-09	1.40E-08	4.13E-05
BA141	4.71E-08	3.36E-11	1.59E-09	NO DATA	3.31E-11	2.02E-11	2.22E-17
BA142	2.13E-08	2.19E-11	1.34E-09	NO DATA	1.35E-11	1.24E-11	1.00E-26
LA140	2.50E-09	1.26E-09	8.35E-10	NO DATA	NO DATA	NO DATA	9.25E-05
LA142	1.29E-10	5.82E-11	1.45E-11	NO DATA	NO DATA	NO DATA	4.25E-07
CE141	9.30E-09	6.33E-09	7.18E-10	NO DATA	2.94E-09	NO DATA	2.42E-05
CE143	1.65E-07	1.22E-06	1.35E-10	NO DATA	5.17E-10	NO DATA	4.56E-05
CE144	4.48E-07	2.04E-07	2.62E-08	NO DATA	1.21E-07	NO DATA	1.65E-04
PR143	9.20E-09	3.69E-09	4.56E-10	NO DATA	2.13E-09	NO DATA	4.03E-05
PR144	3.01E-11	1.25E-11	1.51E-12	NO DATA	7.05E-12	NO DATA	4.33E-18
ND147	6.29E-09	7.27E-09	4.35E-10	NO DATA	4.25E-09	NO DATA	3.49E-05
W 187	1.03E-07	8.81E-08	3.01E-08	NO DATA	NO DATA	NO DATA	2.82E-05
NP239	1.19E-09	1.17E-10	6.45E-11	NO DATA	3.65E-10	NO DATA	2.40E-05

TABLE 3

SITE-RELATED INGESTION
DOSE COMMITMENT FACTOR

$A_{i\tau}$

(mrem/hr per μCi/ml)

NUCLIDE	BONE	LIVER	TBODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E-01	1.75E+00	1.75E+00	1.75E+00	1.75E+00	1.75E+00	1.75E+00
C-14	3.13E+04	6.25E+03	6.25E+03	6.25E+03	6.25E+03	6.25E+03	6.25E+03
NA-24	4.32E+02	4.32E+02	4.32E+02	4.32E+02	4.32E+02	4.32E+02	4.32E+02
CR-51	0.00E-01	0.00E-01	1.31E+00	7.85E-01	2.89E-01	1.77E+00	1.30E+02
MN-54	0.00E-01	4.44E+03	8.48E+02	0.00E-01	1.32E+03	0.00E-01	1.36E+04
MN-56	0.00E-01	1.12E+02	1.98E+01	0.00E-01	1.42E+02	0.00E-01	1.57E+03
FE-55	6.99E+02	4.83E+02	1.13E+02	0.00E-01	0.00E-01	2.69E+02	2.77E+02
FE-59	1.10E+03	2.59E+03	9.93E+02	0.00E-01	0.00E-01	7.24E+02	9.44E+03
CO-58	0.00E-01	1.00E+02	2.24E+02	0.00E-01	0.00E-01	0.00E-01	2.03E+03
CO-60	0.00E-01	2.87E+02	6.34E+02	0.00E-01	0.00E-01	0.00E-01	5.40E+03
NI-59	2.46E+03	8.51E+02	4.14E+02	0.00E-01	0.00E-01	0.00E-01	1.75E+02
NI-63	3.30E+04	2.29E+03	1.11E+03	0.00E-01	0.00E-01	0.00E-01	4.79E+02
NI-65	1.34E+02	1.74E+01	7.95E+00	0.00E-01	0.00E-01	0.00E-01	4.42E+02
CU-64	0.00E-01	1.12E+01	5.22E+00	0.00E-01	2.32E+01	0.00E-01	9.54E+02
ZN-65	2.32E+04	7.40E+04	3.34E+04	0.00E-01	4.95E+04	0.00E-01	4.44E+04
ZR-95	0.00E-01	0.00E-01	5.31E+01	0.00E-01	0.00E-01	0.00E-01	4.17E-04
RB-88	0.00E-01	2.91E+02	1.54E+02	0.00E-01	0.00E-01	0.00E-01	4.01E-09
RB-89	0.00E-01	1.91E+02	1.32E+02	0.00E-01	0.00E-01	0.00E-01	1.12E-11
SR-89	2.64E+04	0.00E-01	7.54E+02	0.00E-01	0.00E-01	0.00E-01	4.27E+03
SR-90	6.32E+05	0.00E-01	1.61E+05	0.00E-01	0.00E-01	0.00E-01	1.89E+04
SR-91	4.90E+02	0.00E-01	1.99E+01	0.00E-01	0.00E-01	0.00E-01	2.32E+03
SR-92	1.84E+02	0.00E-01	8.04E+00	0.00E-01	0.00E-01	0.00E-01	1.48E+03
Y-90	7.14E-01	0.00E-01	1.92E-02	0.00E-01	0.00E-01	0.00E-01	7.59E+03
Y91M	6.77E-03	0.00E-01	2.62E-04	0.00E-01	0.00E-01	0.00E-01	1.99E-02
Y-91	1.35E+01	0.00E-01	3.61E-01	0.00E-01	0.00E-01	0.00E-01	5.79E+03
Y-92	6.29E-02	0.00E-01	1.84E-03	0.00E-01	0.00E-01	0.00E-01	1.10E+03
ZR-95	9.34E-01	3.19E-01	1.49E-01	0.00E-01	2.44E-01	0.00E-01	4.99E+02
ZR-97	1.79E-02	7.63E-03	3.49E-03	0.00E-01	1.13E-02	0.00E-01	3.36E+03
NB-95	4.47E+02	2.49E+02	1.34E+02	0.00E-01	2.46E+02	0.00E-01	1.31E+04
MO-99	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.87E+03

Calculations made according to the methods specified in Section 1.2 of the Offsite Dose Calculation Manual

TABLE 3
(continued)

SITE-RELATED INGESTION
DOSE COMMITMENT FACTOR

A_{it}

(mrem/hr per uCi/ml)

NUCLIDE	BONE	LIVER	TBODY	THYROID	KIDNEY	LUNG	GI-LLI
MO-99	0.00E-01	1.44E+02	3.16E+01	0.00E-01	3.77E+02	0.00E-01	1.85E+02
TC99M	1.25E-02	3.53E-02	4.49E-01	0.00E-01	5.35E-01	1.73E-02	2.09E+01
RU-103	7.13E+00	0.00E-01	3.07E+00	0.00E-01	2.72E+01	0.00E-01	8.32E+02
RU-106	1.06E+02	0.00E-01	1.34E+01	0.00E-01	2.05E+02	0.00E-01	4.86E+03
AG110M	3.22E+00	2.98E+00	1.77E+00	0.00E-01	5.85E+00	0.00E-01	1.21E+03
CD115M	0.00E-01	9.08E+02	2.47E+01	0.00E-01	7.20E+02	0.00E-01	1.82E+04
SB-124	4.79E+01	8.50E-01	1.89E+01	0.00E-01	0.00E-01	3.70E+01	1.35E+03
TE-132	2.45E+03	1.58E+03	1.49E+03	1.75E+03	1.53E+04	0.00E-01	7.50E+04
I-131	2.10E+02	3.01E+02	1.72E+02	9.85E+04	5.15E+02	0.00E-01	7.93E+01
I-132	1.03E+01	2.74E+01	9.60E+00	9.60E+02	4.37E+01	0.00E-01	5.15E+00
I-133	7.17E+01	1.25E+02	3.80E+01	1.83E+04	2.18E+02	0.00E-01	1.12E+02
I-134	5.35E+00	1.45E+01	5.20E+00	2.52E+02	2.31E+01	0.00E-01	1.27E-02
I-135	2.24E+01	5.84E+01	2.15E+01	3.84E+03	9.39E+01	0.00E-01	6.62E+01
CS-134	2.99E+05	7.11E+05	5.81E+05	0.00E-01	2.30E+05	7.64E+04	1.24E+04
CS-136	3.13E+04	1.23E+05	8.88E+04	0.00E-01	6.87E+04	9.41E+03	1.40E+04
CS-137	3.82E+05	3.22E+05	3.43E+05	0.00E-01	1.79E+05	3.91E+04	1.01E+04
CS-138	2.65E+02	5.23E+02	2.59E+02	0.00E-01	2.85E+02	1.80E+01	2.23E-03
CS-139	1.44E+02	2.40E+02	4.80E+01	0.00E-01	1.92E+02	0.00E-01	0.00E-01
BA-139	2.35E+00	1.67E-03	6.87E-02	0.00E-01	1.56E-03	9.48E-04	4.16E+00
BA-140	4.91E+02	6.16E-01	1.22E+01	0.00E-01	2.10E-01	1.53E-01	1.01E+03
LA-140	1.96E-01	9.35E-02	2.48E-02	0.00E-01	0.00E-01	0.00E-01	6.89E+03
CE-141	1.39E-01	1.08E-01	1.22E-02	0.00E-01	5.00E-02	0.00E-01	4.11E+02
CE-143	2.80E-02	2.07E+01	2.29E-03	0.00E-01	9.13E-03	0.00E-01	7.75E+02
CE-144	8.29E+00	3.47E+00	4.45E-01	0.00E-01	2.04E+00	0.00E-01	2.80E+03
PR-144	3.24E-03	9.31E-04	1.14E-04	0.00E-01	5.25E-04	0.00E-01	3.22E-10
W-187	2.97E+02	2.49E+02	8.69E+01	0.00E-01	0.00E-01	0.00E-01	8.14E+04
U-232	1.52E+04	0.00E-01	9.42E+02	0.00E-01	1.43E+03	0.00E-01	1.51E+03
U-238	1.49E+04	0.00E-01	8.82E+02	0.00E-01	1.39E+03	0.00E-01	1.32E+03
NP-239	4.59E-02	4.51E-03	2.49E-03	0.00E-01	1.41E-02	0.00E-01	9.27E+02
P-32	1.39E+06	8.44E+04	5.27E+04	0.00E-01	0.00E-01	0.00E-01	1.56E+05

TABLE 4

DOSE FACTORS FOR EXPOSURE TO A SEMI-INFINITE CLOUD OF NOBLE GASES

Nuclide	γ-Body** (K)	β-Skin** (L)	γ-Air* (M)	β-air* (N)
Kr-85m	1.17E+03***	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

Reference: Regulatory Guide 1.109 Table B-1 and Section 2.1.1 of the Offsite Dose Calculation Manual

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* $\frac{\text{mrad-m}^3}{\mu\text{Ci-yr}}$

** $\frac{\text{mrem-m}^3}{\mu\text{Ci-yr}}$

*** 1.97E+03 = 1.97×10^3

TABLE 5

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

CODE 1 AGE 1
PATHWAY 1 INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	1.254E+03	1.254E+03	0.000E-01	1.254E+03	1.254E+03	1.254E+03	1.254E+03	1.254E+03	W. BODY
2	C-14	3.400E+03	3.400E+03	1.814E+04	3.400E+03	3.400E+03	3.400E+03	3.400E+03	3.400E+03	BONE
3	NA-24	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	0.000E-01	W. BODY
4	P-32	5.600E+04	0.000E-01	1.320E+06	7.712E+04	0.000E-01	0.000E-01	8.440E+01	0.000E-01	BONE
5	SC-46	2.480E+05	0.000E-01	4.400E+05	8.520E+05	0.000E+05	0.000E-01	2.581E+05	0.000E-01	LIVER
6	CR-51	1.030E+03	5.952E+01	0.000E-01	0.000E-01	2.200E+01	1.410E+04	3.420E+03	0.000E-01	LUNG
7	MN-54	4.292E+03	0.000E-01	0.000E-01	3.940E+04	9.840E+03	1.400E+05	7.733E+04	0.000E-01	LUNG
8	MN-56	1.813E-01	0.000E-01	0.000E-01	1.240E+00	1.344E+00	9.440E+03	2.021E+04	0.000E-01	GI-LLI
9	FE-55	3.944E+04	0.000E-01	2.452E+04	1.494E+04	0.000E-01	7.200E+04	4.633E+03	0.000E-01	LUNG
10	FE-59	1.652E+04	0.000E-01	1.172E+04	3.772E+04	0.000E-01	1.012E+04	1.880E+05	0.000E-01	LUNG
11	CO-58	3.672E+03	0.000E-01	0.000E-01	1.584E+03	0.000E-01	9.280E+05	1.024E+05	0.000E-01	LUNG
12	CO-60	1.102E+04	0.000E-01	0.000E-01	1.152E+04	0.000E-01	5.928E+04	2.618E+05	0.000E-01	LUNG
13	NI-59	5.412E+03	0.000E-01	3.240E+04	1.140E+04	0.000E-01	4.520E+04	4.080E+04	0.000E-01	LUNG
14	NI-63	1.416E+04	0.000E-01	4.320E+05	3.144E+04	0.000E-01	1.780E+05	1.434E+04	0.000E-01	BONE
15	NI-65	9.120E-02	0.000E-01	1.532E+00	2.095E-01	0.000E-01	5.400E+03	1.232E+04	0.000E-01	GI-LLI
16	CU-64	4.152E-01	0.000E-01	0.000E-01	1.424E+00	4.624E+00	4.700E+03	4.092E+04	0.000E-01	GI-LLI
17	ZN-65	4.252E+04	0.000E-01	3.240E+04	1.032E+05	4.092E+04	8.410E+05	2.511E+04	0.000E-01	LUNG
18	ZN-69	4.520E-01	0.000E-01	3.301E-02	5.512E-02	4.214E-02	9.200E+02	1.252E+01	0.000E-01	LUNG
19	BR-83	2.160E+03	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	2.320E+03	0.000E-01	W. BODY
20	BR-84	4.140E+03	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.240E-01	0.000E-01	W. BODY
21	BR-85	1.380E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	5.892E+04	0.000E-01	0.000E-01	1.352E+05	0.000E-01	0.000E-01	1.224E+04	0.000E-01	LIVER
23	RB-88	1.920E+02	0.000E-01	0.000E-01	3.872E+02	0.000E-01	0.000E-01	3.348E-07	0.000E-01	LIVER
24	RB-89	1.392E+02	0.000E-01	0.000E-01	2.556E+02	0.000E-01	0.000E-01	9.280E-12	0.000E-01	LIVER
25	SR-89	8.720E+03	0.000E-01	3.640E+05	0.000E-01	0.000E-01	1.400E+05	3.492E+05	0.000E-01	LUNG
26	SR-90	4.092E+06	0.000E-01	9.920E+07	0.000E-01	0.000E-01	9.400E+04	7.216E+05	0.000E-01	BONE
27	SR-91	3.564E+00	0.000E-01	6.192E+01	0.000E-01	0.000E-01	3.640E+04	1.913E+05	0.000E-01	GI-LLI
28	SR-92	2.912E-01	0.000E-01	6.744E+00	0.000E-01	0.000E-01	1.440E+04	4.301E+04	0.000E-01	GI-LLI
29	Y-90	5.500E+01	0.000E-01	2.080E+01	0.000E-01	0.000E-01	1.692E+05	5.052E+05	0.000E-01	GI-LLI
30	Y-91M	1.015E-02	0.000E-01	2.500E-01	0.000E-01	0.000E-01	1.920E+03	1.320E+00	0.000E-01	LUNG
31	Y-91	1.240E+04	0.000E-01	4.624E+05	0.000E-01	0.000E-01	1.704E+05	3.840E+05	0.000E-01	LUNG
32	Y-92	3.015E-01	0.000E-01	1.012E+01	0.000E-01	0.000E-01	1.560E+04	7.352E+01	0.000E-01	GI-LLI
33	Y-93	2.408E+00	0.000E-01	9.440E+01	0.000E-01	0.000E-01	4.840E+04	4.212E+05	0.000E-01	GI-LLI
34	ZR-95	2.320E+04	6.000E-01	1.072E+05	3.410E+04	5.412E+04	1.760E+04	1.504E+05	0.000E-01	LUNG
35	ZR-97	9.040E+00	0.000E-01	9.280E+01	1.920E+01	2.948E+01	7.872E+04	5.232E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$)

AGE : ADULT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB-95	4.200E+03	0.000E-01	1.400E+04	7.815E+03	7.735E+03	5.040E+05	1.040E+05	4.200E+03	LUNG
37	NB-97	2.040E-02	0.000E-01	2.224E-01	5.624E-02	4.544E-02	2.400E+03	2.412E+02	0.000E-01	LUNG
38	MO-99	2.292E+01	0.000E-01	0.000E-01	1.200E+02	3.912E+02	9.120E+04	2.480E+05	0.000E-01	GI-LLI
39	TC-99M	3.704E-02	0.000E-01	1.032E-03	2.912E-03	4.414E-02	7.440E+02	4.160E+03	0.000E-01	GI-LLI
40	TC-101	5.904E-04	0.000E-01	4.174E-05	6.016E-05	1.080E-03	3.992E+02	1.064E-11	0.000E-01	LUNG
41	RU-103	4.584E+02	0.000E-01	1.528E+03	0.000E-01	5.832E+03	5.040E+05	1.104E+05	0.000E-01	LUNG
42	RU-105	3.114E-01	0.000E-01	7.994E-01	0.000E-01	1.014E+00	1.095E+04	4.812E+04	0.000E-01	GI-LLI
43	RU-106	8.720E+03	0.000E-01	4.912E+04	0.000E-01	1.332E+05	9.360E+05	9.120E+05	0.000E-01	LUNG
44	RH-110M	5.944E+03	0.000E-01	1.080E+04	1.000E+04	1.950E+04	4.632E+04	3.024E+05	0.000E-01	LUNG
45	RH-115M	4.350E+04	0.000E-01	0.000E-01	1.950E+05	1.584E+05	1.400E+06	3.840E+05	0.000E-01	LUNG
46	SB-124	1.240E+04	7.552E+01	3.120E+04	5.880E+02	0.000E-01	2.400E+06	4.054E+05	0.000E-01	LUNG
47	TE-125M	4.572E+03	1.040E+03	3.414E+03	1.584E+03	1.240E+04	3.132E+05	7.054E+04	0.000E-01	LUNG
48	TE-127M	1.548E+03	3.328E+03	1.244E+04	5.758E+03	4.572E+04	9.600E+05	1.494E+05	0.000E-01	LUNG
49	TE-127	3.092E-01	1.054E+00	1.400E+00	4.424E-01	5.092E+00	4.512E+03	5.732E+04	0.000E-01	GI-LLI
50	TE-129M	1.584E+03	3.440E+03	9.750E+03	4.672E+03	3.654E+04	1.140E+06	3.812E+05	0.000E-01	LUNG
51	TE-129	1.240E-02	3.892E-02	4.972E-02	2.392E-02	1.872E-01	1.932E+03	1.520E+02	0.000E-01	LUNG
52	TE-131M	2.904E+01	5.564E+01	4.992E+01	4.344E+01	3.068E+02	1.452E+05	5.324E+05	0.000E-01	GI-LLI
53	TE-131	3.592E-03	9.352E-03	1.112E-02	5.952E-03	4.352E-02	1.392E+03	1.840E+01	0.000E-01	LUNG
54	TE-132	1.612E+02	1.892E+02	2.600E+02	2.152E+02	1.452E+03	2.880E+05	5.692E+05	0.000E-01	GI-LLI
55	I-130	5.280E+03	1.132E+05	4.572E+03	1.344E+04	2.088E+04	0.000E-01	7.280E+03	0.000E-01	THYROID
56	I-131	2.040E+04	1.192E+07	2.520E+04	3.572E+04	4.120E+04	0.000E-01	4.200E+03	0.000E-01	THYROID
57	I-132	1.152E+03	1.144E+05	1.140E+03	3.252E+03	5.184E+03	0.000E-01	4.052E+02	0.000E-01	THYROID
58	I-133	4.520E+04	2.152E+06	8.640E+03	1.480E+04	2.584E+04	0.000E-01	8.080E+03	0.000E-01	THYROID
59	I-134	5.152E+02	2.984E+04	6.440E+02	1.720E+03	2.752E+03	0.000E-01	1.000E+00	0.000E-01	THYROID
60	I-135	2.548E+04	4.480E+05	2.480E+03	5.984E+03	1.112E+04	0.000E-01	5.240E+03	0.000E-01	THYROID
61	CS-134	7.280E+05	0.000E-01	3.720E+05	8.480E+05	2.872E+05	9.720E+04	1.040E+04	0.000E-01	LIVER
62	CS-136	1.164E+05	0.000E-01	3.904E+04	1.464E+05	8.552E+04	1.200E+04	1.164E+04	0.000E-01	LIVER
63	CS-137	4.200E+05	0.000E-01	4.784E+05	6.200E+05	2.224E+05	7.520E+04	8.400E+03	0.000E-01	LIVER
64	CS-138	3.240E+02	0.000E-01	3.312E+02	6.200E+02	4.600E+02	4.852E+01	1.852E-03	0.000E-01	LIVER
65	CS-139	1.112E+02	0.000E-01	2.048E+02	2.904E+02	2.440E+02	2.272E+01	0.000E-01	0.000E-01	LIVER
66	BA-139	2.732E-02	0.000E-01	9.352E-01	6.452E-04	6.224E-04	3.720E+03	8.920E+02	0.000E-01	LUNG
67	BA-140	2.552E+03	0.000E-01	3.904E+04	4.904E+01	1.672E+01	1.272E+05	2.184E+05	0.000E-01	LUNG
68	BA-141	3.352E-03	0.000E-01	1.000E-01	7.520E-05	7.000E-05	1.932E+03	1.140E-07	0.000E-01	LUNG
69	BA-142	1.452E-03	0.000E-01	3.432E-02	2.704E-05	2.200E-05	1.192E+03	1.552E-15	0.000E-01	LUNG
70	LA-140	4.584E+01	0.000E-01	3.440E+02	1.736E+02	0.000E-01	1.360E+05	4.584E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	7.720E-02	0.000E-01	4.812E-01	3.104E-01	0.000E-01	4.328E+03	2.112E+03	7.720E-02	LUNG
72	CE-141	1.528E+03	0.000E-01	1.992E+04	1.352E+04	4.264E+03	3.414E+05	1.200E+05	0.000E-01	LUNG
73	CE-143	1.528E+01	0.000E-01	1.844E+02	1.376E+02	4.000E+01	7.976E+04	2.254E+05	0.000E-01	GI-LLI
74	CE-144	1.840E+05	0.000E-01	3.432E+06	1.432E+06	8.480E+05	7.776E+04	8.140E+05	0.000E-01	LUNG
75	PR-143	4.640E+02	0.000E-01	9.360E+03	3.752E+03	2.160E+03	2.808E+05	2.000E+05	0.000E-01	LUNG
76	PR-144	1.528E-03	0.000E-01	3.008E-03	1.248E-02	7.640E-03	1.015E+03	2.152E-08	0.000E-01	LUNG
77	ND-147	3.248E+03	0.000E-01	5.272E+03	4.096E+03	3.560E+03	2.200E+05	1.720E+05	0.000E-01	LUNG
78	W-185	5.440E+01	0.000E-01	1.520E+03	5.176E+02	0.000E-01	4.456E+05	8.552E+04	0.000E-01	LUNG
79	W-187	3.480E+00	0.000E-01	8.480E+00	7.080E+00	0.000E-01	2.904E+04	1.552E+05	0.000E-01	GI-LLI
80	U-235	4.852E+05	0.000E-01	8.000E+07	0.000E-01	1.872E+07	3.920E+08	3.872E+05	0.000E-01	LUNG
81	U-238	4.532E+04	0.000E-01	7.444E+07	0.000E-01	1.744E+07	3.444E+08	8.240E+05	0.000E-01	LUNG
82	NP-239	1.240E+01	0.000E-01	2.296E+02	2.256E+01	7.000E+01	3.760E+04	1.192E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)
Page 4 of 12

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	1.272E+03	1.272E+03	0.000E-01	1.272E+03	1.272E+03	1.272E+03	1.272E+03	1.272E+03	W. BODY
2	C-14	4.872E+03	4.872E+03	2.600E+04	4.872E+03	4.872E+03	4.872E+03	4.872E+03	4.872E+03	BONE
3	NA-24	1.374E+04	1.374E+04	1.374E+04	1.374E+04	1.374E+04	1.374E+04	1.374E+04	0.000E-01	W. BODY
4	P-32	7.140E+04	0.000E-01	1.880E+06	1.094E+05	0.000E-01	0.000E-01	9.280E+04	0.000E-01	BONE
5	SC-46	3.480E+05	0.000E-01	4.400E+05	8.540E+05	8.000E+05	0.000E-01	2.584E+05	0.000E-01	LIVER
6	CR-51	1.352E+03	7.494E+01	0.000E-01	0.000E-01	3.072E+01	2.094E+04	3.660E+03	0.000E-01	LUNG
7	MN-54	8.400E+03	0.000E-01	0.000E-01	5.112E+04	1.272E+04	1.984E+06	6.480E+04	0.000E-01	LUNG
8	MN-56	3.530E-01	0.000E-01	0.000E-01	1.494E+00	1.792E+00	1.526E+04	5.744E+04	0.000E-01	GI-LLI
9	FE-55	5.544E+03	0.000E-01	3.344E+04	2.384E+04	0.000E-01	1.240E+05	6.392E+03	0.000E-01	LUNG
10	FE-59	1.412E+04	0.000E-01	1.592E+04	3.496E+04	0.000E-01	1.520E+06	1.701E+05	0.000E-01	LUNG
11	CO-58	2.772E+04	0.000E-01	0.000E-01	2.072E+03	0.000E-01	1.344E+05	9.520E+04	0.000E-01	LUNG
12	CO-60	1.904E+05	0.000E-01	0.000E-01	1.512E+04	0.000E-01	8.720E+05	2.592E+05	0.000E-01	LUNG
13	NI-59	5.412E+03	0.000E-01	3.248E+04	1.148E+04	0.000E-01	6.560E+04	4.880E+03	0.000E-01	LUNG
14	NI-63	1.972E+04	0.000E-01	5.800E+05	4.344E+04	0.000E-01	3.072E+05	1.412E+04	0.000E-01	BONE
15	NI-65	1.372E-01	0.000E-01	2.184E+00	2.920E-01	0.000E-01	9.360E+03	3.472E+04	0.000E-01	GI-LLI
16	CU-64	8.480E-01	0.000E-01	0.000E-01	2.032E+00	4.488E+00	1.112E+04	5.144E+04	0.000E-01	GI-LLI
17	ZN-65	6.240E+04	0.000E-01	3.856E+04	1.336E+05	8.640E+04	1.240E+06	4.744E+04	0.000E-01	LUNG
18	ZN-69	4.456E-01	0.000E-01	4.812E-01	9.200E-02	6.024E-02	1.584E+03	2.840E+02	0.000E-01	LUNG
19	BR-83	3.440E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR-84	4.320E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR-85	1.832E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	8.400E+04	0.000E-01	0.000E-01	1.904E+05	0.000E-01	0.000E-01	1.748E+04	0.000E-01	LIVER
23	RB-88	2.730E+02	0.000E-01	0.000E-01	5.452E+02	0.000E-01	0.000E-01	2.920E-05	0.000E-01	LIVER
24	RB-89	2.352E+02	0.000E-01	0.000E-01	3.528E+02	0.000E-01	0.000E-01	3.472E-07	0.000E-01	LIVER
25	SR-89	1.248E+04	0.000E-01	4.344E+05	0.000E-01	0.000E-01	2.412E+04	3.712E+05	0.000E-01	LUNG
26	SR-90	4.280E+05	0.000E-01	1.080E+08	0.000E-01	0.000E-01	1.448E+07	7.648E+05	0.000E-01	BONE
27	SR-91	3.512E+00	0.000E-01	8.800E+01	0.000E-01	0.000E-01	6.072E+04	3.592E+05	0.000E-01	GI-LLI
28	SR-92	4.054E-01	0.000E-01	9.520E+00	0.000E-01	0.000E-01	2.744E+04	1.192E+05	0.000E-01	GI-LLI
29	Y-90	8.000E+01	0.000E-01	2.984E+03	0.000E-01	0.000E-01	2.920E+05	5.592E+05	0.000E-01	GI-LLI
30	Y-91M	1.412E-02	0.000E-01	3.704E-01	0.000E-01	0.000E-01	3.200E+03	3.012E+01	0.000E-01	LUNG
31	Y-91	1.720E+04	0.000E-01	4.508E+05	0.000E-01	0.000E-01	2.936E+06	4.000E+05	0.000E-01	LUNG
32	Y-92	4.280E-01	0.000E-01	1.472E+01	0.000E-01	0.000E-01	2.580E+04	1.648E+05	0.000E-01	GI-LLI
33	Y-93	3.720E+00	0.000E-01	1.352E+02	0.000E-01	0.000E-01	8.320E+04	5.792E+05	0.000E-01	GI-LLI
34	ZR-95	3.152E+04	0.000E-01	1.452E+05	4.504E+04	2.744E+04	2.480E+06	1.480E+05	0.000E-01	LUNG
35	ZR-97	1.256E+01	0.000E-01	1.372E+02	2.736E+01	4.120E+01	1.296E+05	6.304E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	NB-95	5.644E+03	0.000E-01	1.855E+04	1.032E+04	1.008E+04	7.512E+05	9.480E+04	5.444E+03	LUNG
37	NB-97	2.944E-02	0.000E-01	2.224E-01	5.524E-02	6.544E-02	2.400E+03	2.412E+02	0.000E-01	LUNG
38	MO-99	3.224E+01	0.000E-01	0.000E-01	1.688E+02	4.112E+02	1.536E+05	2.488E+05	0.000E-01	GI-LLI
39	TC-99M	4.992E-02	0.000E-01	1.384E-03	3.854E-03	5.740E-02	1.152E+03	4.120E+03	0.000E-01	GI-LLI
40	TC-101	8.240E-04	0.000E-01	5.920E-05	8.400E-05	1.520E-03	4.472E+02	8.720E-07	0.000E-01	LUNG
41	RU-103	8.950E+02	0.000E-01	2.104E+03	0.000E-01	7.432E+03	7.832E+05	1.080E+05	0.000E-01	LUNG
42	RU-105	4.352E-01	0.000E-01	1.120E+00	0.000E-01	1.408E+00	1.814E+04	9.040E+01	0.000E-01	GI-LLI
43	RU-106	1.240E+04	0.000E-01	9.840E+04	0.000E-01	1.904E+05	1.408E+07	9.400E+05	0.000E-01	LUNG
44	AG-110M	7.992E+03	6.000E-01	1.384E+04	1.312E+04	2.504E+04	4.752E+05	3.720E+05	0.000E-01	LUNG
45	CD-115M	6.360E+03	0.000E-01	0.000E-01	1.958E+05	1.584E+05	1.408E+06	3.840E+05	0.000E-01	LUNG
46	SB-124	1.240E+04	7.552E+01	3.120E+04	5.808E+02	0.000E-01	2.480E+02	4.024E+05	0.000E-01	LUNG
47	TE-125M	6.472E+02	1.400E+03	4.808E+03	2.240E+03	0.000E-01	5.360E+05	7.504E+01	0.000E-01	LUNG
48	TE-127M	2.184E+03	4.384E+03	1.800E+04	8.160E+03	6.536E+04	1.656E+06	1.592E+05	0.000E-01	LUNG
49	TE-127	4.416E-01	1.416E+00	2.008E+00	9.120E-01	7.280E+00	1.120E+04	8.080E+04	0.000E-01	GI-LLI
50	TE-129M	2.240E+03	4.576E+03	1.392E+04	4.584E+03	5.192E+04	1.976E+06	4.048E+05	0.000E-01	LUNG
51	TE-129	1.760E-02	5.184E-02	7.096E-02	3.376E-02	2.656E-01	3.296E+03	1.416E+03	0.000E-01	LUNG
52	TE-131M	4.024E+01	7.248E+01	9.840E+01	4.008E+01	4.392E+02	3.376E+05	4.208E+05	0.000E-01	GI-LLI
53	TE-131	5.040E-03	1.240E-02	1.576E-02	8.320E-03	4.176E-02	2.336E+03	1.512E+01	0.000E-01	LUNG
54	TE-132	2.192E+02	2.456E+02	3.600E+02	2.904E+02	1.952E+03	4.488E+05	4.232E+05	0.000E-01	GI-LLI
55	I-130	7.168E+03	1.488E+05	6.240E+03	1.792E+04	2.752E+04	0.000E-01	9.120E+03	0.000E-01	THYROID
56	I-131	2.440E+04	1.456E+07	3.544E+04	4.912E+04	8.400E+04	0.000E-01	6.488E+04	0.000E-01	THYROID
57	I-132	1.576E+03	1.512E+05	1.592E+03	4.376E+03	6.720E+03	0.000E-01	1.272E+04	0.000E-01	THYROID
58	I-133	5.224E+03	2.920E+05	1.216E+04	2.040E+04	3.592E+04	0.000E-01	1.032E+04	0.000E-01	THYROID
59	I-134	8.400E+02	3.952E+04	8.880E+02	2.320E+03	3.544E+03	0.000E-01	2.040E+01	0.000E-01	THYROID
60	I-135	3.408E+03	6.200E+05	3.696E+03	9.440E+03	1.408E+04	0.000E-01	6.952E+03	0.000E-01	THYROID
61	CS-134	5.408E+05	0.000E-01	5.024E+05	1.128E+06	3.752E+05	1.464E+05	9.760E+03	0.000E-01	LIVER
62	CS-135	1.360E+05	0.000E-01	5.152E+04	1.936E+05	1.104E+05	1.776E+04	1.088E+04	0.000E-01	LIVER
63	CS-137	3.112E+05	0.000E-01	4.704E+05	8.480E+05	3.040E+05	1.200E+05	8.480E+03	0.000E-01	LIVER
64	CS-138	4.456E+02	0.000E-01	4.656E+02	8.520E+02	4.624E+02	7.872E+01	2.704E+01	0.000E-01	LIVER
65	CS-139	1.112E+02	0.000E-01	2.048E+02	2.904E+02	2.440E+03	2.272E+01	0.000E-01	0.000E-01	LIVER
66	BA-139	3.896E-02	0.000E-01	1.336E+00	9.440E-04	8.880E-04	6.464E+03	6.440E+03	0.000E-01	LUNG
67	BA-140	3.528E+03	0.000E-01	5.472E+04	6.704E+01	2.280E+01	2.032E+04	2.280E+05	0.000E-01	LUNG
68	BA-141	4.744E-03	0.000E-01	1.424E-01	1.056E-04	9.840E-05	3.280E+03	7.464E-04	0.000E-01	LUNG
69	BA-142	2.272E-03	0.000E-01	3.696E-02	3.704E-05	3.136E-05	1.912E+03	4.792E-10	0.000E-01	LUNG
70	LA-140	6.352E+01	0.000E-01	4.792E+02	2.360E+02	0.000E-01	2.144E+05	4.872E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	YB-142	1.052E-01	0.000E-01	9.600E-01	4.248E-01	0.000E-01	1.634E+04	1.200E+04	1.054E-01	GI-LLI
72	CE-141	3.120E+03	0.000E-01	2.840E+04	1.896E+04	8.800E+03	4.136E+05	1.244E+05	0.000E-01	LUNG
73	CE-143	3.140E+01	0.000E-01	2.456E+02	1.934E+02	8.440E+01	1.304E+05	3.552E+05	0.000E-01	GI-LLI
74	CE-144	2.624E+05	0.000E-01	4.888E+06	2.024E+06	1.200E+06	1.336E+07	8.440E+05	0.000E-01	LUNG
75	PR-143	4.524E+03	0.000E-01	1.336E+04	5.312E+03	3.088E+03	4.832E+05	2.136E+05	0.000E-01	LUNG
76	PR-144	3.176E-03	0.000E-01	4.296E-03	1.760E-02	1.000E-03	1.752E+03	2.352E-04	0.000E-01	LUNG
77	ND-147	5.128E+03	0.000E-01	7.856E+03	8.560E+03	5.024E+03	3.720E+05	1.824E+05	0.000E-01	LUNG
78	W-187	5.448E+01	0.000E-01	1.560E+03	5.176E+02	0.000E-01	4.456E+05	8.560E+04	0.000E-01	LUNG
79	W-187	3.432E+00	0.000E-01	1.200E+01	9.760E+00	0.000E-01	4.736E+04	1.768E+05	0.000E-01	GI-LLI
80	U-235	4.856E+04	0.000E-01	8.000E+07	0.000E-01	1.872E+07	3.920E+08	3.872E+05	0.000E-01	LUNG
81	U-238	4.552E+04	0.000E-01	7.664E+07	0.000E-01	1.744E+07	3.664E+08	8.240E+05	0.000E-01	LUNG
82	NP-239	1.768E+01	0.000E-01	3.384E+02	3.192E+01	1.800E+03	4.488E+04	1.320E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	1.125E+03	1.125E+03	0.000E-01	1.125E+03	1.125E+03	1.125E+03	1.125E+03	1.125E+03	W. BODY
2	C-14	6.734E+03	6.734E+03	3.589E+04	6.734E+03	6.734E+03	6.734E+03	6.734E+03	6.734E+03	BONE
3	NA-24	1.610E+04	1.610E+04	1.610E+04	1.610E+04	1.610E+04	1.610E+04	1.610E+04	0.000E-01	W. BODY
4	P-32	9.879E+04	0.000E-01	2.605E+06	1.143E+05	0.000E-01	0.000E-01	4.210E+04	0.000E-01	BONE
5	SC-46	1.151E+05	0.000E-01	2.039E+05	3.959E+05	1.700E+05	0.000E-01	1.195E+05	0.000E-01	LIVER
6	CR-51	1.543E+03	8.547E+01	0.000E-01	0.000E-01	2.431E+01	1.670E+04	1.084E+03	0.000E-01	LUNG
7	MN-54	9.509E+03	0.000E-01	0.000E-01	4.292E+04	1.003E+04	1.574E+05	2.270E+01	0.000E-01	LUNG
8	MN-56	3.119E-01	0.000E-01	0.000E-01	1.550E+00	1.472E+00	1.314E+04	1.213E+05	0.000E-01	GI-LLI
9	FE-55	7.770E+03	0.000E-01	4.735E+04	2.514E+04	0.000E-01	1.110E+05	2.840E+03	0.000E-01	LUNG
10	FE-59	1.449E+04	0.000E-01	3.038E+04	3.345E+04	0.000E-01	1.249E+05	7.047E+01	0.000E-01	LUNG
11	CO-58	3.143E+03	0.000E-01	0.000E-01	1.772E+03	0.000E-01	1.105E+05	3.447E+01	0.000E-01	LUNG
12	CO-60	2.234E+04	0.000E-01	0.000E-01	1.314E+04	0.000E-01	7.057E+04	9.420E+04	0.000E-01	LUNG
13	NI-59	2.503E+03	0.000E-01	1.502E+04	5.402E+03	0.000E-01	3.038E+04	2.741E+03	0.000E-01	LUNG
14	NI-63	2.797E+04	0.000E-01	8.214E+05	4.635E+04	0.000E-01	3.749E+05	4.327E+03	0.000E-01	BONE
15	NI-65	1.443E-01	0.000E-01	2.990E+00	2.954E-01	0.000E-01	8.177E+03	8.399E+04	0.000E-01	GI-LLI
16	CU-64	1.078E+00	0.000E-01	0.000E-01	1.991E+00	4.031E+00	9.583E+03	3.670E+04	0.000E-01	GI-LLI
17	ZN-65	7.030E+04	0.000E-01	4.255E+04	1.132E+05	7.141E+04	9.953E+05	1.243E+04	0.000E-01	LUNG
18	ZN-69	8.917E-03	0.000E-01	6.697E-02	9.657E-02	5.845E-02	1.421E+03	1.010E+04	0.000E-01	GI-LLI
19	BR-83	4.736E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR-84	5.475E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR-85	3.531E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	1.143E+05	0.000E-01	0.000E-01	1.983E+05	0.000E-01	0.000E-01	7.992E+03	0.000E-01	LIVER
23	RB-88	3.423E+02	0.000E-01	0.000E-01	5.423E+02	0.000E-01	0.000E-01	1.721E+01	0.000E-01	LIVER
24	RB-89	2.897E+02	0.000E-01	0.000E-01	3.452E+02	0.000E-01	0.000E-01	1.891E+00	0.000E-01	LIVER
25	SR-89	1.721E+01	0.000E-01	5.994E+05	0.000E-01	0.000E-01	2.157E+05	1.573E+05	0.000E-01	LUNG
26	SR-90	6.438E+05	0.000E-01	1.010E+08	0.000E-01	0.000E-01	1.474E+07	3.434E+05	0.000E-01	BONE
27	SR-91	4.508E+00	0.000E-01	1.214E+02	0.000E-01	0.000E-01	5.328E+04	1.747E+05	0.000E-01	GI-LLI
28	SR-92	5.251E-01	0.000E-01	1.313E+01	0.000E-01	0.000E-01	2.401E+04	2.424E+05	0.000E-01	GI-LLI
29	Y-90	1.105E+02	0.000E-01	4.167E+03	0.000E-01	0.000E-01	3.414E+05	2.479E+05	0.000E-01	GI-LLI
30	Y-91M	1.843E-02	0.000E-01	5.059E-01	0.000E-01	0.000E-01	2.812E+03	1.717E+04	0.000E-01	LUNG
31	Y-91	2.453E+04	0.000E-01	9.139E+05	0.000E-01	0.000E-01	3.437E+05	1.849E+05	0.000E-01	LUNG
32	Y-92	5.039E-01	0.000E-01	2.035E+01	0.000E-01	0.000E-01	2.390E+04	2.390E+05	0.000E-01	GI-LLI
33	Y-93	5.105E+00	0.000E-01	1.845E+02	0.000E-01	0.000E-01	7.437E+04	3.885E+05	0.000E-01	GI-LLI
34	ZR-95	3.700E+04	0.000E-01	1.891E+05	4.181E+04	5.957E+04	2.231E+05	4.105E+04	0.000E-01	LUNG
35	ZR-97	1.598E+01	0.000E-01	1.875E+02	2.715E+01	3.885E+01	1.132E+05	3.511E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB-95	6.549E+03	0.000E-01	2.350E+04	9.176E+03	8.621E+03	6.142E+05	3.700E+04	6.549E+03	LUNG
37	NB-97	9.472E-03	0.000E-01	1.029E-01	2.601E-02	3.027E-02	1.110E+03	1.117E+02	0.000E-01	LUNG
38	MO-99	4.255E+01	0.000E-01	0.000E-01	1.724E+02	3.922E+02	1.354E+05	1.265E+05	0.000E-01	LUNG
39	TC-99M	5.772E-02	0.000E-01	1.780E-03	3.402E-03	5.069E-02	9.509E+02	4.810E+03	0.000E-01	GI-LLI
40	TC-101	1.077E-03	0.000E-01	8.103E-05	8.510E-05	1.450E-03	5.845E+02	1.432E+01	0.000E-01	LUNG
41	RU-103	1.073E+03	0.000E-01	2.858E+03	0.000E-01	7.030E+03	4.623E+05	4.477E+04	0.000E-01	LUNG
42	RU-105	5.550E-01	0.000E-01	1.520E+00	0.000E-01	1.343E+00	1.591E+04	9.953E+01	0.000E-01	GI-LLI
43	RU-106	1.491E+04	0.000E-01	1.362E+05	0.000E-01	1.039E+05	1.432E+07	4.292E+05	0.000E-01	LUNG
44	AG-110M	9.139E+03	0.000E-01	1.687E+04	1.140E+04	2.124E+04	5.474E+05	1.003E+05	0.000E-01	LUNG
45	CD-115M	2.942E+03	0.000E-01	0.000E-01	9.102E+04	7.326E+04	4.512E+05	1.772E+05	0.000E-01	LUNG
46	SB-124	5.735E+03	3.493E+01	1.443E+04	2.723E+03	0.000E-01	1.147E+06	1.080E+05	0.000E-01	LUNG
47	TE-125M	9.139E+02	1.921E+03	6.734E+03	2.327E+03	0.000E-01	4.773E+05	3.376E+04	0.000E-01	LUNG
48	TE-127M	3.037E+03	6.048E+03	3.485E+04	8.547E+03	6.354E+04	1.480E+06	7.141E+04	0.000E-01	LUNG
49	TE-127	6.105E-01	1.951E+00	2.771E+00	9.509E-01	7.057E+00	1.003E+04	5.624E+01	0.000E-01	GI-LLI
50	TE-129M	3.041E+03	6.327E+03	1.930E+04	6.845E+03	5.043E+04	1.751E+06	1.817E+05	0.000E-01	LUNG
51	TE-129	2.301E-02	7.141E-02	9.758E-02	3.497E-02	2.548E-01	2.934E+03	2.541E+04	0.000E-01	GI-LLI
52	TE-131M	5.059E+01	9.728E+01	1.344E+03	5.930E+01	3.995E+02	2.057E+05	3.078E+05	0.000E-01	GI-LLI
53	TE-131	6.585E-03	1.498E-02	2.172E-02	8.435E-03	5.883E-02	2.054E+03	1.342E+03	0.000E-01	LUNG
54	TE-132	3.444E+02	3.175E+02	4.810E+02	2.723E+02	1.772E+03	3.774E+05	1.376E+05	0.000E-01	LUNG
55	I-130	8.435E+03	1.843E+05	8.177E+03	1.639E+04	2.446E+04	0.000E-01	5.102E+01	0.000E-01	THYROID
56	I-131	2.737E+04	1.231E+07	4.810E+04	4.810E+04	7.081E+04	0.000E-01	2.842E+03	0.000E-01	THYROID
57	I-132	1.872E+03	1.915E+05	2.115E+03	4.070E+03	6.253E+03	0.000E-01	3.201E+01	0.000E-01	THYROID
58	I-133	7.491E+03	3.810E+05	1.650E+04	2.031E+04	3.370E+04	0.000E-01	5.472E+02	0.000E-01	THYROID
59	I-134	9.953E+02	5.069E+04	1.173E+03	2.161E+03	3.300E+03	0.000E-01	9.542E+02	0.000E-01	THYROID
60	I-135	4.144E+03	7.918E+05	4.921E+03	8.732E+03	1.339E+04	0.000E-01	4.440E+03	0.000E-01	THYROID
61	CS-134	3.245E+05	0.000E-01	6.512E+05	1.014E+05	3.304E+05	1.210E+05	3.848E+03	0.000E-01	LIVER
62	CS-136	1.152E+05	0.000E-01	6.512E+04	1.709E+05	9.544E+04	1.454E+04	4.181E+03	0.000E-01	LIVER
63	CS-137	1.284E+05	0.000E-01	9.065E+05	8.251E+05	2.823E+05	1.040E+05	3.619E+03	0.000E-01	BONE
64	CS-138	5.550E+03	0.000E-01	4.327E+03	8.399E+02	6.215E+02	5.808E+01	2.697E+02	0.000E-01	LIVER
65	CS-139	5.143E+01	0.000E-01	9.473E+01	1.343E+02	1.129E+02	1.051E+01	0.000E-01	0.000E-01	LIVER
66	BA-137	5.325E-03	0.000E-01	1.843E+00	9.812E-04	8.521E-04	5.772E+03	5.772E+04	0.000E-01	GI-LLI
67	BA-140	4.339E+03	0.000E-01	7.400E+04	6.475E+01	2.113E+01	1.743E+06	1.018E+05	0.000E-01	LUNG
68	BA-141	6.354E-01	0.000E-01	1.957E-01	1.092E-04	9.472E-05	3.919E+03	3.753E+02	0.000E-01	LUNG
69	BA-142	3.790E-01	0.000E-01	4.995E-02	3.600E-05	2.912E-05	1.644E+03	2.742E+00	0.000E-01	LUNG
70	LA-140	7.540E+01	0.000E-01	6.438E+02	2.250E+02	0.000E-01	1.838E+05	2.257E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE: CHILD
PATHWAY: INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	1.291E-01	0.000E-01	1.295E100	4.107E-01	0.000E-01	8.495E103	7.585E104	1.291E-01	GI-LLI
72	CE-141	3.097E103	0.000E-01	3.923E104	1.954E104	8.547E103	5.439E105	5.421E104	0.000E-01	LUNG
73	CE-143	3.875E101	0.000E-01	3.459E103	1.987E102	8.353E101	1.154E105	1.273E105	0.000E-01	GI-LLI
74	CE-144	3.415E105	0.000E-01	6.771E106	2.114E105	1.173E106	1.195E107	3.085E105	0.000E-01	LUNG
75	PR-143	9.139E102	0.000E-01	1.845E104	5.550E103	3.001E103	4.329E105	9.731E104	0.000E-01	LUNG
76	PR-144	2.997E-03	0.000E-01	5.957E-03	1.846E-03	9.748E-03	1.545E103	1.926E102	0.000E-01	LUNG
77	ND-147	5.808E102	0.000E-01	1.080E104	8.733E103	4.810E103	3.282E105	8.214E104	0.000E-01	LUNG
78	W-185	3.5[illegible]0E101	0.000E-01	7.215E102	2.491E103	0.000E-01	2.041E105	3.955E104	0.000E-01	LUNG
79	W-187	4.432E100	0.000E-01	1.532E101	9.557E100	0.000E-01	4.107E104	9.102E104	0.000E-01	GI-LLI
80	U-235	3.215E105	0.000E-01	3.700E107	0.000E-01	8.650E105	1.813E108	1.771E105	0.000E-01	LUNG
81	U-238	3.098E105	0.000E-01	3.545E107	0.000E-01	8.044E106	1.495E108	3.011E105	0.000E-01	LUNG
82	NP-239	2.350E101	0.000E-01	4.453E102	3.345E101	9.731E101	5.809E104	4.401E104	0.000E-01	GI-LLI

TABLE 5 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	4.448E+02	4.448E+02	0.000E-01	4.448E+02	4.448E+02	4.448E+02	4.448E+02	4.448E+02	W. BODY
2	C-14	5.302E+03	5.302E+03	2.645E+04	5.302E+03	5.302E+03	5.302E+03	5.302E+03	5.302E+03	BONE
3	NA-24	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	0.000E-01	W. BODY
4	P-32	7.742E+04	0.000E-01	2.030E+04	1.124E+05	0.000E-01	0.000E-01	1.610E+04	0.000E-01	BONE
5	SC-46	4.354E+04	0.000E-01	7.714E+04	1.498E+05	1.400E+05	0.000E-01	4.522E+04	0.000E-01	LIVER
6	CR-51	8.945E+01	5.754E+01	0.000E-01	0.000E-01	1.323E+01	1.284E+04	3.570E+02	0.000E-01	LUNG
7	MN-54	4.984E+03	0.000E-01	0.000E-01	1.452E+04	4.984E+03	9.996E+05	7.054E+03	0.000E-01	LUNG
8	MN-56	2.212E-01	0.000E-01	0.000E-01	1.510E+00	1.100E+00	1.253E+04	7.140E+04	0.000E-01	GI-LLI
9	FE-55	3.332E+03	0.000E-01	1.974E+04	1.175E+04	0.000E-01	8.694E+04	1.095E+04	0.000E-01	LUNG
10	FE-59	9.470E+03	0.000E-01	1.357E+04	2.352E+04	0.000E-01	1.015E+04	2.470E+04	0.000E-01	LUNG
11	CO-58	1.830E+03	0.000E-01	0.000E-01	1.219E+01	0.000E-01	7.770E+05	1.113E+01	0.000E-01	LUNG
12	CO-60	1.177E+04	0.000E-01	0.000E-01	8.022E+03	0.000E-01	4.508E+05	3.192E+04	0.000E-01	LUNG
13	NI-59	9.470E+02	0.000E-01	5.484E+03	2.044E+03	0.000E-01	1.149E+04	8.554E+02	0.000E-01	LUNG
14	NI-63	1.141E+04	0.000E-01	3.383E+05	2.044E+04	0.000E-01	2.084E+05	2.4[illegible]E+03	0.000E-01	BONE
15	NI-65	1.231E-01	0.000E-01	2.394E+00	3.843E-01	0.000E-01	8.120E+03	5.01[illegible]E+01	0.000E-01	GI-LLI
16	CU-64	7.742E-01	0.000E-01	0.000E-01	1.875E+00	3.975E+00	9.295E+03	1.498E+04	0.000E-01	GI-LLI
17	ZN-65	3.108E+04	0.000E-01	1.932E+04	4.258E+04	3.248E+04	4.448E+05	5.138E+04	0.000E-01	LUNG
18	ZN-69	7.182E-03	0.000E-01	5.390E-02	9.674E-02	4.018E-02	1.470E+03	1.3[illegible]E+04	0.000E-01	GI-LLI
19	BR-83	3.808E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR-84	4.004E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR-85	2.044E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	8.830E+04	0.000E-01	0.000E-01	1.904E+05	0.000E-01	0.000E-01	3.038E+03	0.000E-01	LIVER
23	RB-88	2.870E+02	0.000E-01	0.000E-01	5.572E+02	0.000E-01	0.000E-01	1.588E+03	0.000E-01	LIVER
24	RB-89	2.058E+02	0.000E-01	0.000E-01	1.205E+02	0.000E-01	0.000E-01	4.810E+01	0.000E-01	LIVER
25	SR-89	1.141E+04	0.000E-01	3.975E+05	0.000E-01	0.000E-01	2.030E+04	4.378E+04	0.000E-01	LUNG
26	SR-90	2.529E+05	0.000E-01	4.085E+07	0.000E-01	0.000E-01	1.124E+07	1.310E+05	0.000E-01	BONE
27	SR-91	3.458E+00	0.000E-01	9.552E+01	0.000E-01	0.000E-01	5.224E+04	7.334E+01	0.000E-01	GI-LLI
28	SR-92	3.705E-01	0.000E-01	1.050E+01	0.000E-01	0.000E-01	2.380E+04	1.400E+05	0.000E-01	GI-LLI
29	Y-90	8.820E+01	0.000E-01	3.290E+03	0.000E-01	0.000E-01	2.488E+05	1.010E+05	0.000E-01	LUNG
30	Y-91M	1.382E-02	0.000E-01	4.074E-01	0.000E-01	0.000E-01	2.702E+03	2.352E+03	0.000E-01	LUNG
31	Y-91	1.558E+04	0.000E-01	5.880E+05	0.000E-01	0.000E-01	2.450E+05	7.038E+04	0.000E-01	LUNG
32	Y-92	4.202E-01	0.000E-01	1.538E+01	0.000E-01	0.000E-01	2.450E+04	1.254E+05	0.000E-01	GI-LLI
33	Y-93	4.071E+00	0.000E-01	1.478E+02	0.000E-01	0.000E-01	7.644E+04	1.522E+05	0.000E-01	GI-LLI
34	ZR-95	2.010E+04	0.000E-01	1.151E+05	2.782E+04	3.108E+04	1.750E+05	2.170E+04	0.000E-01	LUNG
35	ZR-97	1.170E+01	0.000E-01	1.490E+02	2.552E+01	2.590E+01	1.103E+05	1.400E+05	0.000E-01	GI-LLI

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	NB-95	3.780E+03	0.000E-01	1.550E+04	6.425E+03	4.710E+03	4.780E+05	1.257E+04	3.780E+03	LUNG
37	NB-97	3.504E-03	0.000E-01	3.892E-03	9.842E-03	1.145E-02	4.200E+02	4.220E+01	0.000E-01	LUNG
38	MO-99	3.234E+01	0.000E-01	0.000E-01	1.652E+02	3.446E+02	1.340E+05	4.872E+04	0.000E-01	LUNG
39	TC-99M	3.724E-02	0.000E-01	1.397E-03	2.684E-03	3.100E-02	8.105E+02	2.030E+03	0.000E-01	GI-LLI
40	TC-101	8.120E-04	0.000E-01	4.510E-05	8.232E-05	9.784E-04	5.038E+02	8.442E+02	0.000E-01	GI-LLI
41	RU-103	4.790E+03	0.000E-01	2.016E+03	0.000E-01	4.242E+03	5.516E+05	1.510E+04	0.000E-01	LUNG
42	RU-105	4.102E-01	0.000E-01	1.224E+00	0.000E-01	8.908E-01	1.550E+04	4.844E+04	0.000E-01	GI-LLI
43	RU-106	1.080E+04	0.000E-01	8.480E+04	0.000E-01	1.045E+05	1.154E+07	1.540E+05	0.000E-01	LUNG
44	AG-110M	4.990E+03	0.000E-01	9.982E+03	7.224E+03	1.092E+04	3.448E+05	3.304E+04	0.000E-01	LUNG
45	CD-115M	1.113E+03	0.000E-01	0.000E-01	3.444E+04	2.772E+04	2.464E+05	6.720E+04	0.000E-01	LUNG
46	SB-124	3.170E+01	1.332E+01	5.450E+01	1.036E+02	0.000E-01	4.340E+05	7.113E+04	0.000E-01	LUNG
47	TE-125M	5.566E+02	1.624E+03	4.750E+03	1.980E+03	0.000E-01	4.462E+05	1.291E+04	0.000E-01	LUNG
48	TE-127M	2.072E+03	4.872E+03	1.662E+04	6.902E+03	3.752E+04	1.312E+06	3.730E+04	0.000E-01	LUNG
49	TE-127	4.885E-01	1.848E+00	2.225E+00	9.534E-01	4.850E+00	1.035E+04	2.432E+04	0.000E-01	GI-LLI
50	TE-129M	2.225E+03	5.474E+03	1.414E+04	6.090E+03	3.176E+04	1.486E+06	4.902E+04	0.000E-01	LUNG
51	TE-129	1.875E-02	4.740E-02	7.882E-02	3.472E-02	1.756E-01	2.996E+03	2.532E+01	0.000E-01	GI-LLI
52	TE-131M	3.522E+01	8.932E+01	1.067E+02	5.502E+01	2.512E+02	1.900E+05	1.171E+05	0.000E-01	LUNG
53	TE-131	4.990E-03	1.582E-02	1.734E-02	8.218E-03	3.990E-02	2.050E+01	8.218E+03	0.000E-01	GI-LLI
54	TE-132	1.754E+03	2.785E+03	3.724E+03	2.364E+03	1.035E+04	3.403E+05	4.410E+04	0.000E-01	LUNG
55	I-130	5.573E+04	1.594E+06	6.356E+04	1.387E+04	1.525E+04	0.000E-01	1.960E+03	0.000E-01	THYROID
56	I-131	1.956E+04	1.404E+07	3.794E+04	4.430E+04	5.180E+04	0.000E-01	1.050E+03	0.000E-01	THYROID
57	I-132	1.259E+04	1.494E+05	1.494E+04	3.543E+04	3.948E+04	0.000E-01	1.904E+03	0.000E-01	THYROID
58	I-133	5.200E+04	3.555E+05	1.324E+04	1.918E+04	2.240E+04	0.000E-01	2.152E+03	0.000E-01	THYROID
59	I-134	6.350E+02	4.452E+04	9.213E+02	1.072E+03	2.602E+03	0.000E-01	1.289E+03	0.000E-01	THYROID
60	I-135	3.773E+03	6.950E+05	3.864E+03	7.203E+03	8.470E+03	0.000E-01	1.834E+03	0.000E-01	THYROID
61	CS-134	7.448E+04	0.000E-01	3.953E+05	7.038E+05	1.904E+05	7.945E+04	1.334E+03	0.000E-01	LIVER
62	CS-136	5.393E+04	0.000E-01	4.030E+04	1.345E+05	5.542E+04	1.174E+04	1.420E+03	0.000E-01	LIVER
63	CS-137	4.556E+04	0.000E-01	5.480E+05	6.110E+05	1.722E+05	7.125E+04	1.334E+03	0.000E-01	LIVER
64	CS-138	3.977E+02	0.000E-01	5.054E+02	7.812E+02	4.102E+02	6.538E+01	8.754E+02	0.000E-01	GI-LLI
65	CS-139	1.945E+01	0.000E-01	3.584E+01	5.082E+01	4.270E+01	3.975E+00	0.000E-01	0.000E-01	LIVER
66	BA-139	4.298E-02	0.000E-01	1.484E+00	9.842E-04	5.922E-04	5.956E+03	5.095E+04	0.000E-01	GI-LLI
67	BA-140	2.879E+03	0.000E-01	5.200E+04	5.200E+01	1.343E+01	1.595E+05	3.835E+04	0.000E-01	LUNG
68	BA-141	4.970E-01	0.000E-01	1.550E-01	1.078E-04	6.492E-05	2.958E+03	4.716E+04	0.000E-01	GI-LLI
69	BA-142	1.920E-03	0.000E-01	3.975E-02	3.304E-05	1.904E-05	1.554E+03	6.930E+02	0.000E-01	LUNG
70	LA-140	5.153E+01	0.000E-01	5.054E+02	2.002E+02	0.000E-01	1.480E+05	8.484E+04	0.000E-01	LUNG

TABLE 5 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 20
(For Section 2.2.1.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	9.044E-02	0.000E-01	1.030E100	3.766E-01	0.000E-01	8.218E103	5.950E104	9.044E-02	GI-LLI
72	CE-141	1.980E103	0.000E-01	2.772E104	1.666E104	5.250E103	5.165E105	2.156E104	0.000E-01	LUNG
73	CE-143	2.212E101	0.000E-01	2.924E102	1.933E102	5.442E101	1.162E105	4.970E104	0.000E-01	LUNG
74	CE-144	1.724E105	0.000E-01	3.192E106	1.211E106	5.374E105	9.842E105	1.481E105	0.000E-01	LUNG
75	PR-143	4.985E102	0.000E-01	1.400E104	5.235E103	1.974E103	4.324E105	3.724E104	0.000E-01	LUNG
76	PR-144	2.40dE-03	0.000E-01	4.700E-02	1.840E-02	6.720E-03	1.610E103	4.284E101	0.000E-01	GI-LLI
77	ND-147	4.990E102	0.000E-01	7.930E103	8.134E103	3.150E103	3.320E105	3.122E104	0.000E-01	LUNG
78	W-185	9.534E100	0.000E-01	2.730E102	9.050E101	0.000E-01	7.790E104	1.470E104	0.000E-01	LUNG
79	W-187	3.122E103	0.000E-01	1.292E101	9.014E100	0.000E-01	3.963E104	3.562E104	0.000E-01	LUNG
80	U-235	8.490E105	0.000E-01	1.400E107	0.000E-01	3.272E105	6.850E107	6.772E104	0.000E-01	LUNG
81	U-238	7.930E105	0.000E-01	1.341E107	0.000E-01	3.052E105	6.412E107	1.412E105	0.000E-01	LUNG
82	NP-239	1.875E101	0.000E-01	3.710E102	3.318E101	6.622E101	5.950E104	2.492E104	0.000E-01	LUNG

TABLE 6

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	7.629E+02	7.629E+02	0.000E-01	7.629E+02	7.629E+02	7.629E+02	7.629E+02	7.629E+02	W. BODY
2	C-14	7.263E+04	7.263E+04	3.632E+05	7.263E+04	7.263E+04	7.263E+04	7.263E+04	7.263E+04	BONE
3	NA-24	2.459E+06	2.459E+06	2.459E+06	2.459E+06	2.459E+06	2.459E+06	2.459E+06	0.000E-01	W. BODY
4	P-32	6.810E+08	0.000E-01	1.710E+10	1.063E+09	0.000E-01	0.000E-01	1.923E+09	0.000E-01	BONE
5	SC-46	1.013E+02	0.000E-01	1.794E+02	3.517E+02	3.255E+02	0.000E-01	1.597E+05	0.000E-01	GI-LLI
6	CR-51	2.850E+04	1.709E+04	0.000E-01	0.000E-01	6.300E+03	3.795E+04	7.194E+06	0.000E-01	GI-LLI
7	MN-54	1.203E+06	0.000E-01	0.000E-01	8.414E+06	2.504E+06	0.000E-01	2.577E+07	0.000E-01	GI-LLI
8	MN-56	7.324E-04	0.000E-01	0.000E-01	4.129E-03	5.242E-03	0.000E-01	1.311E-01	0.000E-01	GI-LLI
9	FE-55	4.045E+05	0.000E-01	2.511E+07	1.735E+07	0.000E-01	9.480E+06	9.951E+06	0.000E-01	BONE
10	FE-59	2.675E+07	0.000E-01	2.959E+07	6.978E+07	0.000E-01	1.950E+07	2.324E+08	0.000E-01	GI-LLI
11	CO-58	1.059E+07	0.000E-01	0.000E-01	4.724E+06	0.000E-01	0.000E-01	9.572E+07	0.000E-01	GI-LLI
12	CO-60	3.619E+07	0.000E-01	0.000E-01	1.441E+07	0.000E-01	0.000E-01	3.032E+08	0.000E-01	GI-LLI
13	NI-59	8.441E+07	0.000E-01	5.059E+08	1.735E+08	0.000E-01	0.000E-01	3.573E+07	0.000E-01	BONE
14	NI-63	3.357E+08	0.000E-01	4.729E+09	4.654E+08	0.000E-01	0.000E-01	9.731E+07	0.000E-01	BONE
15	NI-65	2.195E-02	0.000E-01	3.702E-01	4.810E-02	0.000E-01	0.000E-01	1.220E+00	0.000E-01	GI-LLI
16	CU-64	1.108E+04	0.000E-01	0.000E-01	2.351E+04	5.552E+04	0.000E-01	2.012E+04	0.000E-01	GI-LLI
17	ZN-65	1.977E+09	0.000E-01	1.371E+09	4.343E+09	2.918E+09	0.000E-01	2.748E+09	0.000E-01	LIVER
18	ZN-69	6.505E-13	0.000E-01	4.892E-12	9.355E-12	6.079E-12	0.000E-01	1.404E-12	0.000E-01	LIVER
19	BR-83	1.020E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.445E-01	0.000E-01	GI-LLI
20	BR-84	1.419E-23	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.114E-28	0.000E-01	W. BODY
21	BR-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	1.207E+09	0.000E-01	0.000E-01	2.591E+09	0.000E-01	0.000E-01	5.109E+08	0.000E-01	LIVER
23	RB-88	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
24	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-89	4.153E+07	0.000E-01	1.450E+09	0.000E-01	0.000E-01	0.000E-01	2.325E+06	0.000E-01	BONE
26	SR-90	1.141E+10	0.000E-01	4.580E+10	0.000E-01	0.000E-01	0.000E-01	1.353E+09	0.000E-01	BONE
27	SR-91	1.159E+03	0.000E-01	2.872E+04	0.000E-01	0.000E-01	0.000E-01	1.348E+05	0.000E-01	GI-LLI
28	SR-92	2.097E-02	0.000E-01	4.816E-01	0.000E-01	0.000E-01	0.000E-01	9.582E+00	0.000E-01	GI-LLI
29	Y-90	1.903E+00	0.000E-01	7.092E+01	0.000E-01	0.000E-01	0.000E-01	7.523E+05	0.000E-01	GI-LLI
30	Y-91M	2.480E-21	0.000E-01	6.418E-20	0.000E-01	0.000E-01	0.000E-01	1.885E-19	0.000E-01	GI-LLI
31	Y-91	2.392E+03	0.000E-01	8.589E+04	0.000E-01	0.000E-01	0.000E-01	4.727E+06	0.000E-01	GI-LLI
32	Y-92	1.538E-05	0.000E-01	5.556E-05	0.000E-01	0.000E-01	0.000E-01	9.753E-01	0.000E-01	GI-LLI
33	Y-93	5.391E-03	0.000E-01	2.317E-01	0.000E-01	0.000E-01	0.000E-01	7.349E+03	0.000E-01	GI-LLI
34	ZR-95	2.057E+02	0.000E-01	9.483E+02	4.041E+02	4.773E+02	0.000E-01	9.539E+05	0.000E-01	GI-LLI
35	ZR-97	3.987E-02	0.000E-01	4.324E-01	8.724E-02	1.318E-01	0.000E-01	2.702E+04	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB-95	2.448E+04	0.000E-01	8.253E+04	4.591E+04	4.538E+04	0.000E-01	2.782E+08	0.000E-01	GI-LLI
37	NB-97	5.419E-13	0.000E-01	5.880E-12	1.481E-12	1.731E-12	0.000E-01	5.475E-09	0.000E-01	GI-LLI
38	MO-99	4.705E+04	0.000E-01	0.000E-01	2.473E+07	5.600E+07	0.000E-01	5.732E+07	0.000E-01	GI-LLI
39	TC-99M	1.215E+03	0.000E-01	3.378E+00	9.545E+00	1.450E+02	4.577E+00	5.448E+03	0.000E-01	GI-LLI
40	TC-101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RU-103	4.398E+02	0.000E-01	1.021E+03	0.000E-01	3.892E+03	0.000E-01	1.192E+05	0.000E-01	GI-LLI
42	RU-105	3.435E-04	0.000E-01	6.674E-04	0.000E-01	1.131E-03	0.000E-01	5.307E-01	0.000E-01	GI-LLI
43	RU-106	2.582E+03	0.000E-01	2.040E+04	0.000E-01	3.939E+04	0.000E-01	1.421E+06	0.000E-01	GI-LLI
44	AG-110M	3.260E+07	0.000E-01	5.825E+07	5.388E+07	1.059E+08	0.000E-01	2.199E+10	0.000E-01	GI-LLI
45	CD-115M	3.981E+04	0.000E-01	0.000E-01	1.241E+06	9.884E+05	0.000E-01	5.240E+07	0.000E-01	GI-LLI
46	SB-124	1.021E+07	2.243E+04	3.584E+07	4.873E+05	0.000E-01	2.005E+07	7.316E+08	0.000E-01	GI-LLI
47	TE-125M	2.168E+05	4.702E+05	1.630E+07	5.905E+05	5.429E+07	0.000E-01	4.507E+07	0.000E-01	KIDNEY
48	TE-127M	5.579E+05	1.170E+07	4.570E+07	1.435E+07	1.850E+08	0.000E-01	1.554E+08	0.000E-01	KIDNEY
49	TE-127	1.443E+02	4.947E+02	5.443E+02	3.393E+02	2.714E+03	0.000E-01	5.258E+04	0.000E-01	GI-LLI
50	TE-129M	9.511E+05	2.062E+07	6.009E+07	2.342E+07	3.508E+08	0.000E-01	3.022E+08	0.000E-01	GI-LLI
51	TE-129	8.263E-11	2.584E-10	3.357E-10	1.225E-10	1.415E-09	0.000E-01	2.511E-10	0.000E-01	KIDNEY
52	TE-131M	1.470E+05	3.795E+05	3.608E+05	1.724E+05	1.787E+06	0.000E-01	1.753E+07	0.000E-01	GI-LLI
53	TE-131	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.913E-32	0.000E-01	0.000E-01	0.000E-01	KIDNEY
54	TE-132	1.453E+06	1.709E+06	2.393E+06	1.547E+06	1.490E+07	0.000E-01	7.319E+07	0.000E-01	GI-LLI
55	I-130	4.980E+05	1.670E+08	4.278E+05	1.242E+06	1.959E+06	0.000E-01	1.082E+05	0.000E-01	THYROID
56	I-131	2.430E+06	1.307E+11	2.963E+06	4.237E+06	7.244E+06	0.000E-01	1.118E+06	0.000E-01	THYROID
57	I-132	1.405E-01	1.405E+01	1.501E-01	4.015E-01	6.397E-01	0.000E-01	7.543E-02	0.000E-01	THYROID
58	I-133	2.052E+05	9.910E+06	3.677E+05	6.743E+05	1.177E+07	0.000E-01	4.021E+05	0.000E-01	THYROID
59	I-134	1.634E-12	8.805E-11	1.807E-12	5.138E-12	8.155E-12	0.000E-01	4.449E-15	0.000E-01	THYROID
60	I-135	1.229E+04	3.184E+05	1.265E+04	3.313E+04	5.311E+04	0.000E-01	3.741E+04	0.000E-01	THYROID
61	CS-134	1.106E+10	0.000E-01	5.253E+09	1.345E+10	4.354E+09	1.445E+09	2.354E+08	0.000E-01	LIVER
62	CS-136	7.435E+08	0.000E-01	2.513E+08	1.013E+09	5.749E+08	7.857E+07	1.172E+08	0.000E-01	LIVER
63	CS-137	5.213E+09	0.000E-01	7.381E+09	1.007E+10	3.427E+09	1.135E+09	1.954E+08	0.000E-01	LIVER
64	CS-138	1.013E-21	0.000E-01	1.013E-21	2.045E-21	1.503E-21	1.484E-21	8.734E-29	0.000E-01	LIVER
65	BA-139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA-139	1.209E-09	0.000E-01	4.434E-08	3.159E-11	3.963E-11	1.792E-11	7.853E-06	0.000E-01	GI-LLI
67	BA-140	1.750E+05	0.000E-01	2.285E+07	3.374E+04	1.147E+04	1.933E+04	5.531E+07	0.000E-01	GI-LLI
68	BA-141	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
69	BA-142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA-140	5.033E-01	0.000E-01	4.523E+00	2.280E+00	0.000E-01	0.000E-01	1.574E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	1.038E-12	0.000E-01	9.161E-12	4.165E-12	0.000E-01	0.000E-01	3.042E-08	0.000E-01	GI-LLI
72	CE-141	3.715E+03	0.000E-01	4.844E+03	3.274E+03	1.521E+03	0.000E-01	1.253E+07	0.000E-01	GI-LLI
73	CE-143	3.404E+00	0.000E-01	4.162E+01	3.078E+04	1.355E+01	0.000E-01	1.150E+06	0.000E-01	GI-LLI
74	CE-144	1.920E+04	0.000E-01	3.577E+05	1.495E+05	8.848E+04	0.000E-01	1.209E+08	0.000E-01	GI-LLI
75	PR-143	7.823E+00	0.000E-01	1.578E+02	6.331E+01	3.454E+01	0.000E-01	6.914E+05	0.000E-01	GI-LLI
76	PR-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND-147	4.502E+00	0.000E-01	9.412E+01	1.000E+03	6.459E+01	0.000E-01	5.225E+05	0.000E-01	GI-LLI
78	W-185	4.549E+01	0.000E-01	1.298E+04	4.315E+03	0.000E-01	0.000E-01	4.987E+07	0.000E-01	GI-LLI
79	W-187	1.915E+03	0.000E-01	4.551E+03	5.474E+03	0.000E-01	0.000E-01	1.791E+06	0.000E-01	GI-LLI
80	U-235	1.870E+08	0.000E-01	3.099E+09	0.000E-01	7.232E+08	0.000E-01	3.010E+08	0.000E-01	BONE
81	U-238	1.750E+08	0.000E-01	2.944E+09	0.000E-01	6.743E+08	0.000E-01	6.415E+08	0.000E-01	BONE
82	NP-239	1.979E-01	0.000E-01	3.453E+00	3.591E-01	1.120E+00	0.000E-01	7.455E+04	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	9.930E+02	9.930E+02	0.000E-01	9.930E+02	9.930E+02	9.930E+02	9.930E+02	9.930E+02	W. BODY
2	C-14	1.340E+05	1.340E+05	6.699E+05	1.340E+05	1.340E+05	1.340E+05	1.340E+05	1.340E+05	BONE
3	NA-24	4.294E+04	4.294E+04	4.294E+04	4.294E+04	4.294E+04	4.294E+04	4.294E+04	0.000E-01	W. BODY
4	P-32	1.223E+09	0.000E-01	3.155E+10	1.955E+09	0.000E-01	0.000E-01	2.652E+09	0.000E-01	BONE
5	SC-46	1.307E+03	0.000E-01	2.315E+02	4.530E+02	4.202E+03	0.000E-01	2.187E+06	0.000E-01	GI-LLI
6	CR-51	4.994E+04	2.775E+04	0.000E-01	0.000E-01	1.095E+04	7.131E+04	8.393E+05	0.000E-01	GI-LLI
7	MN-54	2.779E+06	0.000E-01	0.000E-01	1.402E+07	4.181E+06	0.000E-01	2.874E+07	0.000E-01	GI-LLI
8	MN-56	1.303E-03	0.000E-01	0.000E-01	7.330E-03	9.245E-03	0.000E-01	4.818E-01	0.000E-01	GI-LLI
9	FE-55	7.314E+04	0.000E-01	4.454E+07	3.150E+07	0.000E-01	2.003E+07	1.357E+07	0.000E-01	BONE
10	FE-59	4.270E+07	0.000E-01	5.183E+07	1.209E+08	0.000E-01	3.813E+07	2.850E+08	0.000E-01	GI-LLI
11	CO-58	1.833E+07	0.000E-01	0.000E-01	7.953E+06	0.000E-01	0.000E-01	1.092E+08	0.000E-01	GI-LLI
12	CO-60	4.312E+07	0.000E-01	0.000E-01	2.780E+07	0.000E-01	0.000E-01	3.431E+08	0.000E-01	GI-LLI
13	NI-59	1.069E+08	0.000E-01	4.528E+08	2.240E+08	0.000E-01	0.000E-01	4.416E+07	0.000E-01	BONE
14	NI-63	4.007E+08	0.000E-01	1.182E+10	8.340E+08	0.000E-01	0.000E-01	1.329E+08	0.000E-01	BONE
15	NI-65	3.945E-02	0.000E-01	4.777E-01	8.459E-02	0.000E-01	0.000E-01	4.492E+00	0.000E-01	GI-LLI
16	CU-64	1.979E+04	0.000E-01	0.000E-01	4.205E+04	1.044E+05	0.000E-01	3.252E+06	0.000E-01	GI-LLI
17	ZN-65	3.411E+09	0.000E-01	2.105E+09	7.312E+09	4.490E+09	0.000E-01	3.097E+09	0.000E-01	LIVER
18	ZN-69	1.301E-12	0.000E-01	9.008E-12	1.716E-11	1.121E-11	0.000E-01	3.143E-11	0.000E-01	GI-LLI
19	BR-83	1.079E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR-84	3.513E-23	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	2.219E+09	0.000E-01	0.000E-01	4.723E+09	0.000E-01	0.000E-01	6.989E+08	0.000E-01	LIVER
23	RB-88	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
24	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-89	7.255E+07	0.000E-01	2.473E+09	0.000E-01	0.000E-01	0.000E-01	3.181E+08	0.000E-01	BONE
26	SR-90	1.231E+10	0.000E-01	4.213E+10	0.000E-01	0.000E-01	0.000E-01	1.852E+09	0.000E-01	BONE
27	SR-91	3.078E+03	0.000E-01	5.274E+04	0.000E-01	0.000E-01	0.000E-01	2.392E+05	0.000E-01	GI-LLI
28	SR-92	1.773E-02	0.000E-01	8.853E-01	0.000E-01	0.000E-01	0.000E-01	2.255E+01	0.000E-01	GI-LLI
29	Y-90	3.511E+00	0.000E-01	1.304E+02	0.000E-01	0.000E-01	0.000E-01	1.075E+05	0.000E-01	GI-LLI
30	Y-91M	4.497E-21	0.000E-01	1.175E-19	0.000E-01	0.000E-01	0.000E-01	5.540E-18	0.000E-01	GI-LLI
31	Y-91	4.232E+03	0.000E-01	1.580E+04	0.000E-01	0.000E-01	0.000E-01	6.472E+05	0.000E-01	GI-LLI
32	Y-92	2.975E-05	0.000E-01	1.029E-04	0.000E-01	0.000E-01	0.000E-01	2.823E+00	0.000E-01	GI-LLI
33	Y-93	1.171E-02	0.000E-01	4.273E-01	0.000E-01	0.000E-01	0.000E-01	1.365E+01	0.000E-01	GI-LLI
34	ZR-95	3.598E+03	0.000E-01	1.458E+03	5.233E+02	4.025E+09	0.000E-01	1.308E+05	0.000E-01	KIDNEY
35	ZR-97	7.173E-03	0.000E-01	7.870E-01	1.557E-01	2.351E-01	0.000E-01	4.217E+04	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	NB 95	4.297E+04	0.000E-01	1.407E+05	7.807E+04	7.547E+04	0.000E-01	3.339E+08	0.000E-01	GI-LLI
37	NB 97	5.993E-13	0.000E-01	7.587E-12	1.915E-12	2.234E-12	0.000E-01	7.014E-09	0.000E-01	GI-LLI
38	MO 99	8.514E+06	0.000E-01	0.000E-01	4.454E+07	1.033E+08	0.000E-01	7.995E+07	0.000E-01	KIDNEY
39	TC 99M	2.117E+02	0.000E-01	5.858E+00	1.634E+01	2.435E+02	9.070E+00	1.673E+04	0.000E-01	GI-LLI
40	TC 101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RU 103	7.751E+02	0.000E-01	1.814E+03	0.000E-01	4.401E+03	0.000E-01	1.517E+05	0.000E-01	GI-LLI
42	RU 105	4.150E-04	0.000E-01	1.585E-03	0.000E-01	1.999E-02	0.000E-01	1.327E+00	0.000E-01	GI-LLI
43	RU 106	4.729E+03	0.000E-01	3.752E+04	0.000E-01	7.237E+04	0.000E-01	1.860E+05	0.000E-01	GI-LLI
44	AG 110M	5.543E+07	0.000E-01	9.529E+07	9.113E+07	1.730E+08	0.000E-01	2.540E+10	0.000E-01	GI-LLI
45	CD 115M	5.135E+04	0.000E-01	0.000E-01	1.407E+06	1.275E+05	0.000E-01	6.721E+07	0.000E-01	GI-LLI
46	SB 124	1.317E+07	8.055E+04	3.334E+07	4.280E+05	0.000E-01	2.585E+07	9.432E+08	0.000E-01	GI-LLI
47	TE 125M	4.010E+05	8.397E+05	3.004E+07	1.083E+07	0.000E-01	0.000E-01	8.857E+07	0.000E-01	GI-LLI
48	TE 127M	1.003E+07	2.007E+07	8.430E+07	2.993E+07	3.420E+08	0.000E-01	2.103E+08	0.000E-01	KIDNEY
49	TE 127	2.458E+02	8.526E+02	1.235E+03	4.377E+02	5.003E+03	0.000E-01	9.534E+04	0.000E-01	GI-LLI
50	TE 129M	1.740E+07	5.547E+07	1.099E+08	4.079E+07	4.599E+08	0.000E-01	4.127E+08	0.000E-01	KIDNEY
51	TE 129	1.360E-10	4.420E-10	6.199E-10	2.311E-10	2.501E-09	0.000E-01	3.390E-09	0.000E-01	GI-LLI
52	TE 131M	2.527E+05	4.733E+05	5.526E+05	3.149E+05	3.283E+05	0.000E-01	3.524E+07	0.000E-01	GI-LLI
53	TE 131	0.000E-01	0.000E-01	0.000E-01	0.000E-01	3.490E-32	0.000E-01	0.000E-01	0.000E-01	KIDNEY
54	TE 132	3.548E+04	2.853E+04	4.375E+04	2.707E+04	2.597E+07	0.000E-01	8.571E+07	0.000E-01	GI-LLI
55	I 130	8.285E+05	1.774E+06	7.521E+05	3.175E+05	3.351E+04	0.000E-01	1.673E+06	0.000E-01	THYROID
56	I 131	4.643E+08	2.195E+11	5.475E+08	7.522E+08	1.292E+09	0.000E-01	1.482E+08	0.000E-01	THYROID
57	I 132	3.560E-01	3.447E+01	3.462E-01	4.955E-01	1.097E+00	0.000E-01	3.034E-01	0.000E-01	THYROID
58	I 133	3.653E+05	1.427E+09	7.080E+05	1.201E+07	2.105E+07	0.000E-01	9.088E+06	0.000E-01	THYROID
59	I 134	3.179E-13	1.483E-10	3.455E-12	8.892E-12	1.403E-11	0.000E-01	1.172E-13	0.000E-01	THYROID
60	I 135	2.144E+04	3.721E+05	2.240E+04	5.705E+04	9.137E+04	0.000E-01	5.411E+04	0.000E-01	THYROID
61	CS 134	1.073E+10	0.000E-01	9.815E+09	2.310E+10	7.340E+09	2.802E+09	2.873E+08	0.000E-01	LIVER
62	CS 135	1.175E+09	0.000E-01	4.449E+08	1.750E+09	9.529E+08	1.502E+08	1.409E+08	0.000E-01	LIVER
63	CS 136	2.303E+09	0.000E-01	1.330E+10	1.781E+10	6.059E+09	2.354E+09	2.553E+08	0.000E-01	LIVER
64	CS 137	1.854E-23	0.000E-01	1.879E-23	3.467E-24	2.545E-24	3.099E-24	1.437E-25	0.000E-01	LIVER
65	BA 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 140	2.384E-09	0.000E-01	8.199E-08	5.759E-11	5.438E-11	3.975E-11	7.314E-07	0.000E-01	GI-LLI
67	BA 141	3.124E+05	0.000E-01	4.849E+07	5.941E+01	3.015E+04	3.995E+04	7.470E+07	0.000E-01	GI-LLI
68	BA 142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
69	LA 140	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 142	1.054E+00	0.000E-01	8.124E+00	3.992E+00	0.000E-01	0.000E-01	2.292E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : COW MILK

NU ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
[illegible]	1.828E-12	0.000E-01	1.653E-11	7.341E-12	0.000E-01	0.000E-01	2.335E-07	0.000E-01	GI-LLI
[illegible]	5.811E+02	0.000E-01	8.881E+03	5.929E+03	2.791E+03	0.000E-01	1.495E+07	0.000E-01	GI-LLI
[illegible]	4.217E+00	0.000E-01	7.449E+01	5.554E+04	2.497E+01	0.000E-01	1.273E+05	0.000E-01	GI-LLI
[illegible]	3.537E+04	0.000E-01	6.583E+05	2.724E+05	1.637E+05	0.000E-01	1.455E+08	0.000E-01	GI-LLI
[illegible]	1.443E+01	0.000E-01	2.900E+02	1.150E+03	6.730E+01	0.000E-01	9.541E+05	0.000E-01	GI-LLI
[illegible]	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
[illegible]	1.180E+01	0.000E-01	1.811E+02	1.949E+02	1.157E+02	0.000E-01	7.105E+05	0.000E-01	GI-LLI
[illegible]	5.857E+04	0.000E-01	1.475E+04	5.540E+05	0.000E-01	0.000E-01	6.434E+07	0.000E-01	GI-LLI
[illegible]	3.433E+03	0.000E-01	1.198E+04	9.787E+03	0.000E-01	0.000E-01	2.443E+06	0.000E-01	GI-LLI
[illegible]	2.423E+08	0.000E-01	3.999E+09	0.000E-01	9.334E+08	0.000E-01	3.891E+00	0.000E-01	BONE
[illegible]	2.329E+08	0.000E-01	3.824E+09	0.000E-01	8.725E+08	0.000E-01	8.277E+00	0.000E-01	BONE
[illegible]	3.451E-01	0.000E-01	4.929E+00	4.573E-01	2.053E+00	0.000E-01	1.057E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H 3	1.570E+03	1.570E+03	0.000E-01	1.570E+03	1.570E+03	1.570E+03	1.570E+03	1.570E+03	W. BODY
2	C 14	3.294E+05	3.294E+05	1.647E+06	3.294E+05	3.294E+05	3.294E+05	3.294E+05	3.294E+05	BONE
3	NA 24	8.933E+03	8.933E+03	8.933E+03	8.933E+03	8.933E+03	8.933E+03	8.933E+03	0.000E-01	W. BODY
4	P 32	2.999E+09	0.000E-01	7.781E+10	3.441E+09	0.000E-01	0.000E-01	2.150E+07	0.000E-01	BONE
5	SC 46	1.070E+02	0.000E-01	1.910E+02	3.744E+02	3.456E+02	0.000E-01	1.605E+06	0.000E-01	GI-LLI
6	CR 51	1.019E+05	5.554E+04	0.000E-01	0.000E-01	1.545E+04	1.032E+05	5.403E+05	0.000E-01	GI-LLI
7	MN 54	5.585E+05	0.000E-01	0.000E-01	2.097E+07	5.079E+05	0.000E-01	1.750E+07	0.000E-01	LIVER
8	MN 56	3.883E-01	0.000E-01	0.000E-01	1.327E-02	1.544E-02	0.000E-01	1.850E+00	0.000E-01	GI-LLI
9	FE 55	1.414E+07	0.000E-01	1.118E+08	5.930E+07	0.000E-01	3.354E+07	1.070E+07	0.000E-01	BONE
10	FE 59	9.585E+07	0.000E-01	1.203E+08	1.944E+08	0.000E-01	5.437E+07	2.025E+08	0.000E-01	GI-LLI
11	CO 58	3.719E+07	0.000E-01	0.000E-01	1.215E+07	0.000E-01	0.000E-01	7.088E+07	0.000E-01	GI-LLI
12	CO 60	1.273E+08	0.000E-01	0.000E-01	4.310E+07	0.000E-01	0.000E-01	2.391E+08	0.000E-01	GI-LLI
13	NI 59	8.985E+07	0.000E-01	5.382E+08	1.847E+08	0.000E-01	0.000E-01	3.803E+07	0.000E-01	BONE
14	NI 63	1.008E+09	0.000E-01	2.964E+10	1.587E+09	0.000E-01	0.000E-01	1.067E+08	0.000E-01	BONE
15	NI 65	9.107E-02	0.000E-01	1.657E+00	1.540E-01	0.000E-01	0.000E-01	1.911E+01	0.000E-01	GI-LLI
16	CU 64	4.155E+04	0.000E-01	0.000E-01	7.392E+04	1.785E+05	0.000E-01	3.470E+05	0.000E-01	GI-LLI
17	ZN 65	4.814E+09	0.000E-01	4.133E+09	1.101E+10	4.937E+09	0.000E-01	1.913E+09	0.000E-01	LIVER
18	ZN 69	2.958E-12	0.000E-01	2.214E-11	3.200E-11	1.941E-11	0.000E-01	2.617E-09	0.000E-01	GI-LLI
19	BR 83	4.517E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR 84	5.749E-23	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR 85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB 86	5.387E+09	0.000E-01	0.000E-01	8.720E+09	0.000E-01	0.000E-01	5.235E+08	0.000E-01	LIVER
23	RB 88	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
24	RB 89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR 89	1.897E+08	0.000E-01	6.415E+09	0.000E-01	0.000E-01	0.000E-01	2.551E+08	0.000E-01	BONE
26	SR 90	2.033E+10	0.000E-01	1.117E+11	0.000E-01	0.000E-01	0.000E-01	1.505E+09	0.000E-01	BONE
27	SR 91	4.885E+03	0.000E-01	1.294E+05	0.000E-01	0.000E-01	0.000E-01	2.858E+05	0.000E-01	GI-LLI
28	SR 92	8.225E-02	0.000E-01	2.143E+00	0.000E-01	0.000E-01	0.000E-01	4.094E+01	0.000E-01	GI-LLI
29	Y 90	8.253E+00	0.000E-01	1.322E+02	0.000E-01	0.000E-01	0.000E-01	9.187E+05	0.000E-01	GI-LLI
30	Y 91M	1.045E-20	0.000E-01	2.871E-19	0.000E-01	0.000E-01	0.000E-01	5.533E-18	0.000E-01	GI-LLI
31	Y 91	1.344E+03	0.000E-01	3.904E+04	0.000E-01	0.000E-01	0.000E-01	5.200E+02	0.000E-01	GI-LLI
32	Y 92	7.252E-05	0.000E-01	2.532E-04	0.000E-01	0.000E-01	0.000E-01	7.295E+00	0.000E-01	GI-LLI
33	Y 93	2.881E-02	0.000E-01	1.019E+00	0.000E-01	0.000E-01	0.000E-01	1.525E+04	0.000E-01	GI-LLI
34	ZR 95	7.518E+02	0.000E-01	3.852E+03	8.420E+02	1.213E+03	0.000E-01	8.813E+05	0.000E-01	GI-LLI
35	ZR 97	1.233E-01	0.000E-01	1.915E+00	2.767E-01	3.972E-01	0.000E-01	4.191E+04	0.000E-01	GI-LLI

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE: CHILD
PATHWAY: COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	NB 95	8.843E+04	0.000E-01	3.170E+05	1.237E+05	1.153E+05	0.000E-01	2.288E+08	0.000E-01	GI-LLI
37	NB 97	5.758E-13	0.000E-01	6.259E-12	1.580E-12	1.943E-12	0.000E-01	5.838E-09	0.000E-01	GI-LLI
38	MO 99	2.669E+07	0.000E-01	0.000E-01	8.123E+07	1.735E+08	0.000E-01	4.719E+07	0.000E-01	KIDNEY
39	TC 99M	4.317E+02	0.000E-01	1.344E+01	3.435E+01	3.829E+02	1.338E+01	1.499E+04	0.000E-01	GI-LLI
40	TC 101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RH 103	1.451E+03	0.000E-01	4.294E+03	0.000E-01	1.081E+04	0.000E-01	1.110E+05	0.000E-01	GI-LLI
42	RH 105	1.403E-03	0.000E-01	3.848E-03	0.000E-01	3.400E-02	0.000E-01	2.535E+00	0.000E-01	GI-LLI
43	RH 106	1.155E+04	0.000E-01	9.240E+04	0.000E-01	1.218E+05	0.000E-01	1.437E+05	0.000E-01	GI-LLI
44	AG 110M	1.138E+08	0.000E-01	2.089E+08	1.411E+08	2.637E+08	0.000E-01	1.687E+10	0.000E-01	GI-LLI
45	CD 115M	4.237E+04	0.000E-01	0.000E-01	1.325E+05	1.053E+05	0.000E-01	5.5.8E+07	0.000E-01	GI-LLI
46	SB 124	1.082E+07	6.542E+04	2.751E+07	5.188E+05	0.000E-01	2.134E+07	7.781E+08	0.000E-01	GI-LLI
47	TE 125M	9.841E+05	2.072E+07	7.380E+07	2.000E+07	0.000E-01	0.000E-01	7.131E+07	0.000E-01	BONE
48	I 127M	2.429E+07	4.971E+07	2.680E+08	5.601E+07	5.932E+08	0.000E-01	1.201E+08	0.000E-01	KIDNEY
49	I 127	2.513E+02	2.103E+03	3.037E+03	8.190E+03	8.541E+03	0.000E-01	1.187E+05	0.000E-01	GI-LLI
50	I 129M	4.302E+07	8.734E+07	2.709E+08	7.545E+07	7.955E+08	0.000E-01	3.304E+08	0.000E-01	KIDNEY
51	I 129	3.434E-10	1.091E-09	1.530E-09	4.259E-10	4.475E-09	0.000E-01	9.529E-08	0.000E-01	GI-LLI
52	I 131M	5.884E+05	1.137E+06	1.599E+06	5.528E+05	5.351E+06	0.000E-01	2.212E+07	0.000E-01	GI-LLI
53	I 131	0.000E-01	1.499E-32	1.959E-32	0.000E-01	5.933E-32	0.000E-01	1.629E-31	0.000E-01	GI-LLI
54	I 132	5.457E+05	5.578E+06	1.021E+07	4.517E+05	4.194E+07	0.000E-01	4.547E+07	0.000E-01	GI-LLI
55	I 130	1.831E+06	3.912E+08	1.759E+06	3.554E+05	5.311E+06	0.000E-01	1.223E+06	0.000E-01	THYROID
56	I 131	7.455E+08	4.335E+11	1.304E+09	1.313E+09	2.153E+09	0.000E-01	1.147E+08	0.000E-01	THYROID
57	I 132	5.191E-01	5.359E+01	6.298E-01	1.157E+00	1.771E+00	0.000E-01	1.333E+00	0.000E-01	THYROID
58	I 133	8.050E+05	1.955E+09	1.720E+07	2.127E+07	3.545E+07	0.000E-01	8.573E+05	0.000E-01	THYROID
59	I 134	6.782E-12	3.393E-10	7.942E-12	1.475E-11	2.252E-11	0.000E-01	9.781E-12	0.000E-01	THYROID
60	I 135	4.529E+04	8.481E+05	5.317E+04	9.578E+04	1.458E+05	0.000E-01	7.295E+04	0.000E-01	THYROID
61	CS 134	7.835E+09	0.000E-01	2.264E+10	3.715E+10	1.151E+10	4.131E+09	2.002E+08	0.000E-01	LIVER
62	CS 135	1.782E+09	0.000E-01	1.004E+09	2.746E+09	1.470E+09	2.192E+08	9.599E+07	0.000E-01	LIVER
63	CS 137	4.552E+09	0.000E-01	3.224E+10	3.085E+10	1.005E+10	3.418E+09	1.953E+08	0.000E-01	BONE
64	CS 138	4.61 E-23	0.000E-01	4.554E-23	6.331E-23	4.454E-23	4.793E-24	2.915E-23	0.000E-01	LIVER
65	CS 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 137	5.813E-07	0.000E-01	2.015E-07	1.075E-10	9.393E-11	6.325E-11	1.163E-05	0.000E-01	GI-LLI
67	BA 140	2.851E+05	0.000E-01	1.170E+08	1.625E+05	3.338E+04	4.113E+04	5.936E+07	0.000E-01	BONE
68	BA 141	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
69	BA 142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 140	2.119E+00	0.000E-01	1.941E+01	4.799E+00	0.000E-01	0.000E-01	1.895E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per μCi/m³).

AGE : CHILD
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	3.984E-12	0.000E-01	3.992E-11	1.272E-11	0.000E-01	0.000E-01	2.522E-06	0.000E-01	GI-LLI
72	CE-141	1.630E+03	0.000E-01	2.187E+04	1.091E+04	4.781E+03	0.000E-01	1.341E+07	0.000E-01	GI-LLI
73	CE-143	1.474E+01	0.000E-01	1.877E+02	1.018E+05	4.270E+01	0.000E-01	1.490E+06	0.000E-01	GI-LLI
74	CE-144	8.660E+04	0.000E-01	1.623E+06	5.087E+05	2.816E+05	0.000E-01	1.326E+08	0.000E-01	GI-LLI
75	PR-143	3.561E+01	0.000E-01	7.177E+02	2.155E+02	1.157E+02	0.000E-01	7.744E+05	0.000E-01	GI-LLI
76	PR-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND-147	2.788E+01	0.000E-01	4.444E+02	3.600E+02	1.975E+02	0.000E-01	5.703E+05	0.000E-01	GI-LLI
78	W-185	1.833E+04	0.000E-01	1.302E+06	4.594E+05	0.000E-01	0.000E-01	5.308E+07	0.000E-01	GI-LLI
79	W-187	7.719E+03	0.000E-01	2.905E+04	1.720E+04	0.000E-01	0.000E-01	2.417E+06	0.000E-01	GI-LLI
80	U-235	1.999E+08	0.000E-01	3.299E+09	0.000E-01	7.493E+08	0.000E-01	3.213E+08	0.000E-01	BONE
81	U-238	1.873E+08	0.000E-01	3.155E+09	0.000E-01	7.199E+08	0.000E-01	6.609E+09	0.000E-01	BONE
82	NP-239	8.657E-01	0.000E-01	1.715E+01	1.232E+00	3.541E+00	0.000E-01	9.115E+04	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2,b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	2.382E+03	2.382E+03	0.000E-01	2.382E+03	2.382E+03	2.382E+03	2.382E+03	2.382E+03	W. BODY
2	C-14	4.888E+05	4.888E+05	3.224E+06	4.888E+05	4.888E+05	4.888E+05	4.888E+05	4.888E+05	BONE
3	NA-24	1.555E+07	1.555E+07	1.555E+07	1.555E+07	1.555E+07	1.555E+07	1.555E+07	0.000E-01	W. BODY
4	P-32	4.215E+09	0.000E-01	1.403E+11	9.432E+09	0.000E-01	0.000E-01	2.147E+09	0.000E-01	BONE
5	SC-46	1.070E+02	0.000E-01	1.910E+02	3.744E+02	3.444E+02	0.000E-01	1.802E+04	0.000E-01	GI-LLI
6	CR-51	1.514E+05	1.053E+05	0.000E-01	0.000E-01	2.300E+04	2.049E+05	4.704E+05	0.000E-01	GI-LLI
7	MN-54	8.819E+06	0.000E-01	0.000E-01	3.900E+07	8.543E+06	0.000E-01	1.433E+07	0.000E-01	LIVER
8	MN-56	5.389E-03	0.000E-01	0.000E-01	3.124E-02	2.587E-02	0.000E-01	2.840E+00	0.000E-01	GI-LLI
9	FE-55	2.311E+07	0.000E-01	1.351E+08	8.729E+07	0.000E-01	4.257E+07	1.108E+07	0.000E-01	BONE
10	FE-59	1.541E+08	0.000E-01	2.243E+08	3.918E+08	0.000E-01	1.158E+08	1.873E+08	0.000E-01	LIVER
11	CO-58	4.038E+07	0.000E-01	0.000E-01	2.430E+07	0.000E-01	0.000E-01	4.055E+07	0.000E-01	GI-LLI
12	CO-60	2.081E+08	0.000E-01	0.000E-01	8.815E+07	0.000E-01	0.000E-01	2.091E+08	0.000E-01	GI-LLI
13	NI-59	8.985E+07	0.000E-01	5.385E+08	1.847E+08	0.000E-01	0.000E-01	3.804E+07	0.000E-01	BONE
14	NI-63	1.212E+09	0.000E-01	3.493E+10	2.140E+09	0.000E-01	0.000E-01	1.674E+08	0.000E-01	BONE
15	NI-65	1.802E-01	0.000E-01	3.508E+00	3.971E-01	0.000E-01	0.000E-01	3.033E+01	0.000E-01	GI-LLI
16	CU-64	8.509E+04	0.000E-01	0.000E-01	1.837E+05	3.108E+05	0.000E-01	3.773E+05	0.000E-01	GI-LLI
17	ZN-65	8.777E+09	0.000E-01	5.550E+09	1.903E+10	9.229E+09	0.000E-01	1.260E+10	0.000E-01	LIVER
18	ZN-69	4.319E-12	0.000E-01	4.717E-11	8.491E-11	3.529E-11	0.000E-01	4.932E-09	0.000E-01	GI-LLI
19	RB-83	9.803E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	RB-84	1.107E-22	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	RB-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	1.698E+10	0.000E-01	0.000E-01	2.223E+10	0.000E-01	0.000E-01	5.287E+08	0.000E-01	LIVER
23	RB-88	0.000E-01	0.000E-01	0.000E-01	1.311E-32	0.000E-01	0.000E-01	1.272E-32	0.000E-01	LIVER
24	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-89	3.207E+08	0.000E-01	1.258E+10	0.000E-01	0.000E-01	0.000E-01	2.584E+08	0.000E-01	BONE
26	SR-90	3.095E+10	0.000E-01	1.214E+11	0.000E-01	0.000E-01	0.000E-01	1.518E+09	0.000E-01	BONE
27	SR-91	9.757E+04	0.000E-01	2.492E+05	0.000E-01	0.000E-01	0.000E-01	3.192E+05	0.000E-01	GI-LLI
28	SR-92	1.707E-01	0.000E-01	4.597E+00	0.000E-01	0.000E-01	0.000E-01	4.952E+01	0.000E-01	GI-LLI
29	Y-90	1.830E+01	0.000E-01	4.823E+02	0.000E-01	0.000E-01	0.000E-01	9.422E+05	0.000E-01	GI-LLI
30	Y-91M	2.075E-20	0.000E-01	4.088E-19	0.000E-01	0.000E-01	0.000E-01	2.029E-15	0.000E-01	GI-LLI
31	Y-91	1.952E+03	0.000E-01	7.327E+04	0.000E-01	0.000E-01	0.000E-01	5.352E+04	0.000E-01	GI-LLI
32	Y-92	1.508E-05	0.000E-01	5.347E-04	0.000E-01	0.000E-01	0.000E-01	1.024E+01	0.000E-01	GI-LLI
33	Y-93	4.093E-03	0.000E-01	2.237E+00	0.000E-01	0.000E-01	0.000E-01	1.725E+04	0.000E-01	GI-LLI
34	ZR-95	1.182E+03	0.000E-01	4.841E+03	1.652E+03	1.797E+03	0.000E-01	8.302E+05	0.000E-01	GI-LLI
35	ZR-97	3.170E-01	0.000E-01	4.054E+00	5.958E-01	7.013E-01	0.000E-01	4.430E+04	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB 95	1.443E+05	0.000E-01	5.932E+05	2.444E+05	1.751E+05	0.000E-01	3.023E+03	0.000E-01	GI-LLI
37	RB 97	5.748E-13	0.000E-01	4.259E-12	1.580E-12	1.843E-12	0.000E-01	5.820E 09	0.000E-01	GI-LLI
38	SR 89	4.049E+07	0.000E-01	0.000E-01	2.077E+08	3.103E+08	0.000E-01	4.841E+07	0.000E-01	KIDNEY
39	SR 90M	7.424E+03	0.000E-01	2.795E+01	5.765E+01	4.203E+02	3.013E+01	1.474E+04	0.000E-01	GI-LLI
40	SR 91	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E 01	0.000E-01	W. BODY
41	SR 92	2.900E+03	0.000E-01	8.594E+03	0.000E-01	1.809E+04	0.000E-01	1.057E+05	0.000E-01	GI-LLI
42	SR 95	2.747E-03	0.000E-01	8.152E-03	0.000E-01	5.997E-02	0.000E-01	3.215E+00	0.000E-01	GI-LLI
43	SR 99	2.377E+04	0.000E-01	1.901E+05	0.000E-01	3.251E+05	0.000E-01	1.445E+05	0.000E-01	GI-LLI
44	AG-110M	1.854E+08	0.000E-01	3.850E+08	2.817E+08	4.030E+08	0.000E-01	1.451E+10	0.000E-01	GI-LLI
45	CD 115M	4.237E+04	0.000E-01	0.000E-01	1.332E+04	1.052E+04	0.000E-01	5.578E+07	0.000E-01	GI-LLI
46	SB 124	1.085E+07	2.445E+04	2.751E+07	5.108E+05	0.000E-01	2.134E+07	7.782E+08	0.000E-01	GI-LLI
47	TE 125M	2.639E+07	5.072E+07	1.500E+08	5.043E+07	0.000E-01	0.000E-01	7.105E+07	0.000E-01	BONE
48	TE 127M	5.097E+07	1.217E+08	4.211E+08	1.497E+08	1.037E+09	0.000E-01	1.499E+08	0.000E-01	KIDNEY
49	TE 127	1.385E+03	5.249E+03	4.449E+03	2.150E+03	1.573E+04	0.000E-01	1.354E+05	0.000E-01	GI-LLI
50	TE 129M	8.557E+07	2.142E+08	5.553E+08	1.908E+08	1.391E+09	0.000E-01	3.321E+08	0.000E-01	KIDNEY
51	TE 129	7.528E-10	2.717E-09	3.242E-09	1.110E-09	8.071E-09	0.000E-01	2.591E 07	0.000E-01	GI-LLI
52	TE 131M	1.121E+05	2.753E+05	3.375E+05	1.359E+06	9.347E+06	0.000E-01	2.367E+07	0.000E-01	GI-LLI
53	TE 131	1.155E-32	3.705E-32	4.153E-32	1.534E-32	1.042E-31	0.000E-01	1.570E-30	0.000E-01	GI-LLI
54	TE 132	9.711E+05	1.535E+07	2.103E+07	1.041E+07	4.508E+07	0.000E-01	3.850E+07	0.000E-01	KIDNEY
55	I 130	3.193E+05	8.915E+08	3.614E+06	7.955E+06	8.735E+06	0.000E-01	1.705E+05	0.000E-01	THYROID
56	I 131	1.410E+09	1.054E+12	2.723E+09	3.207E+09	3.745E+09	0.000E-01	1.145E+08	0.000E-01	THYROID
57	I 132	9.415E-01	1.241E+02	1.307E+00	3.453E+00	3.920E+00	0.000E-01	2.149E+00	0.000E-01	THYROID
58	I 133	1.549E+07	9.519E+09	3.233E+07	5.289E+07	6.219E+07	0.000E-01	8.951E+05	0.000E-01	THYROID
59	I 134	1.300E-11	7.852E-10	1.647E-11	3.378E-11	3.772E-11	0.000E-01	3.480E-11	0.000E-01	THYROID
60	I 135	8.852E+04	1.973E+07	1.692E+05	2.301E+05	2.453E+05	0.000E-01	7.954E+04	0.000E-01	THYROID
61	CS 134	2.858E+07	0.000E-01	3.647E+10	4.801E+10	1.751E+10	7.170E+09	1.848E+08	0.000E-01	LIVER
62	CS 135	2.158E+09	0.000E-01	1.951E+09	5.788E+09	2.299E+09	4.700E+08	8.759E+07	0.000E-01	LIVER
63	CS 136	1.259E+07	0.000E-01	5.142E+10	3.037E+10	1.617E+10	1.083E+09	5.545E+09	0.000E-01	LIVER
64	CS 137	7.552E-23	0.000E-01	9.507E-23	1.553E-22	7.709E-23	1.215E-23	2.195E-22	0.000E-01	GI-LLI
65	BA 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 140	1.241E-08	0.000E-01	4.287E-07	2.813E-10	1.708E-10	1.723E-10	2.715E-05	0.000E-01	GI-LLI
67	BA 140	1.211E+07	0.000E-01	2.408E+08	3.408E+05	5.718E+04	1.479E+05	5.915E+07	0.000E-01	BONE
68	BA 141	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
69	BA 142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 140	1.123E+00	0.000E-01	4.034E+01	1.403E+01	0.000E-01	0.000E-01	1.883E+05	0.000E-01	GI-LLI

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : COW MILK

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA 142	7.357E-12	0.000E-01	8.380E-11	3.070E-11	0.000E-01	0.000E-01	5.224E-05	0.000E-01	GI-LLI
72	CE 141	3.112E103	0.000E-01	4.335E104	2.444E104	8.153E103	0.000E-01	1.354E107	0.000E-01	GI-LLI
73	CE 143	3.008E101	0.000E-01	3.974E102	2.437E105	7.680E101	0.000E-01	1.539E105	0.000E-01	GI-LLI
74	CE 144	1.303E105	0.000E-01	2.335E106	9.510E105	3.844E105	0.000E-01	1.331E108	0.000E-01	GI-LLI
75	PR 143	7.320E101	0.000E-01	1.485E103	5.552E102	2.054E102	0.000E-01	7.835E105	0.000E-01	GI-LLI
76	PR 144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND 147	5.513E101	0.000E-01	8.809E102	9.040E102	3.488E102	0.000E-01	5.711E105	0.000E-01	GI-LLI
78	W 187	4.813E104	0.000E-01	1.382E106	4.574E105	0.000E-01	0.000E-01	5.301E107	0.000E-01	GI-LLI
79	W 187	1.459E104	0.000E-01	4.114E104	4.253E104	0.000E-01	0.000E-01	3.491E105	0.000E-01	GI-LLI
80	U 235	1.999E108	0.000E-01	3.299E107	0.000E-01	7.493E108	0.000E-01	3.211E108	0.000E-01	BONE
81	U 238	1.873E108	0.000E-01	3.155E109	0.000E-01	7.199E108	0.000E-01	5.855E108	0.000E-01	BONE
82	NP 239	1.833E100	0.000E-01	3.632E101	3.244E100	2.428E100	0.000E-01	9.373E104	0.000E-01	GI-LLI

TABLE 6 (CONT)
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FAIRWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H 3	1.254E+03	1.254E+03	0.000E-01	1.254E+03	1.254E+03	1.254E+03	1.254E+03	1.254E+03	W. BODY
2	C 14	3.408E+03	3.408E+03	1.817E+04	3.408E+03	3.408E+03	3.408E+03	3.408E+03	3.408E+03	BONE
3	Na 24	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	1.024E+04	0.000E-01	W. BODY
4	P 32	5.000E+04	0.000E-01	1.320E+06	7.713E+04	0.000E-01	0.000E-01	8.540E+04	0.000E-01	BONE
5	Ca 45	2.480E+05	0.000E-01	4.400E+05	8.540E+05	8.060E+05	0.000E-01	2.580E+05	0.000E-01	LIVER
6	Cr 51	1.600E+02	5.953E+01	0.000E-01	0.000E-01	2.280E+01	1.440E+04	3.329E+03	0.000E-01	LUNG
7	Mn 54	6.292E+03	0.000E-01	0.000E-01	3.960E+04	9.840E+03	1.400E+05	7.732E+04	0.000E-01	LUNG
8	Mn 56	1.83E-01	0.000E-01	0.000E-01	1.240E+00	1.304E+00	9.440E+03	2.021E+04	0.000E-01	GI-LLI
9	Fe 55	3.944E+03	0.000E-01	2.452E+04	1.492E+04	0.000E-01	7.200E+04	5.033E+03	0.000E-01	LUNG
10	Fe 59	1.052E+04	0.000E-01	1.172E+04	2.772E+04	0.000E-01	1.012E+04	1.880E+05	0.000E-01	LUNG
11	Co 58	2.073E+03	0.000E-01	0.000E-01	1.584E+03	0.000E-01	9.280E+05	1.024E+05	0.000E-01	LUNG
12	Co 60	1.480E+04	0.000E-01	0.000E-01	1.152E+05	0.000E-01	5.928E+04	2.848E+05	0.000E-01	LUNG
13	Ni 59	5.412E+03	0.000E-01	3.248E+04	1.140E+04	0.000E-01	4.568E+04	4.880E+03	0.000E-01	LUNG
14	Ni 63	1.448E+06	0.000E-01	4.320E+05	3.144E+04	0.000E-01	1.780E+05	1.332E+04	0.000E-01	BONE
15	Ni 65	9.120E-02	0.000E-01	1.536E+00	2.092E-01	0.000E-01	5.400E+03	1.233E+04	0.000E-01	GI-LLI
16	Cu 64	2.152E-01	0.000E-01	0.000E-01	1.452E+00	4.224E+00	4.704E+04	4.892E+04	0.000E-01	GI-LLI
17	Zn 65	4.452E+04	0.000E-01	3.240E+04	1.032E+05	4.692E+04	8.540E+05	5.344E+04	0.000E-01	LUNG
18	Zn 69	4.530E-01	0.000E-01	3.384E-02	4.512E-03	4.212E-02	9.200E+02	1.212E+01	0.000E-01	LUNG
19	Br 83	2.400E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	2.320E+02	0.000E-01	W. BODY
20	Br 84	3.120E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.240E-03	0.000E-01	W. BODY
21	Rb 86	1.280E+04	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	Sr 89	5.872E+04	0.000E-01	0.000E-01	1.152E+05	0.000E-01	0.000E-01	1.224E+04	0.000E-01	LIVER
23	Sr 90	1.920E+03	0.000E-01	0.000E-01	3.872E+03	0.000E-01	0.000E-01	3.344E-09	0.000E-01	LIVER
24	Sr 92	1.592E+02	0.000E-01	0.000E-01	2.520E+02	0.000E-01	0.000E-01	9.280E-12	0.000E-01	LIVER
25	Sr 92	6.720E+03	0.000E-01	3.840E+05	0.000E-01	0.000E-01	1.400E+05	3.492E+05	0.000E-01	LUNG
26	Y 90	5.952E+05	0.000E-01	9.920E+07	0.000E-01	0.000E-01	9.200E+05	7.212E+05	0.000E-01	BONE
27	Y 91	2.160E+00	0.000E-01	4.192E+01	0.000E-01	0.000E-01	3.248E+04	1.912E+05	0.000E-01	GI-LLI
28	Y 92	2.712E-01	0.000E-01	5.744E+00	0.000E-01	0.000E-01	1.248E+04	4.304E+04	0.000E-01	GI-LLI
29	Y 93	5.280E+01	0.000E-01	2.088E+03	0.000E-01	0.000E-01	1.892E+05	5.052E+05	0.000E-01	GI-LLI
30	Zr 95	1.012E-02	0.000E-01	2.208E-01	0.000E-01	0.000E-01	1.920E+03	1.328E+00	0.000E-01	LUNG
31	Y 91	1.216E+04	0.000E-01	4.224E+05	0.000E-01	0.000E-01	1.704E+05	3.848E+05	0.000E-01	LUNG
32	Y 92	3.912E-01	0.000E-01	1.032E+01	0.000E-01	0.000E-01	1.524E+01	7.352E+04	0.000E-01	GI-LLI
33	Y 93	2.208E+00	0.000E-01	9.456E+01	0.000E-01	0.000E-01	4.848E+04	4.212E+05	0.000E-01	GI-LLI
34	Zr 95	2.136E+01	0.000E-01	1.872E+05	3.456E+04	5.412E+04	1.728E+05	1.584E+05	0.000E-01	LUNG
35	Zr 97	9.816E+00	0.000E-01	9.288E+01	1.920E+01	2.928E+01	7.872E+04	5.232E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)
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FAIRWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	KR 95	4.208E+03	0.000E-01	1.408E+04	7.815E+03	7.715E+03	5.048E+05	1.040E+05	4.208E+03	LUNG
37	KR 97	2.048E-02	0.000E-01	2.234E-01	5.424E-02	4.544E-02	2.400E+03	2.412E+03	0.000E-01	LUNG
38	KR 99	2.295E+01	0.000E-01	0.000E-01	1.208E+02	2.912E+02	9.120E+04	2.480E+05	0.000E-01	GI-LLI
39	KR 99M	3.764E-03	0.000E-01	1.013E-03	2.913E-03	4.415E-02	7.440E+02	4.150E+03	0.000E-01	GI-LLI
40	KR 101	5.904E-04	0.000E-01	4.174E-05	6.012E-05	1.080E-01	3.992E+02	1.080E-11	0.000E-01	LUNG
41	KR 103	5.584E+03	0.000E-01	1.528E+03	0.000E-01	5.613E+03	5.048E+05	1.104E+05	0.000E-01	LUNG
42	KR 105	3.115E-01	0.000E-01	7.904E-01	0.000E-01	1.014E+00	1.095E+04	4.815E+04	0.000E-01	GI-LLI
43	KR 105	8.736E+03	0.000E-01	6.913E+04	0.000E-01	1.336E+05	9.350E+05	9.150E+05	0.000E-01	LUNG
44	RB 138M	5.944E+03	0.000E-01	1.080E+04	1.000E+04	1.948E+04	4.432E+05	3.024E+05	0.000E-01	LUNG
45	CS 135M	5.320E+01	0.000E-01	0.000E-01	1.948E+05	1.584E+05	1.408E+06	3.840E+05	0.000E-01	LUNG
46	SB 134	1.210E+04	7.553E+01	3.120E+04	5.808E+02	0.000E-01	2.480E+05	4.054E+05	0.000E-01	LUNG
47	TE 135M	4.473E+03	1.048E+03	3.411E+03	1.584E+03	1.240E+04	3.136E+05	7.024E+04	0.000E-01	LUNG
48	TE 137M	1.544E+03	1.208E+03	1.224E+04	5.750E+03	4.572E+04	9.500E+05	1.495E+05	0.000E-01	LUNG
49	TE 137	3.072E-01	1.052E+00	1.400E+00	4.424E-01	5.094E+00	6.512E+03	5.712E+04	0.000E-01	GI-LLI
50	TE 139M	1.504E+03	3.440E+03	9.720E+03	4.472E+03	3.552E+04	1.150E+05	3.832E+05	0.000E-01	LUNG
51	TE 139	1.240E-02	1.872E-02	4.972E-02	2.392E-02	1.872E-01	1.932E+03	1.512E+03	0.000E-01	LUNG
52	TE 141M	2.904E+01	5.504E+01	2.992E+01	4.320E+01	3.088E+02	1.452E+05	5.520E+05	0.000E-01	GI-LLI
53	TE 141	3.592E-01	9.360E-01	1.112E-02	5.952E-01	4.384E-02	1.392E+03	1.840E+01	0.000E-01	LUNG
54	TE 143	1.812E+03	1.092E+02	2.280E+03	2.152E+03	1.456E+04	2.880E+05	5.592E+05	0.000E-01	GI-LLI
55	I 130	5.284E+04	1.132E+05	4.572E+03	1.344E+04	2.688E+04	0.000E-01	7.488E+03	0.000E-01	THYROID
56	I 131	2.048E+04	1.192E+07	2.520E+04	3.572E+04	4.128E+04	0.000E-01	4.280E+03	0.000E-01	THYROID
57	I 132	1.156E+04	1.144E+05	1.140E+03	3.252E+03	5.184E+03	0.000E-01	4.024E+02	0.000E-01	THYROID
58	I 133	4.528E+04	2.152E+05	8.240E+03	1.884E+04	2.584E+04	0.000E-01	8.880E+03	0.000E-01	THYROID
59	I 134	5.152E+03	2.984E+04	4.440E+02	1.728E+03	2.752E+03	0.000E-01	1.008E+00	0.000E-01	THYROID
60	I 135	2.552E+04	4.480E+05	2.480E+03	6.984E+03	1.112E+04	0.000E-01	5.248E+03	0.000E-01	THYROID
61	CS 134	7.284E+05	0.000E-01	3.720E+05	8.480E+05	2.872E+05	9.720E+04	1.040E+04	0.000E-01	LIVER
62	CS 136	1.104E+05	0.000E-01	3.904E+04	1.448E+05	8.520E+04	1.200E+04	1.144E+04	0.000E-01	LIVER
63	CS 137	4.284E+05	0.000E-01	4.784E+05	6.204E+05	3.224E+05	7.530E+04	8.400E+03	0.000E-01	LIVER
64	CS 138	3.240E+02	0.000E-01	3.312E+02	6.288E+02	4.800E+02	4.856E+01	1.824E-01	0.000E-01	LIVER
65	BA 139	1.112E+02	0.000E-01	3.048E+02	2.904E+02	2.448E+02	2.272E+01	0.000E-01	0.000E-01	LIVER
66	BA 140	2.712E-02	0.000E-01	9.336E-01	6.252E-04	6.228E-04	3.720E+03	8.952E+02	0.000E-01	LUNG
67	BA 141	2.552E+01	0.000E-01	3.904E+04	4.904E+01	1.272E+01	1.272E+05	2.184E+05	0.000E-01	LUNG
68	BA 142	3.120E-01	0.000E-01	1.000E-01	7.584E-05	7.000E-05	1.912E+03	1.152E-07	0.000E-01	LUNG
69	LA 140	1.252E-01	0.000E-01	2.412E-02	2.760E-05	2.388E-05	1.172E+03	1.548E-16	0.000E-01	LUNG
70	LA 140	4.584E+01	0.000E-01	3.440E+02	1.732E+02	0.000E-01	1.320E+05	4.584E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	7.720E-02	0.000E-01	4.832E-01	3.104E-01	0.000E-01	4.328E103	2.112E101	7.720E-02	LUNG
72	CE 141	1.538E103	0.000E-01	1.992E104	1.352E104	4.254E103	3.414E105	1.200E105	0.000E-01	LUNG
73	CE-143	1.528E101	0.000E-01	1.824E102	1.376E102	4.080E101	7.974E104	2.244E105	0.000E-01	GI-LLI
74	CE-144	1.840E105	0.000E-01	3.432E106	1.432E106	8.480E105	7.774E106	8.160E105	0.000E-01	LUNG
75	PR-143	4.440E102	0.000E-01	9.350E103	3.752E103	3.150E103	2.800E105	2.000E105	0.000E-01	LUNG
76	PR-144	1.538E-03	0.000E-01	3.038E-02	1.248E-02	7.048E-03	1.015E103	2.152E-08	0.000E-01	LUNG
77	ND-147	3.540E102	0.000E-01	5.272E103	4.076E103	3.540E103	2.208E105	1.728E105	0.000E-01	LUNG
78	W-185	5.440E101	0.000E-01	1.540E103	5.176E102	0.000E-01	4.452E105	8.536E104	0.000E-01	LUNG
79	W-187	2.480E100	0.000E-01	8.480E100	7.080E100	0.000E-01	2.904E104	1.552E105	0.000E-01	GI-LLI
80	U-235	4.052E105	0.000E-01	8.000E107	0.000E-01	1.872E107	3.920E108	3.872E105	0.000E-01	LUNG
81	U-238	4.532E105	0.000E-01	7.544E107	0.000E-01	1.744E107	3.544E108	8.240E105	0.000E-01	LUNG
82	NP-239	1.240E101	0.000E-01	2.296E102	2.252E101	7.060E101	3.740E104	1.192E105	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN

PATHWAY : INHALATION

NO	NUCLIDE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	1.272E+03	1.272E+03	0.000E-01	1.272E+03	1.272E+03	1.272E+03	1.272E+03	1.272E+03	W. BODY
2	C-14	4.872E+03	4.872E+03	2.600E+04	4.872E+03	4.872E+03	4.872E+03	4.872E+03	4.872E+03	BONE
3	NA-24	1.375E+04	1.375E+04	1.375E+04	1.375E+04	1.375E+04	1.375E+04	1.375E+04	0.000E-01	W. BODY
4	P-32	7.140E+04	0.000E-01	1.000E+05	1.094E+05	0.000E-01	0.000E-01	9.200E+04	0.000E-01	BONE
5	SC-46	2.400E+05	0.000E-01	4.400E+05	8.540E+05	8.000E+05	0.000E-01	3.500E+05	0.000E-01	LIVER
6	FE-59	1.35E+02	7.495E+01	0.000E-01	0.000E-01	3.072E+01	2.095E+04	3.000E+03	0.000E-01	LUNG
7	MN-54	8.400E+03	0.000E-01	0.000E-01	5.412E+04	1.272E+04	1.984E+05	4.480E+04	0.000E-01	LUNG
8	MN-56	3.530E-01	0.000E-01	0.000E-01	1.492E+00	1.792E+00	1.520E+04	5.740E+01	0.000E-01	GI-LLI
9	FE-55	5.544E+03	0.000E-01	3.344E+04	2.304E+04	0.000E-01	1.240E+05	4.352E+04	0.000E-01	LUNG
10	FE-59	1.433E+04	0.000E-01	1.592E+04	3.492E+04	0.000E-01	1.520E+05	1.700E+05	0.000E-01	LUNG
11	CO-58	2.772E+03	0.000E-01	0.000E-01	2.072E+03	0.000E-01	1.344E+04	9.520E+03	0.000E-01	LUNG
12	CO-60	1.904E+04	0.000E-01	0.000E-01	1.512E+04	0.000E-01	8.720E+04	2.592E+05	0.000E-01	LUNG
13	NI-59	5.412E+03	0.000E-01	3.240E+04	1.440E+04	0.000E-01	4.540E+04	4.860E+03	0.000E-01	LUNG
14	NI-63	1.972E+04	0.000E-01	5.060E+05	4.344E+04	0.000E-01	3.072E+05	1.412E+04	0.000E-01	BONE
15	NI-65	1.27E-01	0.000E-01	2.181E+00	2.920E-01	0.000E-01	9.320E+01	3.572E+01	0.000E-01	GI-LLI
16	CU-64	8.480E-01	0.000E-01	0.000E-01	2.032E+00	4.400E+00	1.112E+04	4.144E+01	0.000E-01	GI-LLI
17	ZN-65	6.240E+04	0.000E-01	1.856E+05	1.136E+05	8.440E+04	1.240E+02	4.424E+04	0.000E-01	LUNG
18	ZN-69	5.452E-01	0.000E-01	4.812E-02	9.200E-02	4.624E-02	1.584E+03	2.812E+02	0.000E-01	LUNG
19	BR-83	3.416E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	RB-86	4.328E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	RB-88	1.832E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-89	8.460E+04	6.060E-01	0.000E-01	1.904E+05	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
23	SR-89	2.720E+02	0.000E-01	0.000E-01	5.432E+02	0.000E-01	0.000E-01	3.920E-05	0.000E-01	LIVER
24	SR-90	2.328E+03	0.000E-01	0.000E-01	3.520E+02	0.000E-01	0.000E-01	3.372E-07	0.000E-01	LIVER
25	SR-91	1.240E+01	0.000E-01	4.344E+05	0.000E-01	0.000E-01	2.412E+05	3.712E+05	0.000E-01	LUNG
26	SR-92	4.084E+02	0.000E-01	1.080E+03	0.000E-01	0.000E-01	1.440E+07	7.540E+05	0.000E-01	BONE
27	Y-90	3.512E+00	0.000E-01	8.800E+01	0.000E-01	0.000E-01	4.072E+04	2.592E+05	0.000E-01	GI-LLI
28	Y-91M	4.052E-01	0.000E-01	7.520E+00	0.000E-01	0.000E-01	2.744E+01	1.192E+05	0.000E-01	GI-LLI
29	Y-91	8.600E+01	0.000E-01	2.980E+03	0.000E-01	0.000E-01	2.920E+05	5.592E+05	0.000E-01	GI-LLI
30	Y-92	1.412E-01	0.000E-01	3.701E-01	0.000E-01	0.000E-01	3.200E+03	3.012E+01	0.000E-01	LUNG
31	Y-93	1.720E+04	0.000E-01	5.200E+05	0.000E-01	0.000E-01	2.932E+05	4.000E+02	0.000E-01	LUNG
32	ZR-95	4.280E-01	0.000E-01	1.472E+01	0.000E-01	0.000E-01	2.240E+04	1.440E+05	0.000E-01	GI-LLI
33	ZR-97	3.720E+00	0.000E-01	1.452E+02	0.000E-01	0.000E-01	8.320E+04	5.792E+05	0.000E-01	GI-LLI
34	ZR-95	3.152E+01	0.000E-01	1.452E+05	4.580E+04	5.712E+04	2.240E+05	1.480E+05	0.000E-01	LUNG
35	ZR-97	1.352E+01	0.000E-01	1.372E+02	3.720E+01	4.120E+01	1.296E+05	4.304E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per μCi/m^{3}).

AGE : TEEN
PATHWAY : INHALATION

NO ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35 NB-95	5.444E+03	0.000E-01	1.856E+04	1.032E+04	1.000E+04	7.512E+05	9.400E+04	5.444E+03	LUNG
37 NB-97	2.048E-02	0.000E-01	2.224E-01	5.624E-02	4.544E-02	2.400E+03	2.412E+02	0.000E-01	LUNG
38 MO-99	3.224E+01	0.000E-01	0.000E-01	1.498E+02	4.112E+02	1.536E+05	2.460E+05	0.000E-01	GI-LLI
39 TC-99M	4.992E-03	0.000E-01	1.384E-03	3.864E-03	5.760E-02	1.152E+03	4.120E+03	0.000E-01	GI-LLI
40 TC-101	8.264E-04	0.000E-01	5.920E-05	8.400E-05	1.520E-03	4.472E+02	8.720E-07	0.000E-01	LUNG
41 RU-103	8.956E+02	0.000E-01	2.104E+03	0.000E-01	7.432E+03	7.832E+05	1.088E+05	0.000E-01	LUNG
42 RU-105	4.336E-01	0.000E-01	1.120E+00	0.000E-01	1.400E+00	1.816E+04	9.016E+04	0.000E-01	GI-LLI
43 RU-106	1.240E+04	0.000E-01	9.840E+04	0.000E-01	1.904E+05	1.400E+07	9.400E+05	0.000E-01	LUNG
44 AG-110M	7.992E+03	0.000E-01	1.384E+04	1.312E+04	2.504E+04	6.752E+06	2.728E+05	0.000E-01	LUNG
45 CD-115M	4.360E+03	0.000E-01	0.000E-01	1.968E+05	1.504E+05	1.460E+06	3.816E+05	0.000E-01	LUNG
46 SB-124	1.240E+04	7.552E+01	3.120E+04	5.888E+02	0.000E-01	2.480E+06	1.016E+05	0.000E-01	LUNG
47 TE-125M	4.472E+02	1.100E+03	4.000E+03	2.240E+03	0.000E-01	5.360E+05	7.504E+04	0.000E-01	LUNG
48 TE-127M	2.184E+03	4.384E+03	1.000E+04	8.144E+03	6.532E+04	1.656E+06	1.592E+05	0.000E-01	LUNG
49 TE-127	4.112E-01	1.144E+00	2.008E+00	9.120E-01	7.280E+00	1.120E+04	8.080E+04	0.000E-01	GI-LLI
50 TE-129M	2.248E+03	1.576E+03	1.392E+04	4.584E+03	5.192E+04	1.976E+06	4.048E+05	0.000E-01	LUNG
51 TE-129	1.726E-02	5.184E-02	7.096E-02	3.376E-02	2.656E-01	3.296E+03	1.616E+03	0.000E-01	LUNG
52 TE-131M	4.024E+01	7.240E+01	9.840E+01	4.068E+01	4.392E+02	2.376E+05	6.296E+05	0.000E-01	GI-LLI
53 TE-131	5.046E-03	1.240E-02	1.576E-02	8.320E-03	6.176E-02	2.336E+03	1.512E+01	0.000E-01	LUNG
54 TE-132	2.192E+03	2.456E+03	3.400E+02	2.904E+02	1.952E+03	4.488E+05	4.632E+05	0.000E-01	GI-LLI
55 I-130	7.128E+03	1.488E+06	6.240E+03	1.792E+04	2.752E+04	0.000E-01	9.120E+03	0.000E-01	THYROID
56 I-131	2.510E+04	1.456E+07	3.514E+04	4.912E+04	8.406E+04	0.000E-01	6.488E+03	0.000E-01	THYROID
57 I-132	1.576E+03	1.512E+05	1.592E+03	4.376E+03	6.920E+03	0.000E-01	1.272E+03	0.000E-01	THYROID
58 I-133	6.224E+03	2.920E+06	1.216E+04	2.048E+04	3.592E+04	0.000E-01	1.032E+04	0.000E-01	THYROID
59 I-134	8.400E+02	3.952E+04	8.800E+02	2.320E+03	3.664E+03	0.000E-01	2.016E+01	0.000E-01	THYROID
60 I-135	3.488E+03	6.208E+05	3.696E+04	9.410E+03	1.488E+04	0.000E-01	6.952E+03	0.000E-01	THYROID
61 CS-134	5.408E+05	0.000E-01	5.024E+05	1.128E+06	3.752E+05	1.424E+05	9.760E+03	0.000E-01	LIVER
62 CS-136	1.328E+05	0.000E-01	5.152E+04	1.936E+05	1.104E+05	1.776E+04	1.088E+04	0.000E-01	LIVER
63 CS-137	3.112E+05	0.000E-01	6.704E+05	8.480E+05	3.040E+05	1.208E+05	8.480E+03	0.000E-01	LIVER
64 CS-138	4.424E+02	0.000E-01	4.656E+02	8.520E+02	6.432E+02	7.872E+01	2.704E-01	0.000E-01	LIVER
65 CS-139	1.112E+02	0.000E-01	2.048E+02	2.904E+02	2.440E+02	2.272E+01	0.000E-01	0.000E-01	LIVER
66 BA-139	3.892E-02	0.000E-01	1.336E+00	9.440E-01	8.888E-04	6.424E+03	6.408E+03	0.000E-01	LUNG
67 BA-140	3.520E+01	0.000E-01	5.472E+04	6.704E+01	2.280E+01	2.032E+06	2.288E+05	0.000E-01	LUNG
68 BA-141	4.718E-03	0.000E-01	1.424E-01	1.656E-04	9.840E-05	3.200E+03	7.456E-04	0.000E-01	LUNG
69 BA-142	2.272E-01	0.000E-01	3.692E-02	3.704E-05	3.136E-05	1.912E+03	4.792E-10	0.000E-01	LUNG
70 LA-140	6.256E+01	0.000E-01	4.792E+02	2.320E+02	0.000E-01	2.144E+05	4.872E+05	0.000E-01	GI-LLI

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : INHALATION

RN	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA 142	1.05ZE 01	0.000E-01	9.400E-01	4.240E-01	0.000E-01	1.014E104	1.200E104	1.05ZE-01	GI-LLI
72	CE 141	2.158E103	0.000E-01	2.840E104	1.895E104	8.800E103	4.134E105	1.244E105	0.000E-01	LUNG
73	CE 143	3.140E101	0.000E-01	2.452E102	1.935E102	8.410E101	1.304E105	2.553E105	0.000E-01	GI-LLI
74	CE 144	2.424E105	0.000E-01	4.888E106	2.024E105	1.358E104	1.332E107	8.446E105	0.000E-01	LUNG
75	PR 143	6.524E103	0.000E-01	1.335E104	5.313E103	3.060E103	4.813E105	2.154E105	0.000E-01	LUNG
76	PR 144	2.175E-01	0.000E-01	4.294E-02	1.740E-02	1.000E-02	1.753E103	2.353E-04	0.000E-01	LUNG
77	ND 147	5.120E103	0.000E-01	7.864E103	8.550E103	5.024E103	3.720E105	1.824E105	0.000E-01	LUNG
78	W 185	5.448E101	0.000E-01	1.520E103	5.175E102	0.000E-01	4.455E105	8.520E104	0.000E-01	LUNG
79	W 187	3.483E100	0.000E-01	1.200E101	9.740E100	0.000E-01	4.735E104	1.746E105	0.000E-01	GI-LLI
80	W 188	4.855E105	0.000E-01	8.600E107	0.000E-01	1.872E107	3.930E108	3.873E105	0.000E-01	LUNG
81	U 238	4.515E104	0.000E-01	7.444E107	0.000E-01	1.744E107	3.614E108	8.240E105	0.000E-01	LUNG
82	NP 239	1.748E101	0.000E-01	3.384E102	3.192E101	1.600E102	6.480E104	1.320E105	0.000E-01	GI-LLI

TABLE 6 (CONT)

FAIRLY NOBLE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H 3	1.125E+03	1.125E+03	0.000E-01	1.125E+03	1.125E+03	1.125E+03	1.125E+03	1.125E+03	W. BODY
2	C 14	4.734E+03	4.734E+03	3.587E+04	4.734E+03	4.734E+03	4.734E+03	4.734E+03	4.734E+03	BONE
3	NA 24	1.469E+04	1.469E+04	1.469E+04	1.469E+04	1.469E+04	1.469E+04	1.469E+04	0.000E-01	W. BODY
4	P 32	9.879E+04	0.000E-01	2.405E+05	1.143E+05	0.000E-01	0.000E-01	4.210E+04	0.000E-01	BONE
5	SC 46	1.151E+05	0.000E-01	2.819E+05	3.959E+05	3.700E+05	0.000E-01	1.193E+05	0.000E-01	LIVER
6	CR 51	1.543E+02	8.547E+01	0.000E-01	0.000E-01	2.431E+01	1.498E+04	1.081E+03	0.000E-01	LUNG
7	MN 54	9.509E+03	0.000E-01	0.000E-01	4.292E+04	1.003E+04	1.575E+05	2.295E+04	0.000E-01	LUNG
8	MN 56	3.119E-01	0.000E-01	0.000E-01	1.458E+00	1.472E+00	1.313E+04	1.214E+05	0.000E-01	GI-LLI
9	FE 55	7.776E+03	0.000E-01	4.735E+04	2.512E+04	0.000E-01	1.110E+05	2.857E+04	0.000E-01	LUNG
10	FE 59	1.559E+04	0.000E-01	3.028E+04	3.385E+04	0.000E-01	1.229E+05	7.057E+04	0.000E-01	LUNG
11	CO 58	3.124E+04	0.000E-01	0.000E-01	1.777E+04	0.000E-01	1.101E+05	3.431E+04	0.000E-01	LUNG
12	CO 60	2.254E+04	0.000E-01	0.000E-01	1.313E+04	0.000E-01	7.057E+04	9.454E+04	0.000E-01	LUNG
13	NI 59	2.566E+03	0.000E-01	1.503E+04	5.403E+03	5.000E-01	3.038E+04	2.231E+03	0.000E-01	LUNG
14	NI 63	2.797E+04	0.000E-01	8.214E+05	4.435E+04	0.000E-01	2.747E+05	4.327E+04	0.000E-01	BONE
15	NI 65	1.244E-01	0.000E-01	2.990E+00	2.952E-01	0.000E-01	8.177E+03	8.391E+04	0.000E-01	GI-LLI
16	CU 64	1.672E+00	0.000E-01	0.000E-01	1.991E+00	6.031E+00	9.583E+03	3.460E+04	0.000E-01	GI-LLI
17	ZN 65	7.634E+04	0.000E-01	4.255E+04	1.133E+05	7.141E+04	9.953E+05	1.433E+04	0.000E-01	LUNG
18	ZN 69	8.917E-01	0.000E-01	6.497E-02	9.257E-02	5.842E-02	1.421E+03	1.017E+04	0.000E-01	GI-LLI
19	BR 83	1.731E+03	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR 84	5.172E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR 85	2.531E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB 86	1.141E+05	0.000E-01	0.000E-01	1.981E+05	0.000E-01	0.000E-01	7.993E+03	0.000E-01	LIVER
23	RB 88	3.222E+02	0.000E-01	0.000E-01	5.234E+02	0.000E-01	0.000E-01	1.721E+01	0.000E-01	LIVER
24	RB 89	2.897E+03	0.000E-01	0.000E-01	3.455E+02	0.000E-01	0.000E-01	1.871E+00	0.000E-01	LIVER
25	SR 89	1.724E+04	0.000E-01	5.994E+05	0.000E-01	0.000E-01	2.457E+04	1.473E+05	0.000E-01	LUNG
26	SR 90	2.438E+05	0.000E-01	1.010E+08	0.000E-01	0.000E-01	1.475E+07	3.431E+05	0.000E-01	BONE
27	SR 91	4.548E+00	0.000E-01	1.21 E+02	0.000E-01	0.000E-01	5.358E+04	1.731E+05	0.000E-01	GI-LLI
28	SR 92	5.354E-01	0.000E-01	1.316E+01	0.000E-01	0.000E-01	2.401E+04	2.423E+05	0.000E-01	GI-LLI
29	Y 90	1.143E+03	0.000E-01	4.167E+03	0.000E-01	0.000E-01	2.415E+05	2.479E+05	0.000E-01	GI-LLI
30	Y 91M	1.841E-02	0.000E-01	5.859E-01	0.000E-01	0.000E-01	2.813E+03	1.717E+04	0.000E-01	LUNG
31	Y 91	3.458E+04	0.000E-01	9.139E+05	0.000E-01	0.000E-01	2.427E+05	1.853E+05	0.000E-01	LUNG
32	Y 92	5.307E-01	0.000E-01	2.035E+01	0.000E-01	0.000E-01	2.370E+04	2.390E+05	0.000E-01	GI-LLI
33	Y 93	5.105E+00	0.000E-01	1.855E+02	0.000E-01	0.000E-01	7.437E+04	3.805E+05	0.000E-01	GI-LLI
34	ZR 95	3.760E+04	0.000E-01	1.879E+05	4.181E+04	1.957E+04	2.241E+05	4.165E+04	0.000E-01	LUNG
35	ZR 97	1.549E+01	0.000E-01	1.874E+02	3.712E+01	3.885E+01	1.133E+05	3.511E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year are $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI LLI	SKIN	CRITICAL
15	RB 95	4.547E+03	0.000E-01	2.349E+04	9.172E+03	8.231E+03	4.142E+05	3.700E+04	4.549E+03	LUNG
17	RB 97	9.473E-01	0.000E-01	1.029E-01	2.401E-02	3.037E-02	1.110E+03	1.117E+02	0.000E-01	LUNG
38	SR 99	4.354E+01	0.000E-01	0.000E-01	1.724E+02	3.922E+02	1.354E+05	1.243E+05	0.000E-01	LUNG
39	Y 99M	5.773E-02	0.000E-01	1.780E-03	3.483E-03	5.029E-02	9.509E+02	4.810E+03	0.000E-01	GI LLI
40	Y 101	1.677E-01	0.000E-01	8.103E-05	8.510E-05	1.456E-03	5.845E+02	1.443E+01	0.000E-01	LUNG
41	NB 103	1.673E+03	0.000E-01	2.847E+03	0.000E-01	7.030E+03	4.423E+05	4.177E+04	0.000E-01	LUNG
43	NB 105	5.550E-01	0.000E-01	1.532E+00	0.000E-01	1.343E+00	1.591E+01	9.953E+01	0.000E-01	GI LLI
44	NB 105	1.491E+01	0.000E-01	1.353E+05	0.000E-01	1.819E+05	1.443E+07	4.393E+05	0.000E-01	LUNG
45	MO 101M	9.139E+01	0.000E-01	1.467E+04	1.140E+04	2.134E+04	5.472E+05	1.003E+05	0.000E-01	LUNG
45	MO 105M	2.941E+01	0.000E-01	0.000E-01	9.103E+04	7.122E+04	4.512E+05	1.772E+05	0.000E-01	LUNG
45	MO 109	5.784E+01	3.497E+01	1.443E+04	2.723E+03	0.000E-01	1.147E+04	1.880E+05	0.000E-01	LUNG
47	TC 105M	9.137E+02	1.921E+03	4.714E+03	2.327E+03	0.000E-01	4.773E+05	4.370E+04	0.000E-01	LUNG
48	TC 107M	3.031E+03	4.050E+03	2.405E+04	8.517E+03	4.324E+04	1.480E+05	7.111E+01	0.000E-01	LUNG
49	TC 127	5.103E-01	1.951E+00	2.771E+00	9.509E-01	7.057E+00	1.603E+04	5.421E+01	0.000E-01	GI LLI
50	TC 129M	3.641E+03	6.327E+03	1.930E+04	6.845E+03	5.613E+04	1.751E+05	1.817E+05	0.000E-01	LUNG
54	TC 129	3.383E-02	7.141E-02	9.758E-02	3.474E-03	2.528E-01	2.934E+03	2.519E+01	0.000E-01	GI LLI
52	TC 131M	5.025E+01	9.728E+01	1.343E+02	5.920E+01	3.975E+02	2.057E+05	3.678E+05	0.000E-01	GI LLI
53	TC 131	2.582E-03	1.499E-02	2.172E-02	8.434E-03	5.883E-02	2.853E+03	1.313E+03	0.000E-01	LUNG
54	TC 132	2.531E+02	3.175E+02	4.810E+02	2.723E+02	1.772E+03	3.771E+05	1.375E+05	0.000E-01	LUNG
55	I 130	8.415E+03	1.845E+04	8.177E+03	1.537E+04	2.145E+04	0.000E-01	5.105E+01	0.000E-01	THYROID
56	I 131	2.727E+04	1.424E+07	4.810E+04	4.810E+04	7.801E+04	0.000E-01	2.813E+03	0.000E-01	THYROID
57	I 132	1.875E+01	1.935E+05	2.112E+03	4.070E+03	5.353E+03	0.000E-01	3.200E+03	0.000E-01	THYROID
58	I 133	7.257E+03	3.818E+04	1.458E+04	3.041E+04	3.370E+04	0.000E-01	5.472E+03	0.000E-01	THYROID
59	I 134	9.953E+02	5.059E+04	1.173E+03	2.121E+03	1.300E+03	0.000E-01	9.515E+02	0.000E-01	THYROID
60	I 135	4.114E+03	7.910E+03	4.921E+03	8.732E+03	1.139E+04	0.000E-01	1.440E+03	0.000E-01	THYROID
61	CS 134	2.215E+05	0.000E-01	5.512E+05	1.014E+05	3.304E+05	1.210E+05	3.848E+03	0.000E-01	LIVER
62	CS 135	1.453E+05	0.000E-01	5.512E+04	1.709E+05	9.545E+04	1.454E+04	4.181E+03	0.000E-01	LIVER
63	CS 137	1.381E+05	0.000E-01	9.055E+05	8.251E+05	2.823E+05	1.040E+05	3.419E+04	0.000E-01	BONE
64	CS 138	5.520E+02	0.000E-01	4.337E+02	8.399E+02	4.251E+02	4.080E+01	2.497E+02	0.000E-01	LIVER
65	CS 139	5.141E+01	0.000E-01	9.473E+01	1.343E+02	1.120E+02	1.051E+01	0.000E-01	0.000E-01	LIVER
66	BA 139	5.355E-02	0.000E-01	1.843E+00	9.843E-04	8.421E-04	5.772E+03	5.772E+04	0.000E-01	GI LLI
67	BA 140	4.427E+03	0.000E-01	7.400E+04	4.475E+01	2.113E+01	1.743E+02	1.017E+05	0.000E-01	LUNG
68	BA 141	4.354E-01	0.000E-01	1.957E-01	1.071E-04	9.473E-05	2.919E+03	2.753E+02	0.000E-01	LUNG
69	BA 142	2.790E-01	0.000E-01	4.995E-02	3.200E-05	2.913E-05	1.443E+03	2.743E+00	0.000E-01	LUNG
70	LA 140	7.548E+01	0.000E-01	6.438E+02	2.250E+02	0.000E-01	1.828E+05	2.257E+05	0.000E-01	GI LLI

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	TA-142	1.291E-01	0.000E-01	1.295E100	4.107E-01	0.000E-01	8.495E101	7.585E104	1.291E-01	GI-LLI
72	CE-141	3.897E103	0.000E-01	3.923E104	1.954E104	8.547E104	5.439E105	5.441E104	0.000E-01	LUNG
73	CE-143	2.875E101	0.000E-01	3.459E102	1.987E102	8.352E101	1.154E105	1.273E105	0.000E-01	GI-LLI
74	CE-144	3.415E105	0.000E-01	4.771E106	2.115E106	1.173E106	1.195E107	3.883E105	0.000E-01	LUNG
75	PR-143	9.139E102	0.000E-01	1.845E104	5.550E103	3.001E103	4.329E105	9.731E104	0.000E-01	LUNG
76	PR-144	3.997E-03	0.000E-01	5.957E-02	1.845E-02	9.768E-03	1.525E103	1.924E102	0.000E-01	LUNG
77	ND-147	5.808E102	0.000E-01	1.080E104	8.732E103	4.816E103	3.283E105	8.218E104	0.000E-01	LUNG
78	W-185	3.520E101	0.000E-01	7.215E102	2.494E102	0.000E-01	2.041E105	3.755E104	0.000E-01	LUNG
79	W-187	4.329E103	0.000E-01	1.433E101	9.457E100	0.000E-01	4.107E101	9.102E104	0.000E-01	GI-LLI
80	W-345	2.344E104	0.000E-01	3.700E107	0.000E-01	8.650E104	1.813E108	1.771E105	0.000E-01	LUNG
81	W-348	2.098E104	0.000E-01	3.545E107	0.000E-01	8.045E104	1.495E108	3.811E105	0.000E-01	LUNG
82	W-349	2.349E101	0.000E-01	4.442E102	3.345E101	9.731E101	5.809E104	4.101E104	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	4.450E+03	4.450E+03	0.000E-01	4.450E+03	4.450E+03	4.450E+03	4.450E+03	4.450E+03	W. BODY
2	C-14	5.305E+03	5.305E+03	2.642E+04	5.305E+03	5.305E+03	5.305E+03	5.305E+03	5.305E+03	BONE
3	NA-24	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	1.055E+04	0.000E-01	W. BODY
4	P-32	7.742E+04	0.000E-01	2.030E+06	1.134E+05	0.000E-01	0.000E-01	1.410E+01	0.000E-01	BONE
5	SC-46	4.354E+04	0.000E-01	7.714E+04	1.490E+05	1.400E+05	0.000E-01	4.533E+04	0.000E-01	LIVER
6	CR-51	8.944E+01	5.754E+01	0.000E-01	0.000E-01	1.333E+01	1.284E+04	3.570E+02	0.000E-01	LUNG
7	MN-54	4.984E+03	0.000E-01	0.000E-01	1.452E+04	4.984E+03	9.994E+05	7.054E+03	0.000E-01	LUNG
8	MN-56	2.313E-01	0.000E-01	0.000E-01	1.540E+00	1.106E+00	1.253E+04	7.140E+01	0.000E-01	GI-LLI
9	FE-55	3.433E+03	0.000E-01	1.974E+04	1.175E+04	0.000E-01	8.494E+04	1.695E+03	0.000E-01	LUNG
10	FE-59	9.470E+03	0.000E-01	1.357E+04	2.353E+04	0.000E-01	1.615E+05	2.472E+04	0.000E-01	LUNG
11	CO-58	1.030E+03	0.000E-01	0.000E-01	1.219E+03	0.000E-01	7.770E+05	1.113E+04	0.000E-01	LUNG
12	CO-60	1.177E+04	0.000E-01	0.000E-01	8.022E+03	0.000E-01	4.508E+05	3.197E+04	0.000E-01	LUNG
13	NI-59	9.478E+02	0.000E-01	5.481E+03	2.044E+03	0.000E-01	1.149E+04	8.558E+02	0.000E-01	LUNG
14	NI-63	1.151E+04	0.000E-01	3.388E+05	2.044E+04	0.000E-01	2.085E+05	2.443E+03	0.000E-01	BONE
15	NI-65	1.231E-01	0.000E-01	2.394E+00	2.842E-01	0.000E-01	8.120E+03	5.014E+04	0.000E-01	GI-LLI
16	CU-64	7.714E-01	0.000E-01	0.000E-01	1.872E+00	3.972E+00	9.292E+03	1.498E+04	0.000E-01	GI-LLI
17	ZN-65	3.106E+04	0.000E-01	1.932E+04	4.258E+04	3.248E+04	4.468E+05	5.133E+04	0.000E-01	LUNG
18	ZN-69	7.183E-01	0.000E-01	5.390E-02	9.674E-02	4.018E-02	1.470E+03	1.323E+01	0.000E-01	GI-LLI
19	RB-83	3.808E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	RB-84	4.001E+02	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	RB-85	2.044E+01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	8.830E+04	0.000E-01	0.000E-01	1.964E+05	0.000E-01	0.000E-01	3.038E+03	0.000E-01	LIVER
23	RB-88	2.870E+02	0.000E-01	0.000E-01	5.572E+02	0.000E-01	0.000E-01	3.388E+02	0.000E-01	LIVER
24	RB-89	3.058E+02	0.000E-01	0.000E-01	3.262E+02	0.000E-01	0.000E-01	4.818E+01	0.000E-01	LIVER
25	SR-89	1.141E+04	0.000E-01	3.972E+05	0.000E-01	0.000E-01	2.030E+05	2.398E+04	0.000E-01	LUNG
26	SR-90	2.590E+06	0.000E-01	4.088E+07	6.600E-01	0.000E-01	1.124E+07	1.316E+05	0.000E-01	BONE
27	SR-91	3.458E+00	0.000E-01	9.553E+01	0.000E-01	0.000E-01	5.224E+04	7.335E+01	0.000E-01	GI-LLI
28	SR-92	3.962E-01	0.000E-01	1.050E+01	0.000E-01	0.000E-01	2.380E+04	1.403E+05	0.000E-01	GI-LLI
29	Y-90	8.620E+01	0.000E-01	3.290E+03	0.000E-01	0.000E-01	2.488E+05	1.016E+05	0.000E-01	LUNG
30	Y-91M	1.382E-02	0.000E-01	4.074E-01	0.000E-01	0.000E-01	2.705E+03	2.352E+04	0.000E-01	LUNG
31	Y-91	1.524E+04	0.000E-01	5.880E+05	0.000E-01	0.000E-01	3.450E+05	7.020E+04	0.000E-01	LUNG
32	Y-92	4.405E-01	0.000E-01	1.430E+01	0.000E-01	0.000E-01	2.450E+04	1.244E+05	0.000E-01	GI-LLI
33	Y-93	4.074E+00	0.000E-01	1.490E+02	0.000E-01	0.000E-01	7.644E+04	1.622E+05	0.000E-01	GI-LLI
34	ZR-95	2.530E+04	0.000E-01	1.154E+05	2.784E+04	3.108E+04	1.750E+05	2.170E+04	0.000E-01	LUNG
35	ZR-97	1.170E+01	0.000E-01	1.490E+02	2.542E+01	2.590E+01	1.103E+05	1.460E+05	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB-95	3.780E+03	0.000E-01	1.540E+04	6.426E+03	4.710E+03	4.780E+05	1.267E+04	3.780E+03	LUNG
37	NB-97	3.504E-03	0.000E 01	3.892E-02	9.842E-03	4.145E-03	4.200E+02	4.220E+01	0.000E-01	LUNG
38	MO 99	3.214E+01	0.000E-01	0.000E-01	1.452E+02	2.642E+02	4.340E+05	4.872E+04	0.000E-01	LUNG
39	TC 99M	3.721E-02	0.000E-01	1.397E-03	2.884E-03	3.100E-02	8.102E+03	2.030E+01	0.000E-01	GI-LLI
40	TC-101	8.120E 04	0.000E-01	4.510E-05	8.242E-05	9.702E-04	5.830E+02	8.442E+02	0.000E-01	GI-LLI
41	RU 103	4.790E+02	0.000E-01	2.016E+03	0.000E-01	4.242E+03	5.515E+05	1.410E+04	0.000E-01	LUNG
42	RU 105	4.102E-01	0.000E-01	1.224E+00	0.000E-01	8.900E-01	1.560E+04	4.811E+04	0.000E-01	GI-LLI
43	RU 106	1.080E+04	0.000E-01	8.480E+04	0.000E-01	1.055E+05	1.150E+07	1.430E+05	0.000E-01	LUNG
44	AG-110M	4.990E+03	0.000E-01	9.980E+03	7.224E+03	1.092E+04	3.650E+05	3.304E+04	0.000E-01	LUNG
45	CD-115M	1.113E+03	0.000E 01	0.000E-01	3.444E+04	2.772E+04	2.454E+05	5.720E+04	0.000E-01	LUNG
46	SB-124	2.170E+03	1.322E+01	5.450E+03	1.030E+02	0.000E-01	4.340E+05	7.112E+04	0.000E-01	LUNG
47	TE-125M	5.200E+02	1.424E+03	4.720E+03	1.980E+03	0.000E-01	4.454E+05	1.291E+01	0.000E-01	LUNG
48	TE-127M	2.072E+03	4.072E+03	1.444E+04	4.902E+03	3.752E+04	1.312E+05	2.730E+04	0.000E-01	LUNG
49	TE-127	4.805E-01	1.040E+00	2.322E+00	9.541E-01	4.850E+00	1.035E+04	2.415E+04	0.000E 01	GI-LLI
50	TE-129M	2.324E+03	5.471E+03	1.414E+04	4.090E+03	3.170E+04	1.480E+05	4.902E+01	0.000E-01	LUNG
51	TE-129	1.872E-02	4.710E-02	7.882E-02	3.472E-02	1.750E-01	2.992E+03	2.243E+04	0.000E-01	GI-LLI
52	TE-131M	3.424E+01	8.942E+01	1.057E+02	5.502E+01	3.442E+02	1.980E+05	1.171E+05	0.000E 01	LUNG
53	TE 131	4.990E-03	1.502E-02	1.732E-02	8.210E-03	3.990E-03	2.050E+03	8.210E+01	0.000E-01	GI-LLI
54	TE 132	1.724E+02	3.702E+02	3.722E+02	2.342E+02	1.035E+03	3.402E+05	4.410E+04	0.000E-01	LUNG
55	I 130	5.572E+03	1.595E+04	5.355E+03	1.507E+04	1.522E+04	0.000E 01	1.980E+03	0.000E-01	THYROID
56	I 131	1.956E+04	1.484E+07	3.794E+04	4.440E+04	5.180E+04	0.000E-01	1.050E+03	0.000E-01	THYROID
57	I 132	1.259E+03	1.494E+05	1.494E+03	4.542E+03	3.940E+03	0.000E-01	1.901E+03	0.000E-01	THYROID
58	I 133	5.200E+03	3.552E+05	1.324E+04	1.918E+04	2.240E+04	0.000E 01	2.154E+03	0.000E-01	THYROID
59	I 134	4.250E+02	4.452E+04	9.213E+02	1.072E+03	2.082E+03	0.000E-01	1.207E+03	0.000E-01	THYROID
60	I 135	2.772E+03	4.958E+05	3.854E+03	7.402E+03	8.470E+03	0.000E-01	1.811E+03	0.000E-01	THYROID
61	CS 134	7.448E+04	0.000E 01	3.952E+05	7.028E+05	1.904E+05	7.956E+04	1.311E+04	0.000E 01	LIVER
62	CS 135	5.292E+03	0.000E 01	4.830E+04	1.345E+05	5.412E+04	1.172E+04	1.420E+04	0.000E-01	LIVER
63	CS 137	4.550E+04	0.000E 01	5.180E+05	6.118E+05	1.722E+05	7.125E+04	1.311E+04	0.000E-01	LIVER
64	CS 138	3.972E+02	0.000E 01	5.054E+02	7.012E+02	4.102E+02	4.530E+01	8.724E+02	0.000E-01	GI-LLI
65	CS 139	1.912E+01	0.000E 01	3.584E+01	5.602E+01	4.270E+01	3.972E+00	0.000E 01	0.000E-01	LIVER
66	BA 139	1.278E 02	0.000E 01	1.482E+00	9.812E-01	5.922E-04	5.950E+03	5.092E+04	0.000E-01	GI-LLI
67	BA 140	2.870E+03	0.000E 01	5.200E+04	5.200E+01	1.342E+01	1.592E+05	3.812E+04	0.000E-01	LUNG
68	BA 141	1.970E 03	0.000E 01	1.532E 01	1.072E-04	6.492E-05	2.950E+03	4.712E+01	0.000E-01	GI-LLI
69	BA 142	1.920E 03	0.000E 01	3.972E 02	3.302E 05	1.904E 05	1.552E+03	2.950E+02	0.000E-01	LUNG
70	LA 140	5.152E+01	0.000E 01	5.052E+02	2.602E+02	0.000E-01	1.280E+05	8.482E+04	0.000E-01	LUNG

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : INHALATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	9.044E-02	0.000E-01	1.030E100	3.764E-01	0.000E-01	8.218E103	5.950E104	9.044E-02	GI-LLI
72	CE-141	1.900E103	0.000E-01	2.772E104	1.442E104	5.250E103	5.166E105	2.155E104	0.000E-01	LUNG
73	CE-143	2.212E101	0.000E-01	2.924E103	1.932E102	5.442E101	1.162E105	4.970E101	0.000E-01	LUNG
74	CE-144	1.724E105	0.000E-01	3.192E106	1.211E106	5.375E105	9.842E106	1.404E105	0.000E-01	LUNG
75	PR-143	6.985E102	0.000E-01	1.400E104	5.236E103	1.974E103	4.326E105	3.724E104	0.000E-01	LUNG
76	PR-144	2.400E-03	0.000E-01	4.700E-02	1.810E-02	6.720E-03	1.610E103	4.304E104	0.000E-01	GI-LLI
77	ND-147	4.990E102	0.000E-01	7.930E103	8.134E103	3.150E103	3.220E105	3.123E104	0.000E-01	LUNG
78	W-185	9.534E100	0.000E-01	2.730E102	9.050E101	0.000E-01	7.790E104	1.490E104	0.000E-01	LUNG
79	W-187	3.122E100	0.000E-01	1.295E101	9.014E100	0.000E-01	3.962E104	3.554E104	0.000E-01	LUNG
80	U-235	8.451E105	0.000E-01	1.400E107	0.000E-01	3.272E106	6.850E107	6.775E104	0.000E-01	LUNG
81	U-238	7.930E105	0.000E-01	1.341E107	0.000E-01	3.052E106	6.412E107	1.442E105	0.000E-01	LUNG
82	NP-239	1.072E101	0.000E-01	3.710E102	3.310E101	1.222E101	5.950E104	2.492E101	0.000E-01	LUNG

TABLE 6 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ALL
PATHWAY : GROUND PLANE

NO ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1 H-3	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
2 C-14	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
3 NA-24	1.190E+07	1.190E+07	1.190E+07	1.190E+07	1.190E+07	1.190E+07	1.190E+07	1.387E+07	SKIN
4 P-32	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
5 SC-46	8.321E+08	8.321E+08	8.321E+08	8.321E+08	8.321E+08	8.321E+08	8.321E+08	9.501E+08	SKIN
6 CR-51	4.448E+04	4.448E+04	4.448E+04	4.448E+04	4.448E+04	4.448E+04	4.448E+04	5.517E+04	SKIN
7 MN-54	1.384E+09	1.384E+09	1.384E+09	1.384E+09	1.384E+09	1.384E+09	1.384E+09	1.422E+09	SKIN
8 MN-56	9.030E+05	9.030E+05	9.030E+05	9.030E+05	9.030E+05	9.030E+05	9.030E+05	1.047E+06	SKIN
9 FE-55	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
10 FE-59	2.725E+08	2.725E+08	2.725E+08	2.725E+08	2.725E+08	2.725E+08	2.725E+08	4.362E+08	SKIN
11 CO-58	3.833E+08	3.833E+08	3.833E+08	3.833E+08	3.833E+08	3.833E+08	3.833E+08	4.490E+08	SKIN
12 CO-60	2.152E+10	2.152E+10	2.152E+10	2.152E+10	2.152E+10	2.152E+10	2.152E+10	2.532E+10	SKIN
13 NI-59	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
14 NI-63	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
15 NI-65	2.970E+05	2.970E+05	2.970E+05	2.970E+05	2.970E+05	2.970E+05	2.970E+05	3.451E+05	SKIN
16 CU-64	4.051E+05	4.051E+05	4.051E+05	4.051E+05	4.051E+05	4.051E+05	4.051E+05	4.858E+05	SKIN
17 ZN-65	7.410E+08	7.410E+08	7.410E+08	7.410E+08	7.410E+08	7.410E+08	7.410E+08	8.522E+08	SKIN
18 ZN-69	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
19 BR-83	4.887E+03	4.887E+03	4.887E+03	4.887E+03	4.887E+03	4.887E+03	4.887E+03	7.104E+03	SKIN
20 BR-84	2.032E+05	2.032E+05	2.032E+05	2.032E+05	2.032E+05	2.032E+05	2.032E+05	2.358E+05	SKIN
21 BR-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22 RB-86	8.963E+05	8.963E+05	8.963E+05	8.963E+05	8.963E+05	8.963E+05	8.963E+05	1.031E+07	SKIN
23 RB-88	4.287E+04	4.287E+04	4.287E+04	4.287E+04	4.287E+04	4.287E+04	4.287E+04	5.754E+04	SKIN
24 RB-89	1.209E+05	1.209E+05	1.209E+05	1.209E+05	1.209E+05	1.209E+05	1.209E+05	1.450E+05	SKIN
25 SR-89	2.150E+04	2.150E+04	2.150E+04	2.150E+04	2.150E+04	2.150E+04	2.150E+04	2.507E+04	SKIN
26 SR-90	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
27 SR-91	2.145E+05	2.145E+05	2.145E+05	2.145E+05	2.145E+05	2.145E+05	2.145E+05	2.507E+05	SKIN
28 SR-92	7.742E+05	7.742E+05	7.742E+05	7.742E+05	7.742E+05	7.742E+05	7.742E+05	8.629E+05	SKIN
29 Y-90	4.497E+03	4.497E+03	4.497E+03	4.497E+03	4.497E+03	4.497E+03	4.497E+03	5.311E+03	SKIN
30 Y-91M	1.004E+05	1.004E+05	1.004E+05	1.004E+05	1.004E+05	1.004E+05	1.004E+05	1.154E+05	SKIN
31 Y-91	1.074E+05	1.074E+05	1.074E+05	1.074E+05	1.074E+05	1.074E+05	1.074E+05	1.309E+05	SKIN
32 Y-92	1.804E+05	1.804E+05	1.804E+05	1.804E+05	1.804E+05	1.804E+05	1.804E+05	1.915E+05	SKIN
33 Y-93	1.849E+05	1.849E+05	1.849E+05	1.849E+05	1.849E+05	1.849E+05	1.849E+05	2.531E+05	SKIN
34 ZR-95	2.513E+08	2.513E+08	2.513E+08	2.513E+08	2.513E+08	2.513E+08	2.513E+08	2.915E+08	SKIN
35 ZR-97	2.950E+05	2.950E+05	2.950E+05	2.950E+05	2.950E+05	2.950E+05	2.950E+05	3.443E+05	SKIN

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ALL
PATHWAY : GROUND PLANE

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	KR 85	1.355E+08	1.355E+08	1.355E+08	1.355E+08	1.355E+08	1.355E+08	1.355E+08	1.507E+08	SKIN
37	RB 87	1.797E+05	1.797E+05	1.797E+05	1.797E+05	1.797E+05	1.797E+05	1.797E+05	2.109E+05	SKIN
38	SR 89	3.990E+04	3.990E+04	3.990E+04	3.990E+04	3.990E+04	3.990E+04	3.990E+04	4.620E+04	SKIN
39	Y 90M	1.845E+05	1.845E+05	1.845E+05	1.845E+05	1.845E+05	1.845E+05	1.845E+05	2.115E+05	SKIN
40	ZR 101	2.034E+04	2.034E+04	2.034E+04	2.034E+04	2.034E+04	2.034E+04	2.034E+04	2.340E+04	SKIN
41	NB 103	1.093E+08	1.093E+08	1.093E+08	1.093E+08	1.093E+08	1.093E+08	1.093E+08	1.276E+08	SKIN
42	MO 105	6.373E+05	6.373E+05	6.373E+05	6.373E+05	6.373E+05	6.373E+05	6.373E+05	7.333E+05	SKIN
44	RU 105	4.239E+08	4.239E+08	4.239E+08	4.239E+08	4.239E+08	4.239E+08	4.239E+08	5.008E+08	SKIN
47	AG 110M	3.450E+09	3.450E+09	3.450E+09	3.450E+09	3.450E+09	3.450E+09	3.450E+09	4.037E+09	SKIN
48	CD 115M	0.000E+01	0.000E+01	0.000E+01	0.000E+01	0.000E+01	0.000E+01	0.000E+01	0.000E+01	W. BODY
48	SB 124	5.994E+08	5.994E+08	5.994E+08	5.994E+08	5.994E+08	5.994E+08	5.994E+08	6.912E+08	SKIN
47	TE 125M	1.555E+05	1.555E+05	1.555E+05	1.555E+05	1.555E+05	1.555E+05	1.555E+05	2.133E+05	SKIN
48	TE 127M	9.145E+04	9.145E+04	9.145E+04	9.145E+04	9.145E+04	9.145E+04	9.145E+04	1.063E+05	SKIN
49	TE 127	2.991E+03	2.991E+03	2.991E+03	2.991E+03	2.991E+03	2.991E+03	2.991E+03	3.390E+03	SKIN
50	TE 129M	1.957E+07	1.957E+07	1.957E+07	1.957E+07	1.957E+07	1.957E+07	1.957E+07	2.300E+07	SKIN
51	TE 129	2.439E+04	2.439E+04	2.439E+04	2.439E+04	2.439E+04	2.439E+04	2.439E+04	3.123E+04	SKIN
52	TE 131M	8.023E+04	8.023E+04	8.023E+04	8.023E+04	8.023E+04	8.023E+04	8.023E+04	9.455E+04	SKIN
53	I 131	2.924E+04	2.924E+04	2.924E+04	2.924E+04	2.924E+04	2.924E+04	2.924E+04	3.356E+07	SKIN
53	I 132	4.220E+03	4.220E+03	4.220E+03	4.220E+03	4.220E+03	4.220E+03	4.220E+03	4.925E+04	SKIN
53	I 133	5.539E+04	5.539E+04	5.539E+04	5.539E+04	5.539E+04	5.539E+04	5.539E+04	6.423E+04	SKIN
53	I 134	1.722E+07	1.722E+07	1.722E+07	1.722E+07	1.722E+07	1.722E+07	1.722E+07	2.091E+07	SKIN
53	I 135	1.238E+04	1.238E+04	1.238E+04	1.238E+04	1.238E+04	1.238E+04	1.238E+04	1.457E+04	SKIN
54	XE 133	2.453E+04	2.453E+04	2.453E+04	2.453E+04	2.453E+04	2.453E+04	2.453E+04	2.983E+04	SKIN
54	XE 135	1.120E+05	4.420E+05	4.420E+05	4.420E+05	4.420E+05	4.420E+05	4.420E+05	5.392E+05	SKIN
55	CS 134	2.530E+04	2.530E+04	2.530E+04	2.530E+04	2.530E+04	2.530E+04	2.530E+04	2.940E+04	SKIN
55	CS 136	4.834E+07	4.834E+07	4.834E+07	4.834E+07	4.834E+07	4.834E+07	4.834E+07	7.973E+07	SKIN
55	CS 137	1.491E+08	1.491E+08	1.491E+08	1.491E+08	1.491E+08	1.491E+08	1.491E+08	1.690E+08	SKIN
56	BA 140	1.030E+10	1.030E+10	1.030E+10	1.030E+10	1.030E+10	1.030E+10	1.030E+10	1.202E+10	SKIN
58	CE 141	3.597E+05	3.597E+05	3.597E+05	3.597E+05	3.597E+05	3.597E+05	3.597E+05	4.111E+05	SKIN
58	CE 144	3.115E+04	3.115E+04	3.115E+04	3.115E+04	3.115E+04	3.115E+04	3.115E+04	3.541E+04	SKIN
59	PR 143	1.059E+05	1.059E+05	1.059E+05	1.059E+05	1.059E+05	1.059E+05	1.059E+05	1.191E+05	SKIN
60	ND 147	2.051E+07	2.051E+07	2.051E+07	2.051E+07	2.051E+07	2.051E+07	2.051E+07	2.343E+07	SKIN
74	W 187	4.179E+04	4.179E+04	4.179E+04	4.179E+04	4.179E+04	4.179E+04	4.179E+04	4.723E+04	SKIN
92	U 240	4.485E+04	4.485E+04	4.485E+04	4.485E+04	4.485E+04	4.485E+04	4.485E+04	5.110E+04	SKIN
93	NP 239	1.924E+07	1.924E+07	1.924E+07	1.924E+07	1.924E+07	1.924E+07	1.924E+07	2.181E+07	SKIN

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : All
PATHWAY : GROUND PLANE

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	7.359E+05	7.359E+05	7.359E+05	7.359E+05	7.359E+05	7.359E+05	7.359E+05	8.830E+05	SKIN
72	CE-141	1.345E+07	1.345E+07	1.345E+07	1.345E+07	1.345E+07	1.345E+07	1.345E+07	1.534E+07	SKIN
73	CE-143	2.314E+04	2.314E+04	2.314E+04	2.314E+04	2.314E+04	2.314E+04	2.314E+04	2.430E+04	SKIN
74	CE-144	6.934E+07	6.934E+07	6.934E+07	6.934E+07	6.934E+07	6.934E+07	6.934E+07	8.017E+07	SKIN
75	PR-143	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
76	PR-144	1.833E+03	1.833E+03	1.833E+03	1.833E+03	1.833E+03	1.833E+03	1.833E+03	2.108E+03	SKIN
77	ND-147	8.389E+04	8.389E+04	8.389E+04	8.389E+04	8.389E+04	8.389E+04	8.389E+04	1.007E+07	SKIN
78	W-185	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
79	W-187	2.350E+04	2.350E+04	2.350E+04	2.350E+04	2.350E+04	2.350E+04	2.350E+04	2.739E+04	SKIN
80	U-235	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
81	U-238	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
82	NP-239	1.703E+04	1.703E+04	1.703E+04	1.703E+04	1.703E+04	1.703E+04	1.703E+04	1.972E+04	SKIN

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	2.240E+03	2.240E+03	0.000E-01	2.240E+03	2.240E+03	2.240E+03	2.240E+03	2.240E+03	W. BODY
2	C-14	1.793E+05	1.793E+05	8.966E+05	1.793E+05	1.793E+05	1.793E+05	1.793E+05	1.793E+05	BONE
3	NA-24	2.692E+05	2.692E+05	2.692E+05	2.692E+05	2.692E+05	2.692E+05	2.692E+05	0.000E-01	W. BODY
4	P-32	5.433E+07	0.000E-01	1.402E+09	8.740E+07	0.000E-01	0.000E-01	1.580E+08	0.000E-01	BONE
5	SC-46	1.414E+05	0.000E-01	2.503E+05	4.910E+05	4.547E+05	0.000E-01	2.329E+09	0.000E-01	GI-LLI
6	CR-51	4.455E+04	2.783E+04	0.000E-01	0.000E-01	1.025E+04	4.178E+04	1.171E+07	0.000E-01	GI-LLI
7	MN-54	5.929E+07	0.000E-01	0.000E-01	3.128E+08	9.309E+07	0.000E-01	9.583E+08	0.000E-01	GI-LLI
8	MN-56	3.730E+00	0.000E-01	0.000E-01	1.539E+01	1.954E+01	0.000E-01	4.913E+02	0.000E-01	GI-LLI
9	FE-55	3.372E+07	0.000E-01	2.092E+08	1.448E+08	0.000E-01	8.077E+07	8.302E+07	0.000E-01	BONE
10	FE-59	1.135E+08	0.000E-01	1.240E+08	2.951E+08	0.000E-01	8.273E+07	9.052E+08	0.000E-01	GI-LLI
11	CO-58	4.939E+07	0.000E-01	0.000E-01	3.094E+07	0.000E-01	0.000E-01	4.274E+08	0.000E-01	GI-LLI
12	CO-60	3.283E+08	0.000E-01	0.000E-01	1.671E+08	0.000E-01	0.000E-01	3.135E+09	0.000E-01	GI-LLI
13	NI-59	1.303E+08	0.000E-01	7.830E+08	2.685E+08	0.000E-01	0.000E-01	5.516E+07	0.000E-01	BONE
14	NI-63	3.489E+08	0.000E-01	1.340E+10	7.211E+08	0.000E-01	0.000E-01	1.503E+08	0.000E-01	BONE
15	NI-65	3.547E+00	0.000E-01	5.927E+01	7.752E+00	0.000E-01	0.000E-01	1.925E+02	0.000E-01	GI-LLI
16	CU-64	4.257E+03	0.000E-01	0.000E-01	9.090E+03	2.292E+04	0.000E-01	7.748E+05	0.000E-01	GI-LLI
17	ZN-65	4.553E+08	0.000E-01	3.148E+08	1.000E+09	6.742E+08	0.000E-01	2.364E+08	0.000E-01	LIVER
18	ZN-69	1.040E-05	0.000E-01	7.819E-05	1.495E-05	9.712E-06	0.000E-01	2.217E-02	0.000E-01	LIVER
19	RB-86	3.087E+00	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	4.412E+03	0.000E-01	GI-LLI
20	RB-88	2.000E-11	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	1.577E-15	0.000E-01	W. BODY
21	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	SR-89	1.017E+08	0.000E-01	0.000E-01	2.187E+06	0.000E-01	0.000E-01	4.311E+07	0.000E-01	LIVER
23	SR-90	9.883E-23	0.000E-01	0.000E-01	1.843E-22	0.000E-01	0.000E-01	0.000E-01	0.000E-01	LIVER
24	SR-91	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-92	2.857E+00	0.000E-01	9.954E+01	0.000E-01	0.000E-01	0.000E-01	1.595E+02	0.000E-01	BONE
26	Y-90	1.488E-11	0.000E-01	4.044E-11	0.000E-01	0.000E-01	0.000E-01	1.747E-10	0.000E-01	BONE
27	Y-91	1.215E+04	0.000E-01	3.009E+05	0.000E-01	0.000E-01	0.000E-01	1.443E+06	0.000E-01	GI-LLI
28	SR-92	1.708E+01	0.000E-01	4.125E+02	0.000E-01	0.000E-01	0.000E-01	8.173E+03	0.000E-01	GI-LLI
29	Y-90	3.552E+02	0.000E-01	1.340E+04	0.000E-01	0.000E-01	0.000E-01	1.410E+08	0.000E-01	GI-LLI
30	Y-91M	1.909E-10	0.000E-01	4.930E-09	0.000E-01	0.000E-01	0.000E-01	1.440E-08	0.000E-01	GI-LLI
31	Y-91	1.350E+05	0.000E-01	5.112E+05	0.000E-01	0.000E-01	0.000E-01	2.812E+09	0.000E-01	GI-LLI
32	Y-92	2.515E-02	0.000E-01	8.942E-01	0.000E-01	0.000E-01	0.000E-01	1.567E+04	0.000E-01	GI-LLI
33	Y-93	4.751E+00	0.000E-01	1.721E+02	0.000E-01	0.000E-01	0.000E-01	5.457E+04	0.000E-01	GI-LLI
34	ZR-95	2.595E+05	0.000E-01	1.194E+05	3.835E+05	6.619E+05	0.000E-01	1.214E+07	0.000E-01	GI-LLI
35	ZR-97	3.091E+01	0.000E-01	3.454E+02	6.747E+01	1.023E+02	0.000E-01	2.092E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	RB-95	4.254E+04	0.000E-01	1.423E+05	7.914E+04	7.822E+04	0.000E-01	4.803E+04	0.000E-01	GI-LLI
37	RB 97	2.512E 07	0.000E 01	2.730E-04	4.809E-07	8.037E-07	0.000E-01	2.542E-01	0.000E 01	GI-LLI
38	RB 99	1.147E+05	0.000E-01	0.000E-01	4.135E+05	1.390E+07	0.000E-01	1.122E+07	0.000E-01	GI-LLI
39	TC 99M	1.113E+02	0.000E-01	3.093E+00	8.710E+00	1.337E+02	4.283E+00	5.172E+04	0.000E-01	GI-LLI
40	TC 101	0.000E 01	0.000E 01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E 01	0.000E-01	W. BODY
41	RU 103	2.074E+05	0.000E 01	4.815E+06	0.000E-01	1.847E+07	0.000E-01	5.421E+03	0.000E-01	GI-LLI
42	RU 105	2.101E+01	0.000E-01	5.330E+01	0.000E 01	4.808E+02	0.000E 01	3.251E+04	0.000E-01	GI-LLI
43	RU 106	2.441E+07	0.000E-01	1.929E+08	0.000E-01	3.734E+08	0.000E-01	1.218E+10	0.000E-01	GI-LLI
44	AG 110M	5.795E+05	0.000E-01	1.055E+07	9.758E+06	1.919E+07	0.000E 01	3.980E+09	0.000E-01	GI-LLI
45	CD 115M	1.248E+05	0.000E-01	0.000E-01	5.157E+07	4.092E+07	0.000E 01	2.152E+09	0.000E-01	GI-LLI
46	SB 124	4.115E+07	3.517E+05	1.042E+08	1.925E+06	0.000E 01	8.081E+07	2.917E+09	0.000E-01	GI-LLI
47	TE 125M	1.372E+07	2.909E+07	9.472E+07	3.504E+07	3.934E+08	0.000E 01	3.8[illegible]E+08	0.000E-01	KIDNEY
48	TE 127M	4.235E+07	8.924E+07	3.492E+08	1.248E+08	1.418E+09	0.000E-01	1.171E+09	0.000E-01	KIDNEY
49	TE 127	1.240E+03	1.211E+03	5.484E+03	2.011E+03	2.315E+04	0.000E-01	4.185E+05	0.000E-01	GI-LLI
50	TE 129M	3.965E+07	8.584E+07	2.199E+08	9.333E+07	1.043E+09	0.000E 01	1.258E+09	0.000E 01	GI-LLI
51	TE 129	1.901E-01	5.997E-04	7.813E-04	2.944E-04	3.281E-03	0.000E-01	5.897E 01	0.000E-01	KIDNEY
52	TE 131M	3.705E+05	7.043E+05	9.092E+05	4.445E+05	4.501E+06	0.000E-01	4.415E+07	0.000E-01	GI-LLI
53	TE 131	4.311E-14	1.131E-13	1.375E-13	5.744E-14	6.024E-13	0.000E 01	1.917E-12	0.000E 01	KIDNEY
54	TE 132	2.206E+05	3.058E+05	4.202E+06	2.729E+06	2.448E+07	0.000E-01	1.310E+08	0.000E-01	GI-LLI
55	I 130	4.591E+05	7.841E+07	3.944E+05	1.163E+06	1.815E+06	0.000E 01	1.063E+05	0.000E 01	THYROID
56	I 131	2.523E+07	3.702E+10	8.079E+07	1.158E+08	1.981E+08	0.000E 01	3.649E+07	0.000E 01	THYROID
57	I 132	4.958E+01	4.928E+03	5.300E+01	1.420E+02	2.252E+02	0.000E 01	2.267E+01	0.000E-01	THYROID
58	I 133	1.103E+05	5.318E+08	2.060E+06	3.413E+05	5.314E+06	0.000E-01	5.253E+06	0.000E-01	THYROID
59	I 134	8.302E 05	4.024E 03	8.540E-05	2.322E-04	3.494E 04	0.000E-01	2.024E 07	0.000E-01	THYROID
60	I 135	3.491E+04	6.597E+05	3.820E+04	1.000E+05	1.204E+05	0.000E 01	1.136E+05	0.000E-01	THYROID
61	CS 134	9.072E+09	0.000E 01	4.554E+09	1.110E+10	3.593E+09	1.193E+09	1.711E+08	0.000E-01	LIVER
62	CS 136	1.195E+08	0.000E 01	4.204E+07	1.446E+08	9.235E+07	1.255E+07	1.885E+07	0.000E-01	LIVER
63	CS 137	5.292E+09	0.000E 01	4.350E+09	8.692E+09	2.953E+09	9.813E+08	1.583E+08	0.000E-01	LIVER
64	CS 138	3.554E 11	0.000E 01	3.433E-11	7.171E 11	5.272E-11	5.206E-12	3.051E-15	0.000E 01	LIVER
65	CS 139	0.000E 01	0.000E 01	0.000E 01	0.000E 01	0.000E 01	0.000E-01	0.000E 01	0.000E-01	W. BODY
66	BA 139	7.934 01	0.000E 01	2.707E 02	1.928E 05	1.808E 05	1.079E-05	4.000E 03	0.000E 01	GI-LLI
67	BA 140	8.405E+04	0.000E 01	1.208E+06	1.411E+05	5.479E+04	9.227E+04	3.243E+06	0.000E-01	GI-LLI
68	BA 141	3.380E 23	0.000E 01	1.004E-21	7.589E 25	7.055E 25	0.000E 01	0.000E 01	0.000E 01	BONE
69	BA 142	0.000E 01	0.000E 01	0.000E-01	0.000E 01	0.000E 01	0.000E 01	0.000E 01	0.000E-01	W. BODY
70	LA 140	2.434E+02	0.000E 01	1.970E+03	9.950E+02	0.000E 01	0.000E-01	7.310E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : ADULT
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-143	1.508E-05	0.000E-01	1.331E-04	4.051E-05	0.000E-01	0.000E-01	4.419E-01	0.000E-01	GI-LLI
72	CE-141	1.511E104	0.000E-01	1.970E105	1.333E105	4.[illegible]4	0.000E-01	5.094E108	0.000E-01	GI-LLI
73	CE-143	8.154E101	0.000E-01	9.966E103	7.369E105	3.[illegible]2	0.000E-01	2.754E107	0.000E-01	GI-LLI
74	CE-144	1.725E104	0.000E-01	3.280E107	1.375E107	8.[illegible]3E104	0.000E-01	1.112E110	0.000E-01	GI-LLI
75	PR-143	3.161E103	0.000E-01	4.355E104	2.509E104	1.448E104	0.000E-01	2.710E108	0.000E-01	GI-LLI
76	PR-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND-147	3.303E103	0.000E-01	3.330E104	3.849E104	2.350E104	0.000E-01	1.845E108	0.000E-01	GI-LLI
78	W-185	6.025E105	0.000E-01	1.734E107	5.752E104	0.000E-01	0.000E-01	4.253E108	0.000E-01	GI-LLI
79	W-187	1.112E104	0.000E-01	3.805E104	3.181E104	0.000E-01	0.000E-01	1.015E107	0.000E-01	GI-LLI
80	U-235	3.895E109	0.000E-01	4.427E110	0.000E-01	1.499E110	0.000E-01	4.[illegible]E109	0.000E-01	BONE
81	U-238	3.545E109	0.000E-01	4.147E110	0.000E-01	1.402E110	0.000E-01	1.336E110	0.000E-01	BONE
82	NP-239	7.293E101	0.000E-01	1.419E103	1.395E103	4.354E102	0.000E-01	2.8[illegible]E107	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H 3	2.580E+03	2.580E+03	0.000E-01	2.580E+03	2.580E+03	2.580E+03	2.580E+03	2.580E+03	W. BODY
2	C 14	2.907E+05	2.907E+05	1.454E+05	2.907E+05	2.907E+05	2.907E+05	2.907E+05	2.907E+05	BONE
3	Na 24	2.390E+05	2.390E+05	2.390E+05	2.390E+05	2.390E+05	2.390E+05	2.390E+05	0.000E-01	W. BODY
4	P 32	6.217E+07	0.000E-01	1.411E+09	9.983E+07	0.000E-01	0.000E-01	1.35[illegible]E+08	0.000E-01	BONE
5	SC 46	1.519E+05	0.000E-01	2.745E+05	5.380E+05	4.981E+05	0.000E-01	2.5[illegible]E+09	0.000E-01	GI-LLI
6	CR 51	6.185E+04	3.437E+04	0.000E-01	0.000E-01	1.355E+04	8.832E+04	1.040E+07	0.000E-01	GI-LLI
7	MN 54	9.010E+07	0.000E-01	0.000E-01	4.543E+08	1.355E+08	0.000E-01	9.[illegible]E+08	0.000E-01	GI-LLI
8	MN 56	2.429E+06	0.000E-01	0.000E-01	1.308E+01	1.757E+01	0.000E-01	9.13[illegible]E+02	0.000E-01	GI-LLI
9	FE 55	5.388E+07	0.000E-01	3.259E+08	2.310E+08	0.000E-01	1.42[illegible]E+08	1.06[illegible]E+08	0.000E-01	BONE
10	FE 59	1.245E+08	0.000E-01	1.792E+08	4.181E+08	0.000E-01	1.318E+08	9.08[illegible]E+08	0.000E-01	GI-LLI
11	CO 58	1.614E+08	0.000E-01	0.000E-01	4.394E+07	0.000E-01	0.000E-01	4.65[illegible]E+08	0.000E-01	GI-LLI
12	CO 60	5.597E+08	0.000E-01	0.000E-01	2.405E+08	0.000E-01	0.000E-01	3.3[illegible]E+09	0.000E-01	GI-LLI
13	NI 59	1.482E+08	0.000E-01	8.080E+08	3.045E+08	0.000E-01	0.000E-01	2.[illegible]E+07	0.000E-01	BONE
14	NI 63	5.115E+08	0.000E-01	1.302E+10	1.135E+09	0.000E-01	0.000E-01	1.[illegible]E+08	0.000E-01	BONE
15	NI 65	3.213E+06	0.000E-01	5.551E+01	7.097E+00	0.000E-01	0.000E-01	3.81[illegible]E+03	0.000E-01	GI-LLI
16	CU 64	3.874E+03	0.000E-01	0.000E-01	8.235E+03	2.084E+04	0.000E-01	2.3[illegible]E+05	0.000E-01	GI-LLI
17	ZN 65	5.859E+08	0.000E-01	4.251E+08	1.459E+09	9.403E+08	0.000E-01	2.3[illegible]E+08	0.000E-01	LIVER
18	ZN 69	9.754E-07	0.000E-01	7.323E-05	1.395E-05	9.115E-05	0.000E-01	2.570E-05	0.000E-01	GI-LLI
19	RB 86	2.893E+00	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	RB 88	1.817E-11	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	RB 89	6.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	SR 89	1.280E+08	0.000E-01	0.000E-01	2.725E+08	0.000E-01	0.000E-01	4.04[illegible]E+07	0.000E-01	LIVER
23	SR 90	9.172E-21	0.000E-01	0.000E-01	1.721E-22	0.000E-01	0.000E-01	0.000E-01	0.000E-01	LIVER
24	SR 91	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR 92	4.340E+08	0.000E-01	1.512E+10	0.000E-01	0.000E-01	0.000E-01	1.80[illegible]E+09	0.000E-01	BONE
26	Y 90	1.85[illegible]E+11	0.000E-01	7.507E+11	0.000E-01	0.000E-01	0.000E-01	2.10[illegible]E+10	0.000E-01	BONE
27	Y 91M	1.118E+04	0.000E-01	2.811E+05	0.000E-01	0.000E-01	0.000E-01	1.2[illegible]E+05	0.000E-01	GI-LLI
28	Y 92	1.537E+01	0.000E-01	3.840E+03	0.000E-01	0.000E-01	0.000E-01	9.7[illegible]E+04	0.000E-01	GI-LLI
29	Y 90	3.317E+02	0.000E-01	1.243E+04	0.000E-01	0.000E-01	0.000E-01	1.07[illegible]E+08	0.000E-01	GI-LLI
30	Y 91M	1.755E-10	0.000E-01	4.591E-09	0.000E-01	0.000E-01	0.000E-01	2.12[illegible]E-07	0.000E-01	GI-LLI
31	Y 91	2.103E+05	0.000E-01	7.812E+06	0.000E-01	0.000E-01	0.000E-01	3.21[illegible]E+09	0.000E-01	GI-LLI
32	Y 92	2.443E-03	0.000E-01	8.407E-01	0.000E-01	0.000E-01	0.000E-01	2.30[illegible]E+04	0.000E-01	GI-LLI
33	Y 93	1.423E+00	0.000E-01	1.414E+02	0.000E-01	0.000E-01	0.000E-01	4.93[illegible]E+05	0.000E-01	GI-LLI
34	ZR 95	1.808E+05	0.000E-01	1.755E+06	5.530E+05	4.303E+12	0.000E-01	1.27[illegible]E+09	0.000E-01	KIDNEY
35	ZR 97	2.840E+01	0.000E-01	3.105E+02	6.144E+01	9.314E+01	0.000E-01	1.254E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN

PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
36	NB 95	5.845E+04	0.000E-01	1.921E+05	1.045E+05	1.033E+05	0.000E-01	4.554E+08	0.000E-01	GI-LLI
37	NB 97	1.451E-07	0.000E-01	1.791E-06	4.521E-07	5.274E-07	0.000E-01	1.248E-03	0.000E-01	GI-LLI
38	MO 99	1.674E+05	0.000E-01	0.000E-01	5.434E+04	1.289E+07	0.000E-01	1.009E+07	0.000E-01	KIDNEY
39	TC 99M	9.845E+01	0.000E-01	2.720E+00	7.510E+03	1.134E+02	4.234E+00	4.994E+03	0.000E-01	GI-LLI
40	TC 101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RU 103	2.946E+04	0.000E-01	4.891E+04	0.000E-01	2.439E+07	0.000E-01	5.752E+08	0.000E-01	GI-LLI
42	RU 105	1.933E+01	0.000E-01	4.952E+01	0.000E-01	4.247E+02	0.000E-01	3.998E+01	0.000E-01	GI-LLI
43	RU 106	3.963E+07	0.000E-01	5.097E+08	0.000E-01	5.973E+08	0.000E-01	1.486E+10	0.000E-01	GI-LLI
44	AG 110M	8.735E+04	0.000E-01	1.517E+07	1.435E+07	2.739E+07	0.000E-01	4.031E+09	0.000E-01	GI-LLI
45	CD 115M	1.722E+05	0.000E-01	0.000E-01	5.401E+07	4.285E+07	0.000E-01	2.273E+09	0.000E-01	GI-LLI
46	SB 124	4.433E+07	2.712E+05	1.122E+08	2.116E+06	0.000E-01	8.702E+07	3.175E+09	0.000E-01	GI-LLI
47	TE 125M	1.705E+07	4.150E+07	1.486E+08	5.352E+07	0.000E-01	0.000E-01	4.383E+08	0.000E-01	GI-LLI
48	TE 127M	4.559E+07	1.312E+08	5.515E+08	1.955E+08	2.235E+09	0.000E-01	1.374E+09	0.000E-01	KIDNEY
49	TE 127	1.153E+03	3.495E+03	5.350E+03	1.899E+03	2.170E+04	0.000E-01	4.114E+05	0.000E-01	GI-LLI
50	TE 129M	5.402E+07	1.140E+08	3.594E+08	1.331E+08	1.504E+09	0.000E-01	1.314E+09	0.000E-01	KIDNEY
51	TE 129	1.780E-04	5.235E-04	7.315E-04	2.727E-04	3.070E-03	0.000E-01	4.001E-03	0.000E-01	GI-LLI
52	TE 131M	3.455E+05	4.070E+05	8.415E+05	4.035E+05	4.206E+06	0.000E-01	3.239E+07	0.000E-01	GI-LLI
53	TE 131	3.991E-15	9.810E-15	1.278E-15	5.347E-16	5.588E-15	0.000E-01	1.017E-14	0.000E-01	KIDNEY
54	TE 132	3.319E+05	2.590E+05	3.091E+06	3.464E+05	2.344E+07	0.000E-01	7.805E+07	0.000E-01	GI-LLI
55	I 130	4.074E+05	8.320E+07	3.532E+05	1.020E+06	1.572E+06	0.000E-01	7.841E+05	0.000E-01	THYROID
56	I 131	5.703E+07	3.141E+10	7.289E+07	1.075E+08	1.053E+08	0.000E-01	2.129E+07	0.000E-01	THYROID
57	I 132	4.495E+01	4.221E+03	4.708E+01	1.354E+02	1.973E+02	0.000E-01	5.457E+01	0.000E-01	THYROID
58	I 133	9.990E+05	1.572E+08	1.933E+06	3.378E+06	5.749E+06	0.000E-01	2.480E+06	0.000E-01	THYROID
59	I 134	7.355E-05	3.413E-04	7.725E-05	2.048E-04	3.220E-04	0.000E-01	2.499E-05	0.000E-01	THYROID
60	I 135	3.293E+04	5.713E+05	3.452E+04	8.804E+04	1.403E+05	0.000E-01	9.845E+01	0.000E-01	THYROID
61	CS 134	7.756E+09	0.000E-01	7.097E+09	1.570E+10	5.308E+09	2.027E+09	2.077E+08	0.000E-01	LIVER
62	CS 136	1.133E+08	0.000E-01	4.269E+07	1.208E+08	9.187E+07	1.410E+07	1.350E+07	0.000E-01	LIVER
63	CS 137	4.295E+09	0.000E-01	1.013E+10	1.318E+10	4.585E+09	1.782E+09	1.918E+08	0.000E-01	LIVER
64	CS 138	3.218E-11	0.000E-01	3.352E-11	4.415E-11	4.751E-11	5.529E-12	2.920E-11	0.000E-01	LIVER
65	BA 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 140	7.417E-01	0.000E-01	2.545E+02	1.791E+05	1.488E+05	1.234E+05	2.274E+01	0.000E-01	GI-LLI
67	BA 141	8.884E+05	0.000E-01	1.578E+08	1.289E+05	5.757E+04	1.135E+05	2.122E+08	0.000E-01	GI-LLI
68	BA 142	3.113E-23	0.000E-01	9.307E-23	7.009E-25	4.580E-25	4.798E-25	0.000E-01	0.000E-01	BONE
69	LA 140	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 140	2.343E+02	0.000E-01	1.067E+03	8.878E+02	0.000E-01	0.000E-01	5.090E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50

(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : TEEN

PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	1.351E-05	0.000E-01	1.321E-04	5.424E-05	0.000E-01	0.000E-01	1.451E+00	0.000E-01	GI-LLI
72	CE-141	2.158E+04	0.000E-01	2.827E+05	1.888E+05	8,884E+04	0.000E-01	5.399E+08	0.000E-01	GI-LLI
73	CE-143	7.571E+01	0.000E-01	9.315E+02	4.778E+05	3,030E+03	0,000E-01	2.037E+07	0.000E-01	GI-LLI
74	CE-144	2.833E+05	0.000E-01	5.271E+07	2.181E+07	1.303E+07	0.000E-01	1.325E+10	0.000E-01	GI-LLI
75	PR-143	3.482E+03	0.000E-01	4.995E+04	2.793E+04	1.523E+04	0.000E-01	2.301E+08	0.000E-01	GI-LLI
76	PR-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND-147	2.352E+03	0.000E-01	3.217E+04	3.933E+04	2,316E+04	0.000E-01	1.419E+08	0.000E-01	GI-LLI
78	W-185	5.413E+05	0.000E-01	1.091E+07	4.387E+05	0.000E-01	0.000E-01	7.355E+08	0.000E-01	GI-LLI
79	W-187	1.011E+04	0.000E-01	3.540E+04	2.885E+04	0.000E-01	0.000E-01	7.868E+05	0.000E-01	GI-LLI
80	U-235	4.117E+09	0.000E-01	7.209E+10	0.000E-01	1.700E+10	0.000E-01	7.097E+09	0.000E-01	BONE
81	U-238	4.134E+09	0.000E-01	6.971E+10	0.000E-01	1.591E+10	0.000E-01	1.509E+10	0.000E-01	BONE
82	NP-239	7.217E+01	0.000E-01	1.378E+03	1.299E+03	4.678E+03	0.000E-01	2.090E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	4.008E+03	4.008E+03	0.000E-01	4.008E+03	4.008E+03	4.008E+03	4.008E+03	4.008E+03	W. BODY
2	C-14	7.008E+05	7.008E+05	3.504E+06	7.008E+05	7.008E+05	7.008E+05	7.008E+05	7.008E+05	BONE
3	NA-24	3.732E+05	3.732E+05	3.732E+05	3.732E+05	3.732E+05	3.732E+05	3.732E+05	0.000E-01	W. BODY
4	P-32	1.301E+08	0.000E-01	3.375E+09	1.579E+08	0.000E-01	0.000E-01	9.334E+07	0.000E-01	BONE
5	SC-46	1.379E+05	0.000E-01	2.195E+05	4.302E+05	3.903E+05	0.000E-01	2.078E+09	0.000E-01	GI-LLI
6	CR-51	1.175E+05	6.522E+04	0.000E-01	0.000E-01	1.702E+04	1.191E+05	6.232E+04	0.000E-01	GI-LLI
7	MN-54	1.770E+08	0.000E-01	0.000E-01	4.444E+08	1.853E+08	0.000E-01	5.578E+08	0.000E-01	LIVER
8	MN-56	4.100E+00	0.000E-01	0.000E-01	1.812E+01	2.197E+01	0.000E-01	2.532E+03	0.000E-01	GI-LLI
9	FE-55	1.317E+08	0.000E-01	8.013E+08	4.256E+08	0.000E-01	2.404E+08	7.873E+07	0.000E-01	BONE
10	FE-59	3.200E+08	0.000E-01	3.970E+08	4.423E+08	0.000E-01	1.852E+08	6.588E+08	0.000E-01	GI-LLI
11	CO-58	1.987E+08	0.000E-01	0.000E-01	4.490E+07	6.000E-01	0.000E-01	3.785E+08	0.000E-01	GI-LLI
12	CO-60	1.112E+09	0.000E-01	0.000E-01	3.703E+08	0.000E-01	0.000E-01	2.093E+07	0.000E-01	GI-LLI
13	NI-59	1.190E+08	0.000E-01	7.182E+08	2.453E+08	0.000E-01	0.000E-01	5.072E+07	0.000E-01	BONE
14	NI-63	1.343E+09	0.000E-01	3.949E+10	2.111E+09	0.000E-01	0.000E-01	1.421E+08	0.000E-01	BONE
15	NI-65	5.601E+00	0.000E-01	1.019E+02	9.595E+00	0.000E-01	0.000E-01	1.175E+03	0.000E-01	GI-LLI
16	CU-64	5.541E+03	0.000E-01	0.000E-01	1.085E+01	2.424E+04	0.000E-01	5.098E+05	0.000E-01	GI-LLI
17	ZN-65	1.344E+09	0.000E-01	8.112E+08	3.161E+09	1.323E+09	0.000E-01	3.795E+08	0.000E-01	LIVER
18	ZN-69	1.804E-04	0.000E-01	1.351E-05	1.953E-05	1.184E-05	0.000E-01	1.236E-03	0.000E-01	GI-LLI
19	BR-83	5.333E+00	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	BR-84	3.101E-11	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	BR-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	2.727E+08	0.000E-01	0.000E-01	4.500E+08	0.000E-01	0.000E-01	2.895E+07	0.000E-01	LIVER
23	RB-88	1.251E-22	0.000E-01	0.000E-01	2.374E-22	0.000E-01	0.000E-01	1.154E-23	0.000E-01	LIVER
24	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-89	1.035E+07	0.000E-01	3.570E+10	0.000E-01	0.000E-01	0.000E-01	1.370E+09	0.000E-01	BONE
26	SR-90	3.153E+11	0.000E-01	1.241E+12	0.000E-01	0.000E-01	0.000E-01	1.275E+10	0.000E-01	BONE
27	SR-91	1.953E+01	0.000E-01	5.175E+05	0.000E-01	0.000E-01	0.000E-01	1.144E+06	0.000E-01	GI-LLI
28	SR-92	2.821E+01	0.000E-01	7.038E+02	0.000E-01	0.000E-01	0.000E-01	1.313E+04	0.000E-01	GI-LLI
29	Y-90	4.177E+02	0.000E-01	2.308E+04	0.000E-01	0.000E-01	0.000E-01	4.576E+07	0.000E-01	GI-LLI
30	Y-91M	3.025E-10	0.000E-01	8.417E-09	0.000E-01	0.000E-01	0.000E-01	1.243E-05	0.000E-01	GI-LLI
31	Y-91	4.990E+05	0.000E-01	1.865E+07	0.000E-01	0.000E-01	0.000E-01	2.485E+09	0.000E-01	GI-LLI
32	Y-92	4.449E-02	0.000E-01	1.548E+00	0.000E-01	0.000E-01	0.000E-01	4.473E+04	0.000E-01	GI-LLI
33	Y-93	8.124E+00	0.000E-01	2.977E+02	0.000E-01	0.000E-01	0.000E-01	4.431E+05	0.000E-01	GI-LLI
34	ZR-95	7.709E+05	0.000E-01	3.936E+05	8.452E+05	1.238E+04	0.000E-01	9.025E+08	0.000E-01	GI-LLI
35	ZR-97	4.833E+01	0.000E-01	5.669E+02	8.191E+01	1.175E+02	0.000E-01	1.241E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : CHILD
PATHWAY : VEGETATION

NO	NUCLIDE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB 95	1.141E+05	0.000E-01	4.101E+05	1.597E+05	1.500E+05	0.000E-01	2.953E+08	0.000E-01	GI-LLI
37	NB 97	1.022E-07	0.000E-01	1.109E-04	2.799E-07	3.245E-07	0.000E-01	1.033E-03	0.000E-01	GI-LLI
38	MO 99	1.903E+04	0.000E-01	0.000E-01	7.493E+04	1.443E+07	0.000E-01	4.352E+04	0.000E-01	KIDNEY
39	TC 99M	1.525E+02	0.000E-01	4.595E+00	9.208E+00	1.138E+02	4.675E+00	5.210E+03	0.000E-01	GI-LLI
40	TC 101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RU 103	5.959E+04	0.000E-01	1.550E+07	0.000E-01	3.902E+07	0.000E-01	4.068E+08	0.000E-01	GI-LLI
42	RU 105	3.290E+01	0.000E-01	9.070E+01	0.000E-01	7.973E+02	0.000E-01	5.936E+04	0.000E-01	GI-LLI
43	RU 106	9.308E+07	0.000E-01	7.459E+08	0.000E-01	1.007E+09	0.000E-01	1.154E+10	0.000E-01	GI-LLI
44	AG 110M	1.735E+07	0.000E-01	3.216E+07	2.172E+07	4.042E+07	0.000E-01	2.58[illegible]E+09	0.000E-01	GI-LLI
45	CD 115M	1.359E+04	0.000E-01	0.000E-01	4.251E+07	3.373E+07	0.000E-01	1.78[illegible]E+07	0.000E-01	GI-LLI
46	SB 124	3.524E+07	2.154E+05	8.921E+07	1.485E+04	0.000E-01	5.921E+07	2.5[illegible]E+07	0.000E-01	GI-LLI
47	TE 125M	4.483E+07	9.659E+07	3.512E+08	9.520E+07	0.000E-01	0.000E-01	3.38[illegible]E+08	0.000E-01	BONE
48	TE 127M	1.529E+08	3.151E+08	1.322E+09	3.059E+08	3.749E+09	0.000E-01	1.07[illegible]E+07	0.000E-01	KIDNEY
49	TE 127	2.130E+03	4.843E+03	9.887E+03	2.522E+03	2.813E+04	0.000E-01	3.85[illegible]E+05	0.000E-01	GI-LLI
50	TE 129M	1.397E+08	2.693E+08	8.354E+08	2.433E+08	2.453E+09	0.000E-01	1.01[illegible]E+09	0.000E-01	KIDNEY
51	TE 129	3.215E-01	9.444E-01	1.355E-03	3.701E-01	3.943E-03	0.000E-01	8.131E-02	0.000E-01	GI-LLI
52	TE 131M	5.458E+05	1.093E+06	1.547E+06	5.312E+05	5.145E+06	0.000E-01	2.15[illegible]E+07	0.000E-01	GI-LLI
53	TE 131	7.003E-14	1.800E-15	2.353E-15	7.174E-14	7.117E-15	0.000E-01	1.[illegible]E-14	0.000E-01	GI-LLI
54	TE 132	3.737E+04	4.491E+04	4.972E+04	3.084E+04	2.845E+07	0.000E-01	3.10[illegible]E+07	0.000E-01	GI-LLI
55	I 130	6.413E+05	1.370E+08	4.189E+05	1.251E+06	1.849E+04	0.000E-01	5.850E+05	0.000E-01	THYROID
56	I 131	8.175E+07	4.757E+10	1.430E+08	1.439E+08	2.352E+08	0.000E-01	1.28[illegible]E+07	0.000E-01	THYROID
57	I 132	7.181E+01	7.245E+03	8.498E+01	1.542E+02	2.390E+02	0.000E-01	1.83[illegible]E+03	0.000E-01	THYROID
58	I 133	1.449E+04	8.094E+05	3.523E+04	4.355E+04	7.241E+04	0.000E-01	1.75[illegible]E+05	0.000E-01	THYROID
59	I 134	1.173E-04	5.053E-03	1.373E-04	2.549E-01	3.898E-04	0.000E-01	1.590E-04	0.000E-01	THYROID
60	I 135	5.220E+04	9.774E+04	4.130E+04	1.101E+05	1.492E+05	0.000E-01	8.407E+04	0.000E-01	THYROID
61	CS 134	5.549E+09	0.000E-01	1.403E+10	3.431E+10	8.152E+09	2.925E+09	1.[illegible]E+08	0.000E-01	LIVER
62	CS 136	1.414E+08	0.000E-01	8.062E+07	2.214E+08	1.180E+08	1.750E+07	7.[illegible]E+06	0.000E-01	LIVER
63	CS 137	3.380E+09	0.000E-01	3.392E+10	2.290E+10	7.142E+09	2.405E+09	1.13[illegible]E+08	0.000E-01	BONE
64	CS 138	5.375E-11	0.000E-01	5.097E-11	8.475E-11	5.963E-11	4.417E-12	3.904E-11	0.000E-01	LIVER
65	CS 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 139	1.329E-03	0.000E-01	4.693E-02	2.505E-05	2.188E-05	1.474E-05	2.709E+00	0.000E-01	GI-LLI
67	BA 140	1.411E+07	0.000E-01	2.761E+08	2.419E+05	7.875E+04	1.442E+05	1.[illegible]E+08	0.000E-01	BONE
68	BA 141	5.538E-23	0.000E-01	1.732E-21	9.499E-25	8.572E-25	5.690E-24	9.87[illegible]E-22	0.000E-01	BONE
69	BA 142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 140	3.535E+02	0.000E-01	3.245E+03	1.134E+03	0.000E-01	0.000E-01	3.152E+07	0.000E-01	GI-LLI

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE: CHILD
PATHWAY: VEGETATION

NO	NUCLIDE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA 140	2.309E 05	0.000E 01	3.313E-04	7.054E-05	0.000E-01	0.000E-01	1.398E101	0.000E-01	GI-LLI
72	CE 141	4.854E104	0.000E-01	6.555E105	3.269E105	1.433E105	0.000E-01	4.078E108	0.000E-01	GI-LLI
73	CE 143	1.347E103	0.000E-01	1.715E103	9.300E105	3.903E102	0.000E-01	1.352E107	0.000E-01	GI-LLI
74	CE 144	4.780E105	0.000E-01	1.370E108	3.982E107	2.305E107	0.000E-01	1.038E110	0.000E-01	GI-LLI
75	PR 143	7.215E103	0.000E-01	1.454E105	4.357E104	2.355E104	0.000E-01	1.559E108	0.000E-01	GI-LLI
76	PR 144	0.000E 01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	2.443E 03	0.000E-01	GI-LLI
77	ND 147	4.476E103	0.000E-01	7.140E104	5.783E104	3.173E104	0.000E-01	9.121E107	0.000E-01	GI-LLI
78	W 185	5.279E105	0.000E-01	1.509E107	5.019E104	0.000E-01	0.000E-01	5.809E108	0.000E-01	GI-LLI
79	W 187	1.711E104	0.000E-01	2.139E104	3.813E104	0.000E-01	0.000E-01	5.359E105	0.000E-01	GI-LLI
80	U 235	3.573E109	0.000E 01	5.095E110	0.000E-01	1.375E110	0.000E 01	5.741E109	0.000E-01	BONE
81	U 238	3.345E109	0.000E 01	5.230E110	0.000E-01	1.284E110	0.000E-01	1.230E110	0.000E-01	BONE
82	NP 239	1.381E102	0.000E-01	2.544E103	1.837E102	5.282E102	0.000E-01	1.353E107	0.000E-01	GI-LLI

TABLE 6 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : VEGETATION

NO	NUCLIDE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
1	H-3	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
2	C-14	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
3	NA-24	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
4	P-32	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
5	SC-46	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
6	CR-51	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
7	MN-54	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
8	MN-52	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
9	FE-55	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
10	FE-59	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
11	CO-58	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
12	CO-60	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
13	NI-59	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
14	NI-63	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
15	NI-65	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
16	CU-64	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
17	ZN-65	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
18	ZN-69	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
19	RB-83	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
20	RB-84	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
21	RB-85	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
22	RB-86	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
23	RB-88	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
24	RB-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
25	SR-89	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
26	SR-90	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
27	SR-91	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
28	SR-92	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
29	Y-90	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
30	Y-91M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
31	Y-91	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
32	Y-92	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
33	Y-93	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
34	ZR-95	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
35	ZR-97	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY

TABLE 6 (CONT)
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PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : VEGETATION

NO	NUCLIDE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
35	NB 95	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
37	NB 97	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
38	MO 99	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
39	TC 99M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
40	TC 101	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
41	RH 103	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
42	RH 105	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
43	RH 106	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
44	AG 110M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
45	CD 115M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
46	SB 124	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
47	TE 125M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
48	TE 127M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
49	TE 127	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
50	TE 129M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
51	TE 129	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
52	TE 131M	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
53	TE 131	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
54	TE 132	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
55	I 130	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
56	I 131	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
57	I 132	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
58	I 133	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
59	I 134	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
60	I 135	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
61	CS 134	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
62	CS 135	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
63	CS 137	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
64	CS 138	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
65	CS 139	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
66	BA 137	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
67	BA 140	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
68	BA 141	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
69	BA 142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
70	LA 140	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY

TABLE 6 (CONT)

PATHWAY DOSE PARAMETER FACTORS FOR IMPLEMENTING 10 CFR PART 50
(For Section 2.2.2.b, units in mrem/year per $\mu Ci/m^3$).

AGE : INFANT
PATHWAY : VEGETATION

NO	ISOTOPE	W. BODY	THYROID	BONE	LIVER	KIDNEY	LUNG	GI-LLI	SKIN	CRITICAL
71	LA-142	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
72	CE-141	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
73	CE-143	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
74	CE-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
75	PR-143	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
76	PR-144	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
77	ND-147	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
78	W-185	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
79	W-187	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
80	W-235	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
81	U-238	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY
82	NP-239	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	0.000E-01	W. BODY

TABLE 7

CONTROLLING RECEPTORS, LOCATIONS, PATHWAYS, AND ATMOSPHERIC DISPERSION PARAMETERS

Sector	Distance (meters)	Pathways	Age Group	X/Q_T	D/Q
N*	870	Inhalation	Infant	8.76E-07	8.09E-09
NNE	900	Vegetation	Infant	1.19E-06	1.39E-08
NE**	900	Inhalation	Child	1.26E-06	1.58E-08
ENE**	—	—	—	—	—
E**	—	—	—	—	—
ESE**	—	—	—	—	—
SE***	8000	Cow/Milk	Infant	3.43E-08	1.45E-10
SSE	2680	Vegetation	Child	7.38E-08	9.13E-10
S	1990	Vegetation	Child	7.66E-08	1.29E-09
SSW	1000	Vegetation	Child	1.92E-07	4.18E-09
SW	990	Vegetation	Child	3.10E-07	5.64E-09
WSW	4250	Cow/Milk	Infant	5.74E-08	5.36E-10
W	980	Vegetation	Child	6.21E-07	9.58E-09
WNW	2500	Vegetation	Child	8.58E-08	8.61E-10
NW	1160	Vegetation	Child	2.29E-07	1.97E-09
NNW	1250	Vegetation	Child	2.51E-07	1.79E-09

*Default value, no vegetable gardens within five miles.

**These sectors are located over Lake Erie, so no ingestion pathways are present.

***Default value, no real receptors within five miles.

TABLE 8

SAMPLING LOCATIONS, DAVIS-BESSE NUCLEAR POWER STATION

Code	Appendix A Page Reference	Type of Location *	Location
T-1	A-16	I	Site boundary, 0.96 km NE of station, near intake canal.
T-2	A-17	I	Site boundary, 1.44 km E of Station.
T-3	A-18	I	Site boundary, 2.24 km ESE of station, near Toussaint River and storm drain.
T-4	A-19	I	Site boundary, 1.28 km S of station, near Locust Point and Toussaint River.
T-5	A-20	I	Main entrance to site, 0.80 km W of station.
T-7	A-21	I	Sand Beach, 1.44 km NNW of site.
T-8	A-22	I	Earl Moore Farm, 4.32 km WSW of site.
T-9	A-23	C	Oak Harbor, 10.9 km SSW of site.
T-11	A-24	C	Port Clinton, 18.4 km SE of site.
T-12	A-25	C	Toledo, 37.6 km WNW of site (water samples are taken from an intake located 17.6 km NNW of site).
T-17	A-26	I	Irv Fick's well on site, 1.12 km SW of station.
T-20	A-27	C	Carl Gaeth, 12639 W. Toussaint E Road, 7.20 km WSW of site.
T-24	A-28, A-29	C	Sandusky, 39.8 km SE of site.
T-25	A-30	I	Miller Farm, 5.92 km S of site.
T-27	A-31	C	Magee Marsh, 8.48 km WNW of site.
T-28	A-32	I	Unit 1 treated and untreated water supply, onsite.
T-33	A-33	I	Lake Erie, within a 8.0 km radius of site.
T-35	A-34	C	Lake Erie, greater than 16.0 km radius of site.
T-37	A-35	C	Fruit stand, 19.2 km SW of station (or the farm 16 to 30 km from the site in the least prevalent wind direction).
T-38	A-36	I	Site boundary 0.96 km ENE of station near Lake.
T-40	A-37	I	Site boundary 1.12 km SE of station near ditch to Toussaint.
T-41	A-38	I	Site boundary 0.96 km SSE of station near ditch to Toussaint.

* I=Indicator Locations; C=Control Locations

TABLE 8 (continued)
Page 2 of 2

SAMPLING LOCATIONS, DAVIS-BESSE NUCLEAR POWER STATION

Code	Appendix A Page Reference	Type of Location *	Location
T-42	A-39	I	Site boundary 1.28 km SSW of station by ECC.
T-43	A-40	I	Site boundary 0.80 km SW of station along Route 2 fence.
T-44	A-41	I	Site boundary 0.80 km WSW of station by railroad tracks.
T-45	A-42	I	Site boundary 0.80 km WNW of station on access road behind Cooling Tower.
T-46	A-43	I	Site boundary 0.80 km NW of station along access road.
T-47	A-44	I	Site boundary 0.80 km N of station along access road by gate.
T-48	A-45	I	Site boundary 0.80 km NNE of station along access road by lake.
T-50	A-46	I	Erie Industrial Park 7.20 km SE of station by Water Tower.
T-51	A-47	I	Daup Farm, 600 Tettau Road, Port Clinton, Ohio 8.80 km SSE of the station.
T-52	A-48	I	Miller Farm 5.92 km S of site on West Camp Perry Road W.
T-54	A-49	I	M. Beiar Farm 7.68 km SW of site on Genzman Road.
T-55	A-50	I	King Farms 8.0 km W of site on Route 2.

* I=Indicator location; C=Control locations.

TABLE 9

Type and Frequency of Sample Collection
Environmental Radiation Monitoring Program

Location	Type	Weekly	Monthly	Quarterly	Semi-annually	Annually
1	I	AP AI		TLD		
2	I	AP AI		TLD		
3	I	AP AI SWU[a]		TLD		
4	I	AP AI SWU[a]		TLD		
5	I			TLD		
7	I			TLD		
8	I		M[b] GLV[d]	TLD		
9	C	AP AI		TLD		
11	C			TLD		
12	C	AP AI SWU[a] SWT[a]		TLD		
17	I			WW		
20	I		M[b]			
24	C		M[b]	TLD		
25	I		GLV[d]			
27	C			TLD	BS	
28	I	SWT[a]				F[c]
33	I					F[c]
35	C					
37	C		GLV[d]			
38	I			TLD		
40	I			TLD		
41	I			TLD		

(Continued on next page)

Table 9, continued

Page 2 of 2

Type and Frequency of Sample Collection
Environmental Radiation Monitoring Program (Continued)

Location	Type	Weekly	Monthly	Quarterly	Semi-annually	Annually
42	I			TLD		
43	I			TLD		
44	I			TLD		
45	I			TLD		
46	I			TLD		
47	I			TLD		
48	I			TLD		
50	I			TLD		
51	I			TLD		
52	I			TLD		
54	I			TLD		
55	I			TLD		

[a] Composite sample over 1-week period

[b] Semi-monthly when animals are on pasture (May-October), monthly at other times

[c] Summer months

[d] Monthly when available (July, August, September)

Table 10
Sample Collection Codes

Code	Description
AP	Airborne Particulates
AI	Airborne Iodine
TLD	Thermoluminescent Dosimeter
M	Milk
WW	Well Water (Ground Water)
GLV	Green Leafy Vegetables
SWT	Surface Water - Treated
SWU	Surface Water - Untreated
F	Fish
BS	Bottom Sediments

OFFSITE DOSE CALCULATION MANUAL

APPENDIX J

JUSTIFICATIONS

Safety Evaluation for the Davis-Besse Radiological Effluent Technical Specifications Amendment

Overview

Revisions to the Davis-Besse Appendix A and Appendix B Technical Specifications are proposed which will implement the regulatory requirement of 10 CFR 50, Appendix I on ALARA for radioactive effluents and other NRC regulations and criteria on radioactive material monitoring instrumentation, radioactive material control, and radiological environmental monitoring. In keeping with NRC guidelines, all radiological requirements are being deleted from Appendix B and placed in Appendix A.

This proposed amendment is a revision to a previously submitted amendment to the NRC dated March 16, 1979 (Serial No. 488).

The major areas that are addressed in the revised submittal are as follows:

- Liquid and gaseous effluent monitoring instrumentation--operation and periodic operability checks;
- Liquid and gaseous radioactive material releases--maximum release rates, quarterly does limits and yearly dose limits;
- Sampling and analysis requirements on batch and continuous radioactive material releases;
- Operation requirements on the liquid radwaste treatment system;
- Curie inventory limit on outside temporary liquid storage tanks;
- Maximum allowable oxygen concentration in the waste gas system;

- Requirements to assure all solid waste meets applicable burial site requirements;

- Radiological environmental monitoring program--minor revisions to reflect current program and current NRC guidelines.

Changes have also been made to Section 6 of Appendix A to reflect the applicable administrative controls needed for the Section 3/4 revisions.

A notable addition to the amendment is the inclusion of a requirement for an Off-site Dose Calculation Manual (ODCM) and a Process Control Program (PCP). The ODCM and PCP are not licensed documents but are referenced in the Technical Specification as presenting acceptable methods for evaluating compliance with applicable Technical Specification requirements. The ODCM provides calculational methods for determining radioactive effluent instrumentation alarm setpoints, and for evaluating releases of radioactive effluents and corresponding doses. The ODCM also includes the sampling locations for the environmental monitoring program. The PCP presents the methods used to verify that waste (dewatered resins) as processed for disposal meets appropriate shipping and burial ground regulations. Changes may be made to these documents without NRC approval; review by the SRB is required.

Safety Evaluation

An evaluation of the revised amendment has been performed to assure that the revisions as proposed do not involve an unreviewed safety question as defined in 10 CFR 50.59. The three criteria of 10 CFR 50.59 for the unreviewed safety question determination are addressed below.

i) Probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report.

Except for the addition of the turbine building liquid effluent radiation monitor (for which an FCR has already been initiated), no plant equipment modifications are required by the proposed amendment. Certain procedural requirements will need to be developed but these address routine radioactive material effluents and controls; no accident procedures are involved.

ii) Probability for accident or malfunction of a different type than any evaluated previously in the SAR may be created.

For reasons as stated in response to item (i) above, the proposed amendment does not directly or indirectly pose a probability for an accident or malfunction. The amendment will implement the NRC regulations for routine releases and controls of radioactive material. The amendment does not address any engineered safety features of the plant design.

iii) Margin of safety as defined in the basis for any technical specification is reduced.

The proposed amendment does not reduce the margin of safety. The proposed amendment addresses routine releases and control of radioactive material; except as noted in item (i), no plant modifications are involved. Several operating procedure changes may be needed, but these changes will be only for routine operations and will have no impact on accident probability or consequences.

For the reasons discussed above for each of the criteria of 10 CFR 50.59, it is concluded that the amendment as proposed does not involve an unreviewed safety question.

Service Water System--Radiological Effluent Monitoring Requirements

The service water system is classified as a non-radioactive system, being removed from radioactive systems by two boundaries. Radioactive systems are serviced by the component cooling water system interface; and, the service water system provides cooling to the component cooling water system through closed loop heat exchangers. Therefore, any leaks from radioactive systems into the plant water systems would first be identified by the monitoring of the component cooling water system prior to any additional unexpected leakage into the service water system. As a prudent measure, the service water system is monitored in accordance with the NRC guidance of Standard Review Plan, Section 11.5. However, because this system is a non-radioactive system and is separated from radioactive systems through two closed-loop boundaries, no Technical Specification requirements are needed for routine monitoring and analysis for radioactive effluents.

Radioactive Effluent Instrumentation--Automatic Isolation Feature

The radioactive effluent monitoring instrumentation at Davis-Besse does not include provisions as called for in the NRC Standard Radiological Effluent Technical Specifications for automatic isolation should any of the following conditions exist: circuit failure, downscale failure, or instrument not set in operate mode. Even though the automatic isolation features do not exist, administrative controls have been established such that should any of these conditions exist the control of radioactive effluents would not be significantly impacted. Essentially all releases of liquid radwaste are controlled as individual batch releases with predetermined allowable release conditions. Thereby the radiation monitor serves mainly as a back-up; primary control is established by the prerelease radiological analyses and evaluations. To assure the availability of the back-up monitoring, the status of the instruments is checked once per shift by the control room operators. Indicator lights on the instrument panel are checked to verify operability. An indicator would illuminate should a failure occur such as the ones delineated above. Therefore, in addition to the administrative controls on allowable releases, the verification of instrument operability prior to releases of radioactive effluents and the "once per shift" status check by the control room operators provides adequate assurance of the proper control of the radioactive effluents.

Technical Bases for Eliminating Curie Inventory Limit for Gaseous Waste Decay Tanks

The NRC Standard Technical Specifications include a limit for the amount of radioactivity that can be stored in a single waste gas decay tank. This curie inventory limit is established to assure that in the event of a tank failure releasing the radioactive content to the environment the resulting total body dose at the site boundary would not exceed 0.5 rem. For Davis-Besse the inventory limit in the waste gas storage tank has been determined to be approximately 45,000 curies (Xe-133, equivalent).

An allowable primary coolant radioactivity concentration is established by the Technical Specifications which limit the primary coolant radioactivity concentrations to 100/E with E being the average energy of the radioactivity in Mev. This equation yields an upper primary coolant gross activity limit of about 200 μCi/ml. By applying this activity concentration limit to the total liquid volume of the primary system, a total activity limit can be determined. For Davis-Besse the primary system volume is about 56,000 gallons, which yields a limiting total inventory of approximately 41,000 Ci.

By assuming a typical radionuclide distribution an equivalent Xe-133 inventory can be determined. Table 1 provides the typical radionuclide (noble gases) distribution and the Xe-133 equivalent concentration. The equivalent concentration is determined by multiplying the radionuclide concentration by the ratio of the nuclide total body dose factor to the Xe-133 total body dose factor. Summing all the individual radionuclide equivalent concentrations provides the overall Xe-133 equivalent concentration. For determining concentration in a waste gas decay tank, a conservative assumption of 48 hours decay in degassing the primary system has been used to correct the primary coolant concentrations. The data show that the equivalent concentration (decay corrected) is less than the gross concentration (i.e., 16 μCi/gm total in primary coolant versus 12 μCi/gm equivalent). The resulting Xe-133 equivalent curie inventory for WGDT input is approximately 31,000 Ci.

Therefore, even if the total primary system at the maximum Tech Spec allowable concentration was degassed to a single waste gas decay tank, the tank curie inventory would be well below the 45,000 Ci limit. Based on this evaluation, the curie inventory limit on a single waste gas storage tank has not been included as a Technical Specification requirement.

Table 1

Xe-133 Effective Concentration

	Primary* Coolant (μCi/GM)	Half-life	Concentration @ 48 hr decay (μCi/ml)	Reg Guide 1.109 TB Dose Factor mrem/yr / pCi/m^3	Ratio TB DF / Xe-133 DF	Xe-133 Effective Conc @ 48 hr decay (μCi/ml)
Kr-83M	2.0-02	1.9 hr	--	7.6×10^{-8}	--	--
Kr-85M	1.1-01	4.5 hr	--	1.2×10^{-3}	4.1	--
Kr-85	7.4-02	10.7 yr	7.4×10^{-2}	1.6×10^{-5}	0.06	4.4×10^{-3}
Kr-87	5.8-02	76.3 min	--	5.2×10^{-3}	20.	--
Kr-88	1.9-01	2.84 hr	--	1.5×10^{-2}	52.	--
Kr-89	4.8-03	3.16 min	--	1.7×10^{-2}	57.	--
Xe-131M	8.4-02	12 days	7.5×10^{-2}	9.2×10^{-5}	0.32	2.4×10^{-2}
Xe-133M	2.0-01	2.2 days	1.1×10^{-1}	2.5×10^{-4}	0.86	9.5×10^{-2}
Xe-133	1.5+01	5.3 days	$1.2 \times 10^{+1}$	2.9×10^{-4}	1.0	$1.2 \times 10^{+1}$
Xe-135M	1.3-02	16 min	--	3.1×10^{-3}	11.	--
Xe-135	3.3-01	9.1 hr	8.5×10^{-3}	1.8×10^{-3}	6.2	5.3×10^{-2}
Xe-137	8.7-03	4 min	--	1.4×10^{-3}	4.8	--
Xe-138	4.3-02	17 min	--	8.8×10^{-3}	30	--
Total	$1.6 \times 10^{+1}$		$1.2 \times 10^{+1}$			$1.2 \times 10^{+1}$

*Adapted from Davis-Besse Evaluation of Compliance with Appendix I to 10 CFR 50, June 4, 1976.

Lower Limit of Detection--Decay Correction Factor

The equation and definition of the lower limit of detection in the NRC Standard Radiological Effluent Technical Specification include the term $e^{-\lambda t}$ which is used to decay correct the analysis. The LLD is further defined as an a priori (before the fact) limit representing the capabilities of a measurement system and not an a posteriori (after the fact) limit for a particular measurement.

Providing a decay correction for an evaluation of the capabilities of a system does not appear appropriate. It may be appropriate to decay correct certain analyses of specific samples to determine radionuclide concentrations at the time of release. Even in this case, such a correction is not appropriate for batch releases. Analyses are performed prior to any release; and, the sample will be decaying at the same rate as the batch from which the sample was taken. For continuous releases, decay correcting analyses of samples obtained over a specified sampling interval must take into account the accumulation of radioactivity in the sampling medium, the decay during the sampling interval and, especially for short lived radionuclides, equilibrium or quasi-equilibrium conditions that may be achieved.

Short-lived radionuclides will tend to reach an equilibrium value in the sampling medium as a function of source input and half-life. A single decay correction to adjust for sampling interval will provide an unacceptable overestimate. Equilibrium concentrations must be considered if analyses are to be indicative of actual release quantities.

Employing $\exp(-\lambda\Delta t)$ to adjust for radioactive decay between the end of sampling and the time of analysis is straightforward. However, to attempt to use the same term to adjust for decay during the sampling period is not proper. As a practical matter, when the half-life of a radionuclide is long relative to the sampling time and the time between sampling and analysis, i.e., minimal decay, the correction term will be near unity. In that event, the correction term is relatively unimportant.

At the other extreme, when the half-life of a radionuclide is much shorter than the sampling time or the time between the end of sampling and the analysis, the term $\exp(-\lambda\Delta t)$ could be used to adjust for decay between the end of sampling and the analysis. However, it would not be appropriate in that case to use the same term to attempt to adjust for decay during sampling.

The relationship between the radioactivity in a sample at the end of sampling and the activity concentration in the medium being sampled is somewhat more involved. To explain this in the simplest condition, assume the radionuclide concentration is constant in the medium being sampled and that the medium is sampled at a constant rate.

In the instance of water sampling, the relationship between the activity concentration in the water being sampled and the activity concentration in the water sample at the end of sampling is:

$$C_1 = C_2 \frac{\lambda t}{1 - e^{-\lambda t}} \qquad (2)$$

where

C_1 = radionuclide concentration in the water being sampled
C_2 = radionuclide concentration in the water sample at the end of sampling
t = duration of sampling
λ = radionuclide decay constant

when $\lambda t >> 1$, $C_1 \simeq C_2 \lambda t$

In the separate case of sampling a radionuclide in air by filtering the air and analyzing radioactive material collected on the filter, the radionuclide of interest is concentrated. Absent diluent air in the sample being analyzed, the relation between radioactivity on the sample media and radionuclide concentration in the air being sampled is:

$$C_1 = C \frac{\lambda t}{F(1 - e^{-\lambda t})} \qquad (2)$$

where

C_1 = radionuclide concentration in the air being sampled
q = radioactivity on the sample media (assuming 100% collection efficiency)
F = sampler flow rate (volume/time)
λ = radionuclide decay constant
t = duration of sampling

when $\lambda t >> 1$, $C_1 \simeq q \lambda / F$.

This merely recognizes that the rate of loss from the filter by radioactive decay equals the rate of collection onto the filter at equilibrium.

The NRC proposed equation appears to incorporate an adulterated way of encouraging analysis soon after the end of sampling and to encourage efficient sample concentration or radiochemical extraction. Although not rigorous, it combines both objectives in a simple and thus practical way, provided the decay correction is not extrapolated to a time earlier than the end of sampling.

A more nearly rigorous way of determining the activity concentration (or minimum detectable activity) in the medium being sampled is to assess the LLD in the sample at the time of analysis. Then the activity concentration in the medium being sampled can be calculated with the product of $\exp(-\lambda \Delta t)$ for decay between the end of sampling and the analysis and one of the equations derived herein for the relation between the medium being sampled and the activity in the sample at the end of sampling.

However, this method is not very practical or necessary considering the types of sampling and analysis at nuclear power plants, the significant radionuclides, and the offsite potential doses. The bulk of the radioactivity is released as batch releases with all sampling and analysis performed prior to release. Therefore, no decay corrections are applicable. It is in the sampling and analysis of continuous releases that the accumulation and decay of the radioactive material may need to be considered. The use of NRC's guidance for decay correction to the mid-point of the sampling period can grossly overestimate actual release qualities of short-lived radionuclides, while providing little improvement for the

quantification of the longer half-life radionuclides that are the major dose contributors.

Overall, it may be appropriate to decay correct certain analysis to account for radionuclide decay during the sampling period. However, simple decay correction to the mid-point of sampling will grossly overestimate any short-lived radionuclides that may be detected. More consideration needs to be given by the NRC to address this problem. In any case, the use of a decay correction factor in defining a lower limit of detection is inappropriate. The LLD is a measurement of the capability of the measurement system and should not be used to try to establish a regulatory position on sampling and decay correction for quantification of releases.

Waste Gas Decay System and Ventilation System--Operability Requirements

At Davis-Besse, the operation of the waste gas decay system is essentially continuous, similar to the routine operation of such a system at other PWRs. The system consists of a surge tank which receives the waste gases from the primary system, dual compressors (one in-service and the other in reserve), and three waste gas hold-up tanks (one in-service, one isolated for gas decay, and the third in reserve). Once the system is on-line with a waste gas decay tank receiving primary system gases for the surge tank, operation is automatic; no operator actions are required.

The operating philosophy at Davis-Besse is to essentially operate the waste gas system continuously. Not only is this philosophy prudent from an ALARA standpoint, but it is also conservative and protective from an operational standpoint. Having to periodically evaluate primary system off-gas activity levels and anticipate unexpected increases in radioactivity would be an unnecessary burden in determining needed waste gas system operation.

For the ventilation systems, the operating philosophy is similar to that for the waste gas system; operation is continuous. But for the ventilation systems, the reasons for continuous operation are even more straightforward. Areas within the plant must be provided with outside air in order to provide an inside environment suitable for continued occupancy. Without continuous ventilation system operation, heat, humidity, and airborne radioactive material levels would increase and worker occupancy would be jeopardized.

As described in the Davis-Besse Appendix I evaluation, the ventilation systems contain HEPA filters for removal of airborne radioactive particulate material prior to release to the outside environment. (As evaluated for Appendix I compliance, only the waste gas vent includes charcoal filters for removal of radioiodines) The operation of the systems can essentially be considered a passive operation. No active operational

procedures are required for normal system operation for removal of airborne radioactive material.

Davis-Besse's operating philosophy (and operating procedures) for the waste gas system and ventilation systems is a commitment in itself to the routine continuous operation of the systems. Having to commit to such a requirement (in lieu of a technical specification requirement on operation) without appropriate consideration of system down-time and plant shut-down (where operation may not be needed or feasible) is unacceptable and not in keeping with the principles of ALARA. Including special technical specifications that would impose additional procedures and periodic surveillance requirements in excess of those already established (which at present assure appropriate operation) is unnecessary and excessive.

Radiological Effluent Dose Analysis--
Meteorology for Short Term Releases

Except for the waste gas decay tank (WGDT) releases and the containment purges releases, gaseous effluents from the Davis-Besse Station are from ventilation systems and are considered continuous releases. Most of the radioactive material in gaseous effluents is released from the WGDT. However, because of the essentially random nature of WGDT releases (i.e., no prescribed diurnal time, frequency or duration), the dose analysis of these releases is better modeled by the use of annual average meteorological conditions rather than short term meteorology. Containment purges are so infrequent that special meteorological analyses are not warranted; reasonable evaluations of off-site doses can be provided by the use of annual average meteorological conditions.

Radiological Environmental Reporting Levels

Only the radionuclides listed in Table 3.12-2 of the proposed Radiological Effluent Technical Specifications for Davis-Besse are considered in the reporting requirements for elevated levels of radioactive material in environmental sampling media. The radionuclides listed are those that are dominant in the plant effluents and contribute essentially all of the environmental dose. Other radionuclides will be present in plant effluents, but their contribution to the calculated total environmental dose will be minor compared to the contribution of the radionuclides listed in Table 3.12-2. Even the contents of the NRC's Standard RETS reflect this position; not all pathways include reporting levels for all the radionuclides listed (e.g., no reporting levels are presented for Co-58, Co-60, or Fe-59 for the milk, airborne particulate, or vegetable pathway). This very selective identification of pathway and important radionuclides reflects the very well defined concept of significant radionuclides for each particular pathway.

Based on past experience in monitoring plant effluents and environmental sampling media, it can be stated with confidence that for the routine operation of Davis-Besse the radionuclides listed in Table 3.12-2 with applicable reporting levels by the identified pathways are the only radionuclides that need be considered when evaluating potential doses in the offsite environment. Also, even if reporting levels were included for other radionuclides, the values would be higher than those for the significant radionuclides and would have a very minor role in determining actual reporting requirements. The reporting levels for the significant radionuclides would be reached well before any identified levels of other radionuclides would even be controlling.

Technical Basis for Eliminating Curie Inventory Limit of Outside Liquid Tanks

At Davis-Besse, outside liquid tanks that potentially contain radioactive material are limited to the borated water storage tanks (2 tanks @ 550,000 gallons) and the primary water storage tank (1 tank, @ 140,000 gallons).

The borated water storage tanks are part of ECCS and are of seismic design. These tanks are designed to withstand extremely adverse environmental conditions and for purposes of this evaluation can be considered rupture-proof. Also, overflow from the tanks is piped back to radwaste. For these reasons, it is considered unnecessary to impose curie inventory limits on these tanks.

The primary water storage tank is used for normal make-up and letdown to the primary system. Water contained within the PW storage tank is typically processed primary coolant or clean (non-radioactive) water. Prior to adding primary system water to the PW storage tank, the water is processed by evaporation and demineralization. This processing limits the levels of radioactivity in the tank. Past sampling and analysis of the tank has indicated only detectable levels of tritium, no other radionuclides have been identified. Also, the overflow on the PW storage tank is piped to radwaste. Therefore, due to the processing of any radioactive waste prior to addition to the PW storage tank and the piping of the overflow to radwaste, the probability of any abnormal discharges to the environment that could exceed the concentrations of 10 CFR 20, Appendix B, Table II, Column 2 at the nearest drinking water supply is extremely remote.

Because of the design of the BWST and the design and operating conditions of the PW storage tank, it is considered unnecessary to impose curie inventory limits on these tanks. Having to routinely sample and analyze for radioactivity concentration imposes an undue burden on plant personnel without providing any additional assurance of the public health and safety.

Sampling Frequency for I-131: Significance of Power Changes and Increases in Coolant Activity Levels

The NRC guidance on effluent monitoring for I-131 (RETS Table 4.11-2, footnote c) calls for increased sampling frequency for I-131 during increases (or decreases) in reactor power level and increases in primary coolant level or noble gas effluent activity level. By system design, releases of radioactive material from plant operation are minor. Trying to identify small increases in I-131 releases that may (or may not) be associated with power changes is unnecessary. To evaluate the potential significance of increases in I-131 releases associated with power changes and the effect that sampling time may have on actual quantification of releases, the following example situation is evaluated.

Consider a power increase (or decrease) on the first day of a seven (7) day sampling period that leads to an increase in I-131 release rate by a factor of 10 for one (1) day. After this one day increase, the release rate returns to the steady-state condition for the remaining 6 days of the sampling period. To evaluate the amount of I-131 on the sampling cartridge as a function of sampling time and concentration, the following equation is used:

$$q_i = \frac{C_i F}{m \lambda_i} (1-e^{-\lambda_i t})$$

where:

Q_i = quantity of activity on collection medium
C_i = air concentration of radionuclide i
λ_i = decay constant for radionuclide i
t = sample time
m = correction factor for collection efficiency

Assuming 100% collection efficiency, at the end of the one day increase the total amount of activity (I-131) on the collection cartridge is determined to be 9.54 $C_i F$. (For this example, the steady-state I-131 concentration is designated as C_i and the one day increase is 10 C_i.) For the remainder of the sampling period with a concentration equal to C_i, the I-131 activity on the collection cartridge is equal to 4.66 $C_i F$.

By decaying the activity on the collection cartridge for the one day increase to the end of the sampling period and adding this quantity to 4.66 $C_i F$, the total I-131 activity is determined to be 10.3 $C_i F$.

If this value is decay corrected to the mid-point of the sampling period in accordance with the guidance of Regulatory Guide 1.21, the I-131 activity which is used to determine the release quantity is equal to 14.0 $C_i F$.

If a similar analysis is performed for the case of analyzing the collection cartridge at the end of the one day increase and analyzing a new cartridge at the end of 6 days sampling (constituting a 7 day sampling period), the total activity (decay corrected to mid-point of sampling periods) is determined to be 16.0 $C_i F$.

By not analyzing the collection cartridge at the end of the one day increase, the total quantity of I-131 is underestimated by 14%. This analysis represents a somewhat worse case situation. The later into the sampling period that the increase occurs, the less the error. If the increase in release rate occurs after the mid-point of the 7 day sampling period, the actual release will be overestimated.

Over a period of time involving numerous increases and decreases in effluent level, the rules of probability dictate that the overestimations and underestimations will tend to cancel out, providing an overall closer approximation to actual releases.

Both the NRC in-plant measurement program and a study by EPRI* have indicated that minor increases in I-131 releases may be associated with reactor power changes and the iodine spiking phenomenon. However, these studies also indicate that overall such increases are minor, not being a significant contributor to the total releases of I-131. As was concluded by the EPRI study for other PWRs, the main source of I-131 releases at Davis-Besse is associated with containment purges.

Regardless of the source, the total I-131 releases are negligible. Since initial start-up of Davis-Besse, the annual releases of I-131 have been less than 0.06 C_i and calculated maximum individual doses less than 0.01 mrem. Even considering a hypothetical 14% increase for sampling periods that may include iodine spiking in the primary coolant, the effect on

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*EPRI NP-939, "Sources of Radioiodine at Pressurized Water Reactors". Science Applications, Inc., November 1978

total releases and calculated doses is still negligible. The actual increase will be even more insignificant considering the fact that the major source of I-131 at Davis-Besse is from containment purges.

Based on a review of plant operating data and the above analysis of the I-131 release quantification as a function of concentration and sampling time, it is concluded that for Davis-Besse, a sampling frequency based on power changes and increases in primary coolant I-131 concentrations is not justified. Determining the releases (and the insignificant environmental doses of these releases) on a weekly basis is sufficient verification of the negligible impact of plant operation. Trying to "fine tune" these releases is not justified considering the manpower and material costs associated with the additional sampling and analysis.

Condensate Demineralizer Backwash Receiving Tank - Radioactivity Control

The discharge from the condensate demineralizer backwash receiving tank is controlled on a batch-by-batch basis in lieu of continuous radioactive effluent monitoring. This method of operation has been determined to provide better control over the discharge of the backwash receiving tank, preventing any unanticipated, unevaluated releases of radioactively contaminated secondary-side clean-up resins to the on-site settling basin. Prior to discharge, the contents of the backwash receiving tank are sampled and analyzed for radioactivity. As required, radioactively contaminated resins are transferred to radwaste for processing and disposal as radioactive material.

The condensate demineralizer backwash receiving tank discharge line as originally designed included a radiation monitor. However, because of the nature of the resin-slurry mixture and the accumulation of resin beads in the monitor line, the radiation monitor has failed to provide the reliable indication of radioactivity and control as originally intended. For this reason, it has been determined that the sampling and analysis of each batch prior to discharge is needed to identify and evaluate radioactive contamination resulting from minor steam generator tube leaks (or residual radioactive material from previous leaks) that might otherwise go undetected and unevaluated by a gross radiation effluent monitor.

The condensate demineralizer backwash receiving tank discharges to an on-site settling basin. No resin discharges are made directly to the off-site environment. Therefore, even in the event of personnel error resulting in the inadvertent discharge of unacceptably radioactive, contaminated resins to the settling basin, no off-site releases would occur. All resins and radioactive material would be retained on-site within the settling basin. Appropriate follow-up measures could then be initiated to control the radioactive material and prevent any potential for releases to the off-site environment in excess of the regulatory limits.

Controlling the discharge of the condensate demineralizer backwash receiving tank on a batch-by-batch basis provides adequate control over the releases of any radioactive material to the off-site environment from this pathway. Also, the discharge is to an on-site settling basin, representing an additional passive barrier from release off-site. Even in the unlikely event of personnel error, by discharging to an on-site settling basin and its isolation from the off-site environment, the probability of unwanted, unevaluated releases of radioactive material to the off-site environment is exceedingly remote. Any additional protective measures provided by a continuous radiation monitor (for which operational performance and reliability are unlikely, based on past experience) are not considered needed.

Lower Limit Of Detection

Definition And Application To Detection Capabilities For Ce-144

The lower limit of detection (LLD), as defined in the Radiological Effluent Technical Specifications (RETS) is an "... a priori (before the fact) limit representing the capabilities of a measurement system and not as a posteriori (after the fact) limit for a particular measurement." As defined by this definition applicable to the detection capability for radioactive effluent analysis, the LLD is a statistical analysis of a background spectrum and represents the detection limits for a radionuclide if it is the only radionuclide present above background. LLDs should be determined based on an analysis of a blank (or background) sample.

However, even with this definition and application of LLD, it can be increasingly difficult to achieve a predesignated LLD value for particular radionuclides as the photon abundance (i.e., decay yield) decreases. To address this problem, specific radionuclides have been identified in the RETS as being the principal radionuclides for which the required LLD must be met. For the analysis of samples of liquid radioactive effluents, an LLD of 5×10^{-7} μCi/ml is required. For the principal gamma emitters listed, all have characteristic gammas with energy levels and abundances that provide for sufficient analytical sensitivity yielding LLDs within the required value of 5×10^{-7} μCi/ml - except Ce-144. With a 10.8% abundance and an energy level of 133.5 KeV, being able to meet the LLD of 5×10^{-7} μCi/ml requires optimum conditions--conditions which cannot be repeatedly achieved for an operational radiochemistry program at Davis-Besse. The low gamma yield is a major factor; however, with an energy level which is located within the Compton continuum, the detection capability for Ce-144 even for a blank, background sample is significantly higher compared with other so-called principal gamma emitters.

The equation for LLD in the Davis-Besse RETS is:

$$LLD = \frac{4.66\ S_b}{E \cdot V \cdot 2.22 \cdot Y}$$

where:

S_b = the standard deviation of the background counting rate

= $\sqrt{R/T}$

R = background counting rate

T = counting time

E = counting efficiency

V = sample size

2.22 = conversion factor (transformations per minute per picocurie)

Y = fractional chemical yield (when applicable)

By substitution of typical values in this equation, the LLDs for different principal gamma emitters can be compared. For analysis of a typical background sample at Davis-Besse, the ratio of the LLDs for Ce-144 and Co-60 is about 5.35; for Ce-144 and Mn-54 the ratio is 8.34. These large ratios are demonstrative of some of the relative difficulties in achieving an LLD of 5×10^{-7} μCi/ml for Ce-144 compared with other principal gamma emitters.

Examining the equation of LLD, two main factors can be altered in an attempt to improve the detection capability - counting time and detector efficiency. (Altering sample size is not considered realistic since larger samples would pose operational and standard calibration problems. It can also be shown that increasing sample volume does not strongly influence efficiency for counting on contact with the detector face due in part to sample self-shielding and decreased relative efficiency for the increased volume).

LLD improves at best as the square root of the counting time. Therefore, increasing the counting time from 2000 seconds to 5000 seconds would only provide a 1.6 reduction in LLD. A 5000 second count is considered to be a reasonable maximum for radioactive effluent analysis. Having to extend to longer counting times would introduce a potential operational delay without commensurate improvement in detection capability.

An improvement in the efficiency can be accomplished by the use of a more efficient GeLi detector. However, this increased efficiency is negated in part by the corresponding increase in background count rate. A comparison of 5 GeLi detectors with relative efficiencies ranging from 7.2% to 22% was performed at the University of Michigan*. For a 500 ml sample on contact with the detectors, the 15% relative efficiency detector demonstrated the highest photopeak efficiency in the 80-200 KeV range. Even the 10% relative efficiency detector had a higher photopeak efficiency in this energy range than did the 21% and 22% relative efficiency detectors. Some unexplainable differences may be due to inherent manufacturer specifications; however, a valid conclusion is that increasing the detector efficiency provides little if any improvement in detection capability, especially in the low energy range (<200 KeV).

Therefore, the analysis of effluent samples at Davis-Besse with a 10% relative efficiency GeLi and a 5000 second counting time provides a detection system that is not only practical for an operational radiochemistry program but can also be considered as representative of state-of-the-art for routine, general purpose radionuclide detection. Since the required LLD of 5×10^{-7} μCi/ml can not be met on a routine basis for Ce-144, therefore the LLD for Ce-114 will be 2.0×10^{-6} μCi/ml (Table 4.11-1, footnote b.).

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*D. M. Minnema, C. G. Hudson and J. D. Jones. "A Comparison of Ge(Li) Detectors with Different Efficiencies for Low-Level General Purpose Counting"; University of Michigan, 1978.

DBP 4306G

THE TOLEDO EDISON COMPANY

DAVIS-BESSE NUCLEAR POWER STATION

PROCESS CONTROL PROGRAM

Revision No.	Reviewed by Station Review Board	Date
0	Stephen Mamroy	2/21/84
1	D. W. Braden	8/29/85

Attachment 2

SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

DAVIS-BESSE NUCLEAR POWER STATION

MARCH 1984

DAVIS-BESSE NUCLEAR POWER STATION

Solid Radioactive Waste Process Control Program

I. PURPOSE

The processing of radioactive waste for disposal at a licensed radioactive waste burial site requires that the waste be appropriately analyzed, processed and packaged, representing a final waste form that is acceptable for transportation to and burial at a licensed radioactive waste disposal site. The purpose of this Process Control Program is to document the radioactive waste processing methods and the quality control steps that are taken at Davis-Besse to verify compliance with applicable regulatory requirements and, in particular, to assure an acceptable waste product meeting the applicable waste stability characteristics of 10 CFR 61.56.

This Process Control Program covers all major waste processing streams at Davis-Besse and the resulting final waste products, including:

- Compressible and non-compressible trash;
- Spent aqueous system filter cartridges;
- Spent resins; and
- Use of contractor for waste processing.

II. REGULATORY OVERVIEW

All waste processing, packaging and shipping are conducted in accordance with approved procedures to assure compliance with applicable federal, state and burial site requirements. Waste processed for disposal is evaluated for compliance with:

1. The waste classification requirements of 10 CFR 61.55.

2. The waste characteristic requirements of 10 CFR 61.56.

3. The manifest reporting requirements of 10 CFR 20.311.

Packaging of waste is in containers meeting DOT specifications and is appropriate for the applicable waste class. Shipments are conducted in accordance with the requirements of 49 CFR 172-177 and 10 CFR 71.

All waste processing is performed in a manner consistent with the principles of ALARA. The procedures that have been developed to cover waste processing operations address appropriate radiation safety measures such as job preplanning (REP), radiation source shielding, and job prerequisites and material requirements so as to minimize stay times.

III. SOLID RADWASTE PROCESSING AND PACKAGING

Prior to the placing of any radioactive material in a container for shipment off-site, a visual inspection of the container's general condition and integrity is conducted. Specific items leading to potential container degradation that are examined and could result in rejection for use as a radwaste disposal container include:

- Punctures
- Corrosion
- Cracked, separated, incomplete, or otherwise defective seams and welds
- Bent, dented, cut, or degraded gaskets and/or sealing surfaces

Also, specific criteria prohibit the inclusion of liquid waste (e.g., wet decontamination mop heads, free liquids, and plastic wastes containing liquids) unless special provisions have been made for the removal of the liquids (e.g., for dewatering spent resins).

Compressible and Non-Compressible Waste

Miscellaneous compressible and non-compressible wastes are routinely collected throughout the radiologically controlled areas of the plant for the purposes of general housekeeping and radiological control.

Prior to filling a drum or a box with waste, the container is appropriately labeled, RADIOACTIVE - LSA. The loading of compressible and non-compressible waste is conducted in a manner consistent with the philosophy of volume reduction and minimization of void spacing. After completion of waste compaction and/or container loading, each container is sealed, weighed and placed in radwaste storage, pending shipment to a licensed waste disposal site.

Liquid System Cartridge Filters

Cartridge filters can be a high radiation and/or contamination hazard. All spent filter removals are performed under health physics surveillance. Filters are placed in shielded storage to allow for radioactive material decay prior to placing in an approved, appropriate shipping container (e.g., high integrity container or HIC).

Spent Resin - Primary System

Spent resins from the primary clean-up system are transferred from the Spent Resin Storage Tank to an appropriate disposable container in accordance with approved plant procedures. Normally, transfer is to an HIC; however, a carbon steel container may be used provided radioactive material levels meet the criteria for Class A waste per the requirements of 10 CFR 61.55. After transfer to a disposable container, the container is dewatered

in accordance with vendor-approved procedures that have been specifically developed for the dewatering of resins for the applicable vendor-supplied container. The specifics of the dewatering process must adequately demonstrate the removal of essentially all free standing water (i.e., meeting the free standing liquids requirements of 10 CFR 61.56).

Additional administrative controls taken to assure the proper dewatering of resin utilizing vendor-supplied procedures, are addressed in Section IV.

Spent Resin - Miscellaneous Waste Monitor Tank Influent Processing

The processing of liquid radwaste normally from the miscellaneous waste drain tank or detergent waste drain tank (dirty, aerated liquids) is performed by a contractor-supplied filtration/demineralization system. Refer to Section IV for the administrative and operational controls that are taken to assure the generation of an acceptable waste product.

Spent Resin - Condensate Polishing Demineralizer Holdup Tanks

The processing of resin slurries from the condensate polishing demineralizer holdup tanks is performed by a contractor-supplied system. Refer to Section IV below for the administrative and operational controls that are taken to ensure the generation of an acceptable waste product.

Spent Resin - Potential Exothermic Reactions

Since we are not solidifying at Davis-Besse, exothermic reactions which could potentially occur during the solidification process would not be a consideration. If in the future, a solidification process is used, an appropriate time will be allowed before solidifying or capping to avoid any pressure extremes in the closed container or matrix.

IV. USE OF CONTRACTOR FOR WASTE PROCESSING

Contractor-supplied services may be used at Davis-Besse for the processing of radioactive waste, including miscellaneous radwaste liquids, oil waste, and other types of waste resulting from both routine and non-routine operations. For the operation of such process systems, it may be desirable to use process control measures and procedures developed by the contractor specifically for the system. Therefore, previously addressed process control measures for a particular waste stream may, as appropriate, be superseded by contractor-supplied measures. The following discussion addresses the administrative controls that are imposed to assure that contractor-supplied systems and services for processing radioactive waste for disposal at a burial site are compatible with plant operations, procedures and regulatory requirements.

Prior to the use of any contractor for the processing of waste at Davis-Besse, a management review of the contractor's process controls and operating procedures is performed for the purpose of assuring safe operation in accordance with plant procedures and applicable regulatory requirements. For the processing of waste that is intended to be shipped for disposal at a licensed radioactive waste burial site, additional precautions are taken to assure a final waste product that meets the appropriate waste characteristic requirements for solidification or dewatering. In particular, the following items, as applicable, are to be documented by the contractor (or Davis-Besse manuals or procedures) prior to utilization for solid waste processing:

- a general description of the solidification process, including type of solidification agent, major process equipment and interface with plant equipment, type of wastes that can be processed, and operating parameters

- a process control program that provides for the verification of the generation of a suitable waste product, including items such as representative sampling, laboratory tests to establish waste-to-process medium ratios, and criteria for evaluating acceptability of laboratory tests

- specifically approved procedures for the operation of the process equipment that will assure operation within the bounds as determined by the process control program

- appropriate acceptance criteria for evaluating the acceptability of the final waste product.

SPENT RESIN PROCESSING SYSTEM