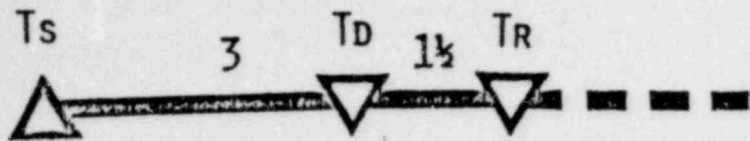


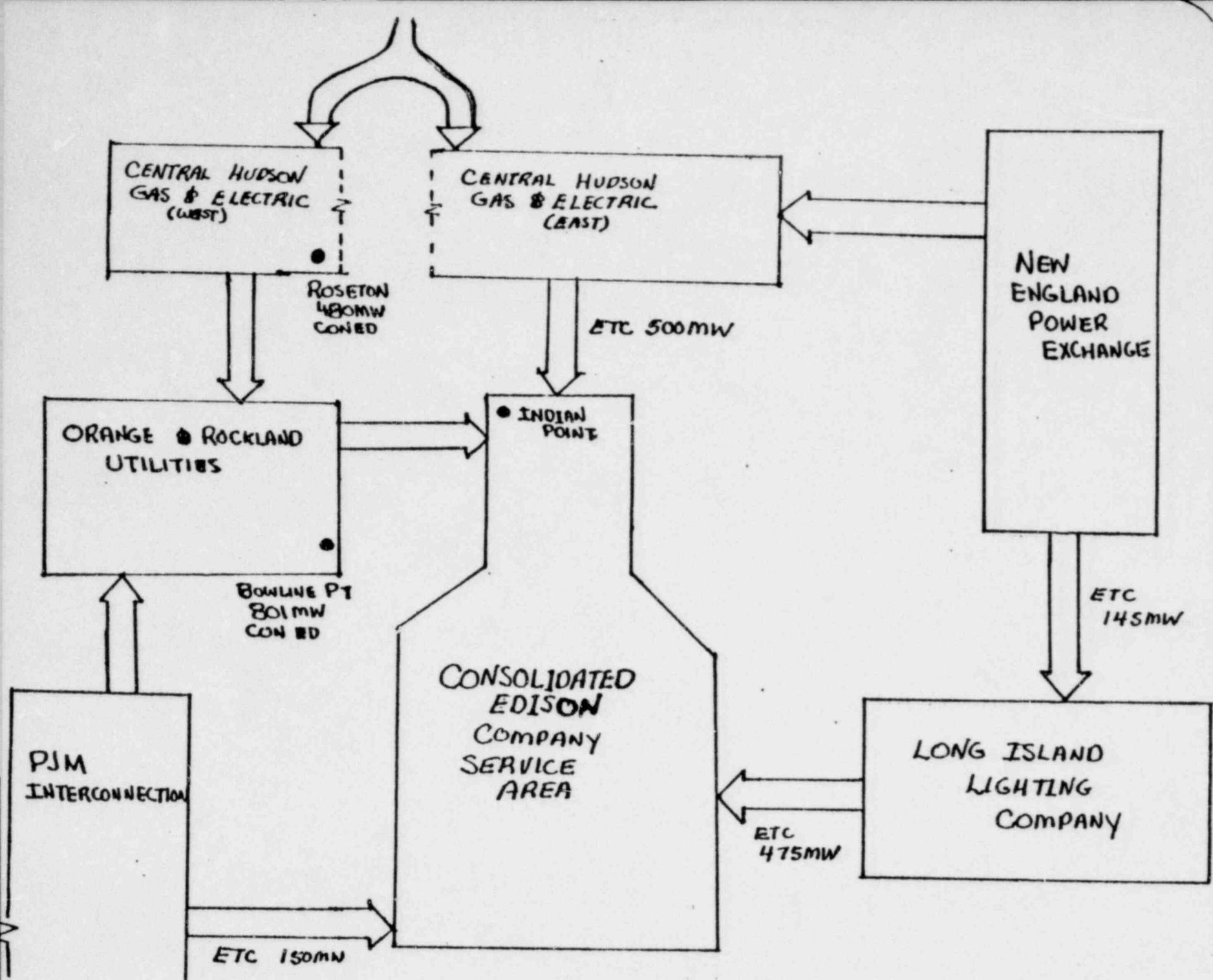
SEQUENCE 1 (TMLB')



SEQUENCE 2 (AG)



8007140091



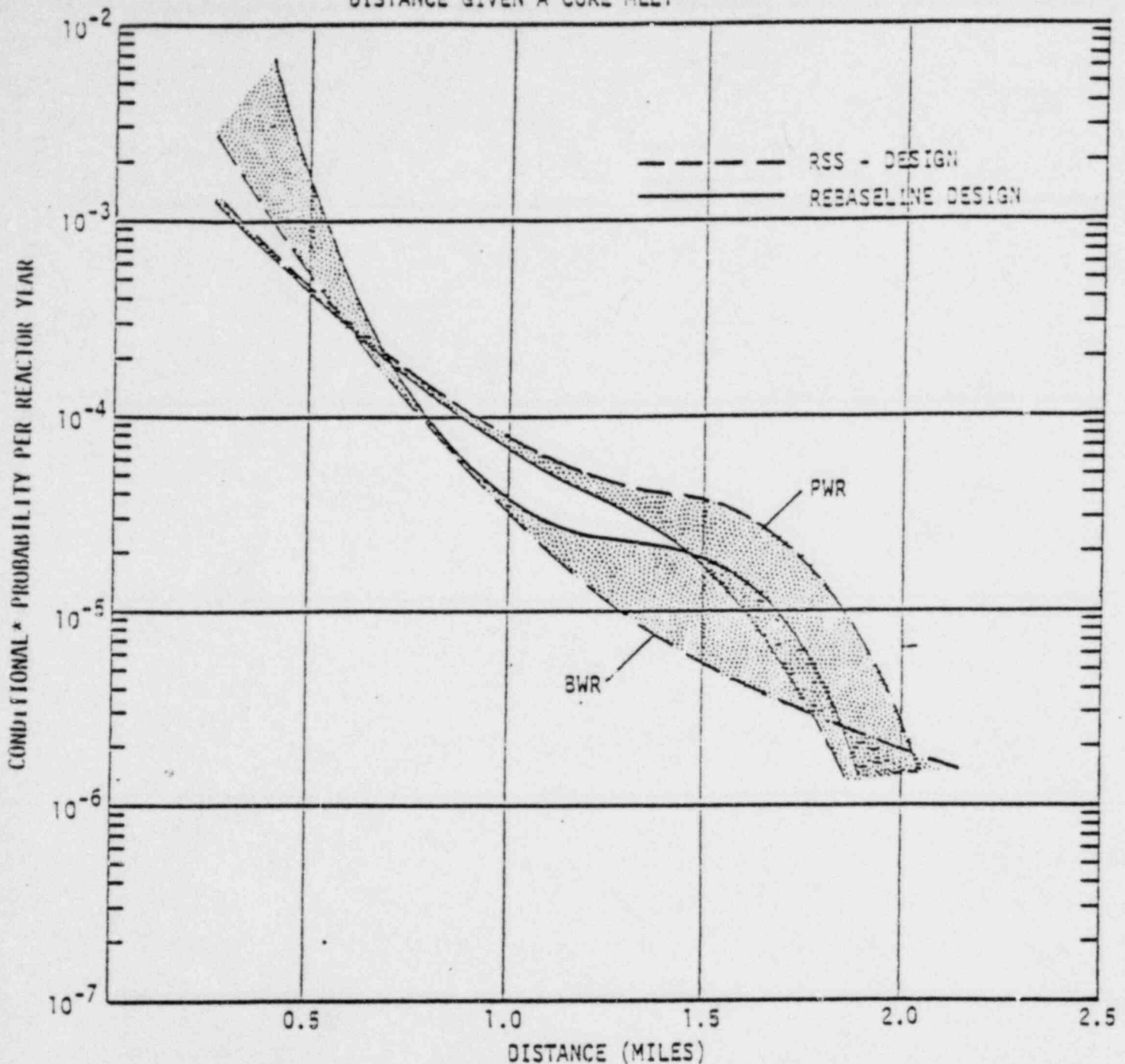
PARAMETRIC VARIATION FOR ACCIDENT RISK

o SITE

o PUBLIC PROTECTION

o DESIGN & OPERATION

FIGURE B1 - RISK OF EARLY FATALITY TO AN INDIVIDUAL VERSUS DISTANCE GIVEN A CORE MELT\*



ASSUMPTIONS: \*CORE MELT PROBABILITY ASSUMED TO BE  $10^{-4}$ /REACTOR YEAR

RSS-DESIGN

1. ALL RSS CORE MELT ACCIDENT RELEASE CATEGORIES
2. ALL RSS ASSUMPTIONS (E.G., SMOOTHING)

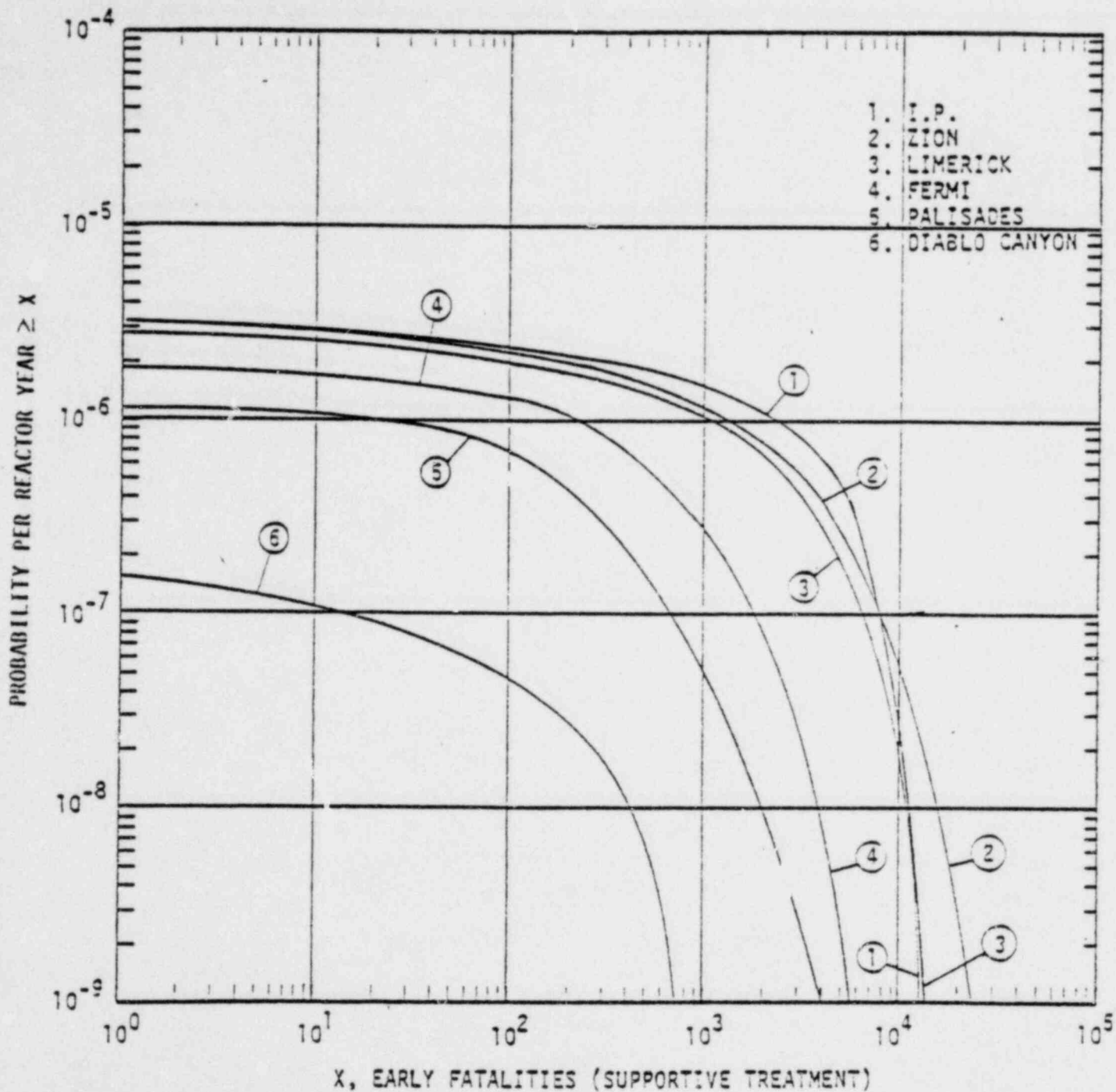
REBASELINE DESIGN

1. SMOOTHING ELIMINATED
2. EXPLICIT ACCIDENT SEQUENCES
3. NEGLIGIBLE PROBABILITY OF VESSEL STEAM EXPLOSION

EXPECTED CONSEQUENCES FROM 91 WEATHER SEQUENCES WITH 3200 MWT POWER LEVEL

ENTIRE CLOUD EXPOSURE + 24 HOUR GROUND EXPOSURE  
SHIELDING BASED ON NORMAL ACTIVITY

FIGURE 1 - EARLY FATALITY RISK FOR DIFFERENT SITES



NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

ASSUMPTIONS:

- 1) SURRY DESIGN.
- 2) I.P. UNIT 3 POWER LEVEL (3025 MWT).
- 3) WITHIN 10 MILES - ENTIRE CLOUD EXPOSURE + 4 HOURS GROUND EXPOSURE  
NO SHIELDING  
BEYOND 10 MILES - ENTIRE CLOUD EXPOSURE + 7 DAY GROUND EXPOSURE  
SHIELDING BASED ON NORMAL ACTIVITY.
- 4) WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION.
- 5) IDENTICAL 91 WEATHER SEQUENCES FOR ALL SITES.

SITE VARIATION

!

0 BENCHMARK REACTOR

- 3025 FWT SURRY

0 VARY ONLY THE SITE

- 4 POPULOUS SITES

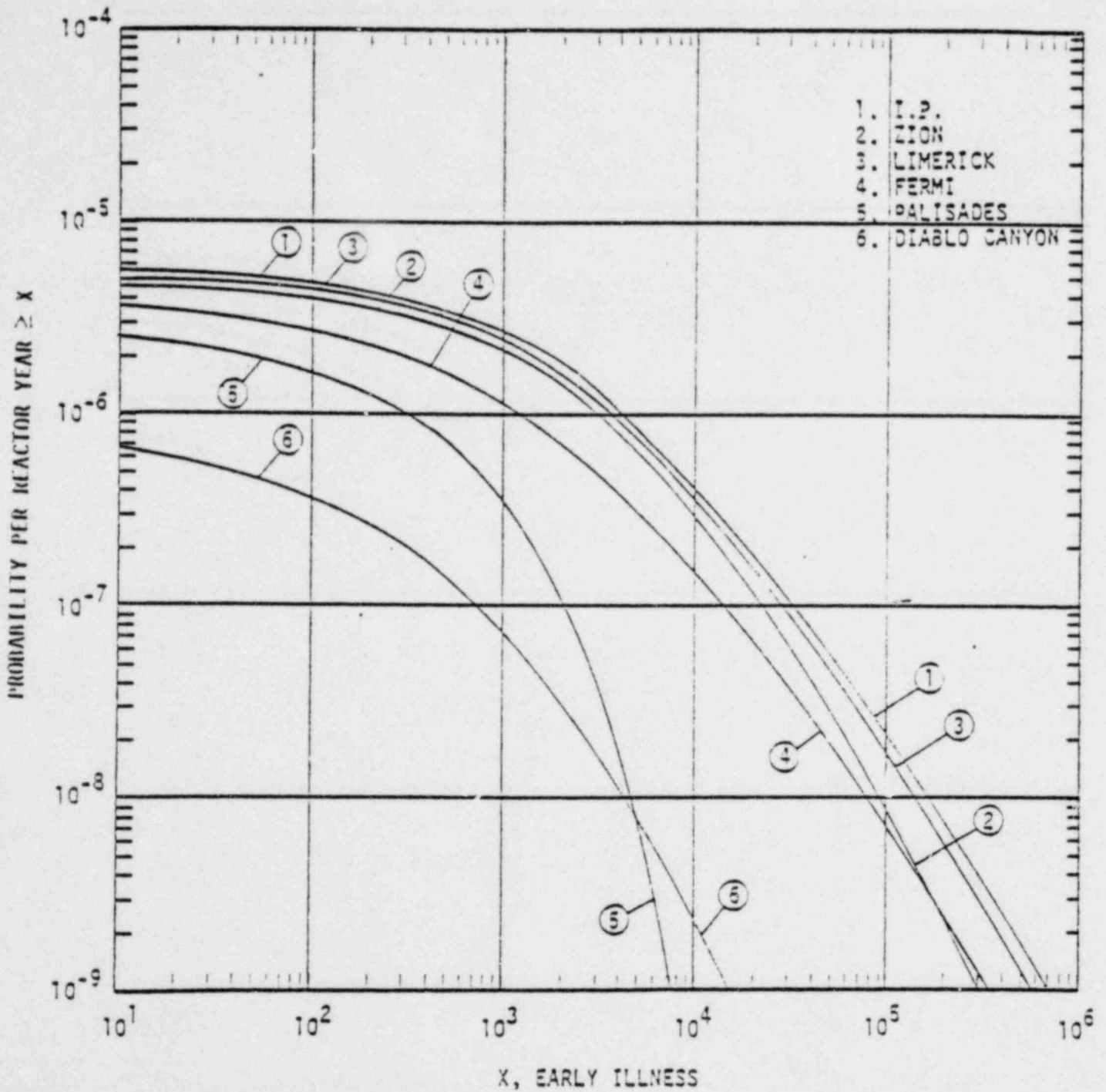
- 1 TYPICAL SITE

- 1 REMOTE SITE

0 SAME PUBLIC PROTECTION MEASURES

0 4 MEASURES OF RISK

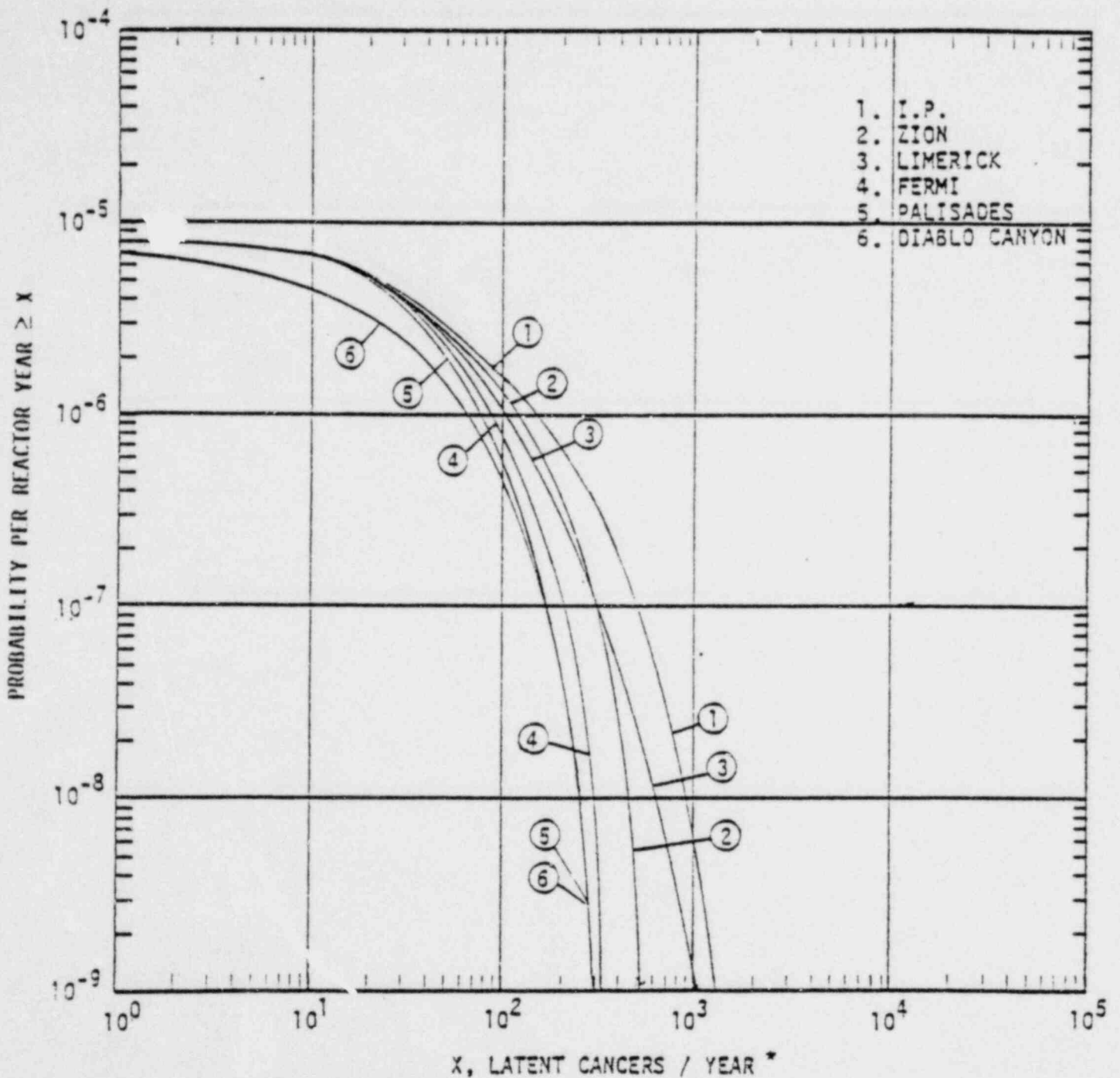
FIGURE 2 - EARLY ILLNESS RISK FOR DIFFERENT SITES



NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

- ASSUMPTIONS:
- 1) SURRY DESIGN.
  - 2) I.P. UNIT 3 POWER LEVEL (3025 MWT).
  - 3) WITHIN 10 MILES - ENTIRE CLOUD EXPOSURE + 4 HOURS GROUND EXPOSURE  
NO SHIELDING  
BEYOND 10 MILES - ENTIRE CLOUD EXPOSURE + 7 DAY GROUND EXPOSURE  
SHIELDING BASED ON NORMAL ACTIVITY.
  - 4) WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION.
  - 5) IDENTICAL 91 WEATHER SEQUENCES FOR ALL SITES.

FIGURE 3 - LATENT CANCER RISK (ANNUAL) FOR DIFFERENT SITES



\*TOTAL LATENT CANCERS WOULD BE 30 TIMES HIGHER

NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

ASSUMPTIONS: 1) SURRY DESIGN.

2) I.P. UNIT 3 POWER LEVEL (3025 MWt).

3) WITHIN 10 MILES - ENTIRE CLOUD EXPOSURE + 4 HOURS GROUND EXPOSURE  
NO SHIELDING

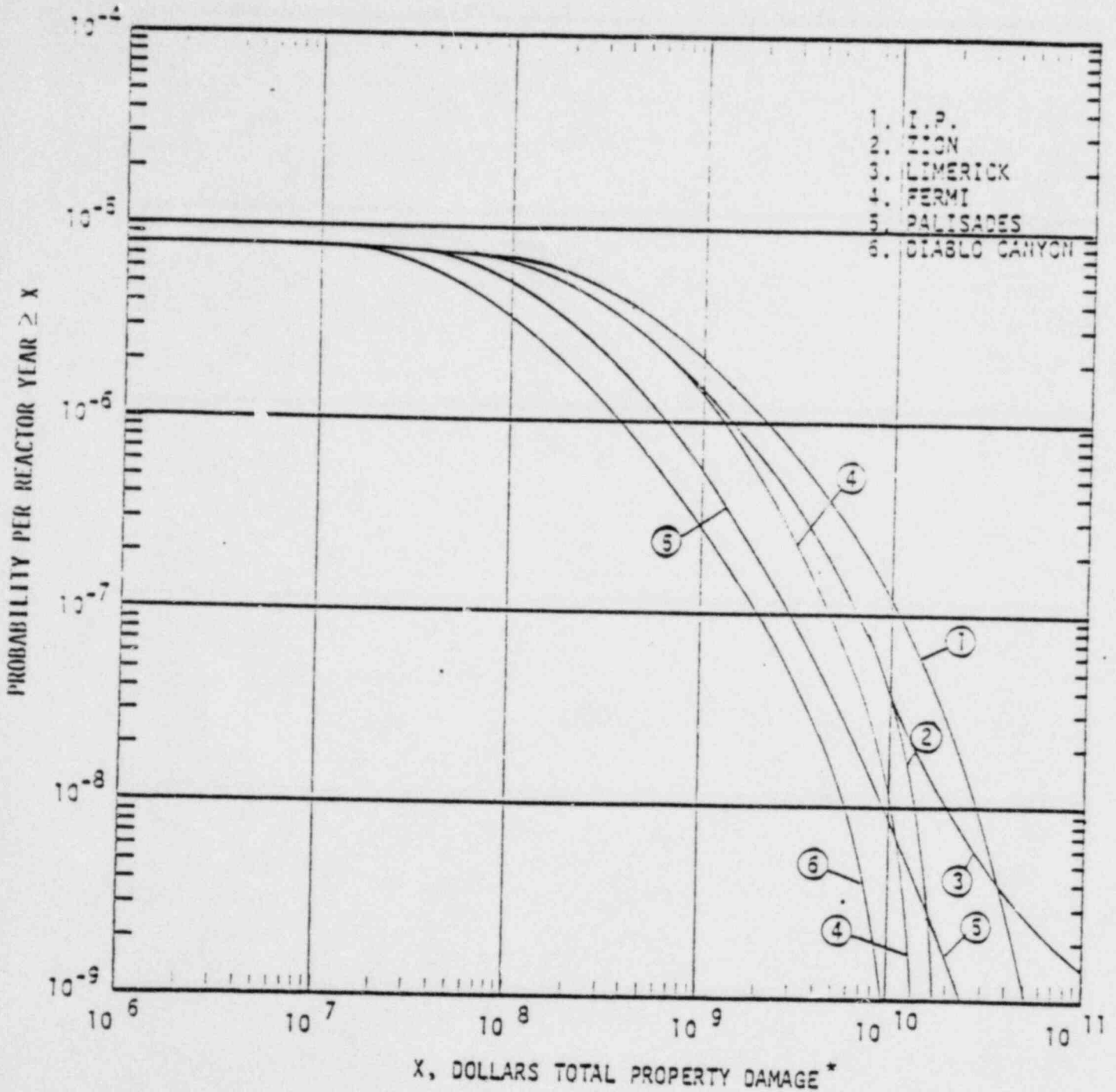
BEYOND 10 MILES - ENTIRE CLOUD EXPOSURE + 7 DAY GROUND EXPOSURE  
SHIELDING BASED ON NORMAL ACTIVITY.

4) WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION.

5) IDENTICAL 91 WEATHER SEQUENCES FOR ALL SITES.



FIGURE 4 - PROPERTY DAMAGE RISK FOR DIFFERENT SITES



\* BASED ON 1974 DOLLARS

NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

- ASSUMPTIONS:
- 1) SURRY DESIGN
  - 2) I.P. UNIT 3 POWER LEVEL (3025 MWT)
  - 3) WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION
  - 4) IDENTICAL 91 WEATHER SEQUENCES FOR ALL SITES.

DO ZION AND INDIAN POINT DOMINATE SOCIETAL RISK?

o SURRY AT INDIAN POINT OR ZION IS 10 TIMES WORSE THAN SURRY AT TYPICAL SITE

o EQUATION

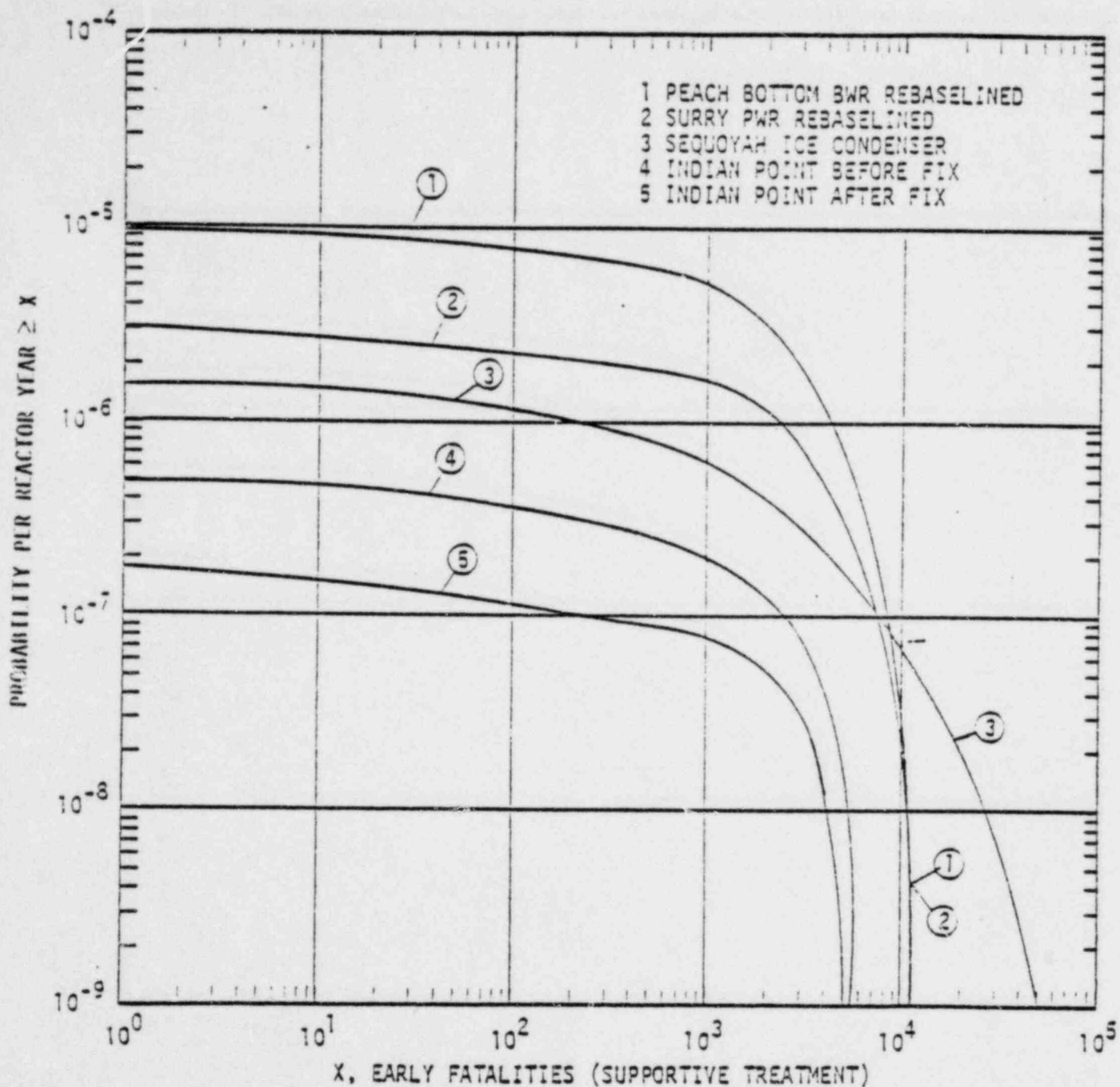
SITE	NUMBER OF REACTORS	UNITS OF RISK
IP	2	20
ZION	2	20
ALL OTHERS	63	<u>63</u>
		103

∴ ZION AND INDIAN POINT ≈ 40% OF RISK IF SURRY IS TYPICAL OF ALL DESIGNS

## VARIATION OF DESIGN AND OPERATION

- o INDIAN POINT SITE
- o SAME PUBLIC PROTECTION MEASURES
- o DIFFERENT REACTORS AT 3025 MWT
  - SURRY
  - PEACH BOTTOM
  - SEQUOYAH
  - INDIAN POINT BEFORE
  - INDIAN POINT AFTER

FIGURE 7 - EARLY FATALITY RISK FOR DIFFERENT DESIGNS



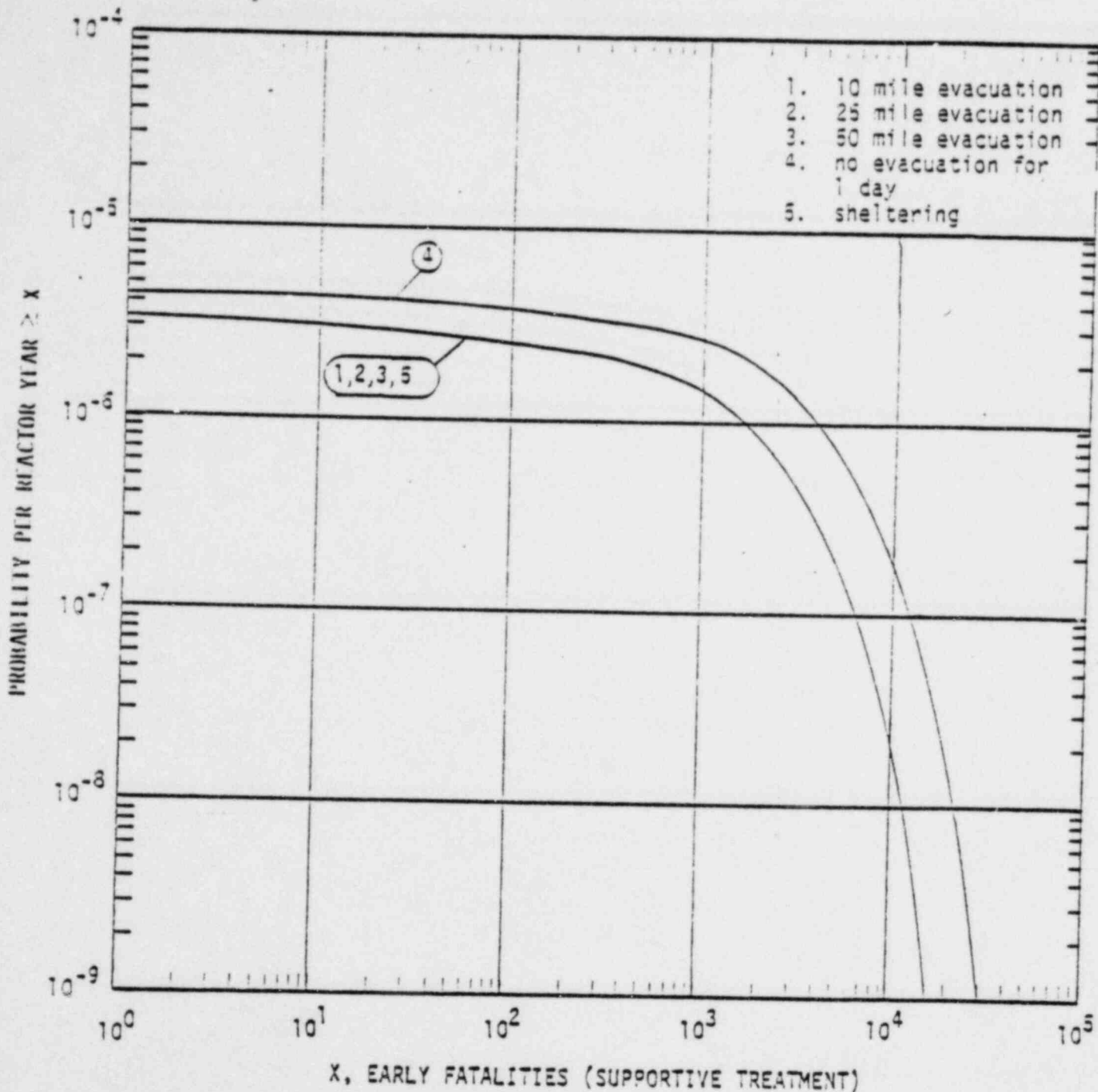
NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

- ASSUMPTIONS: 1) INDIAN POINT SITE  
METEOROLOGY - 91 WEATHER SEQUENCES  
WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION  
UNIT 3 POWER LEVEL (3025 MWT)
- 2) WITHIN 10 MILES - ENTIRE CLOUD EXPOSURE + 4 HOURS GROUND EXPOSURE  
NO SHIELDING  
BEYOND 10 MILES - ENTIRE CLOUD EXPOSURE + 7 DAY GROUND EXPOSURE  
SHIELDING BASED ON NORMAL ACTIVITY

## VARIATION OF PUBLIC PROTECTION

- o BENCHMARK REACTOR
  
- o INDIAN POINT SITE
  
- o VARIED PUBLIC PROTECTION
  - IN REPORT
    - SHELTERING
    - DIFFERENT RADII OF EVACUATION
    - DON'T BEAT THE CLOUD
  
  - IN PRESENTATION
    - DIFFERENT EARLY WARNING
    - DIFFERENT EVACUATION RATES
    - SOME BEAT THE CLOUD

FIGURE 6 - EARLY FATALITY RISK AT INDIAN POINT FOR VARIOUS PUBLIC PROTECTION MEASURES



NOTE: THERE ARE LARGE UNCERTAINTIES WITH THE ABSOLUTE VALUES PRESENTED IN THIS FIGURE

ASSUMPTIONS: 1) SURRY DESIGN.

2) I.P. UNIT 3 POWER LEVEL (3025 MWt).

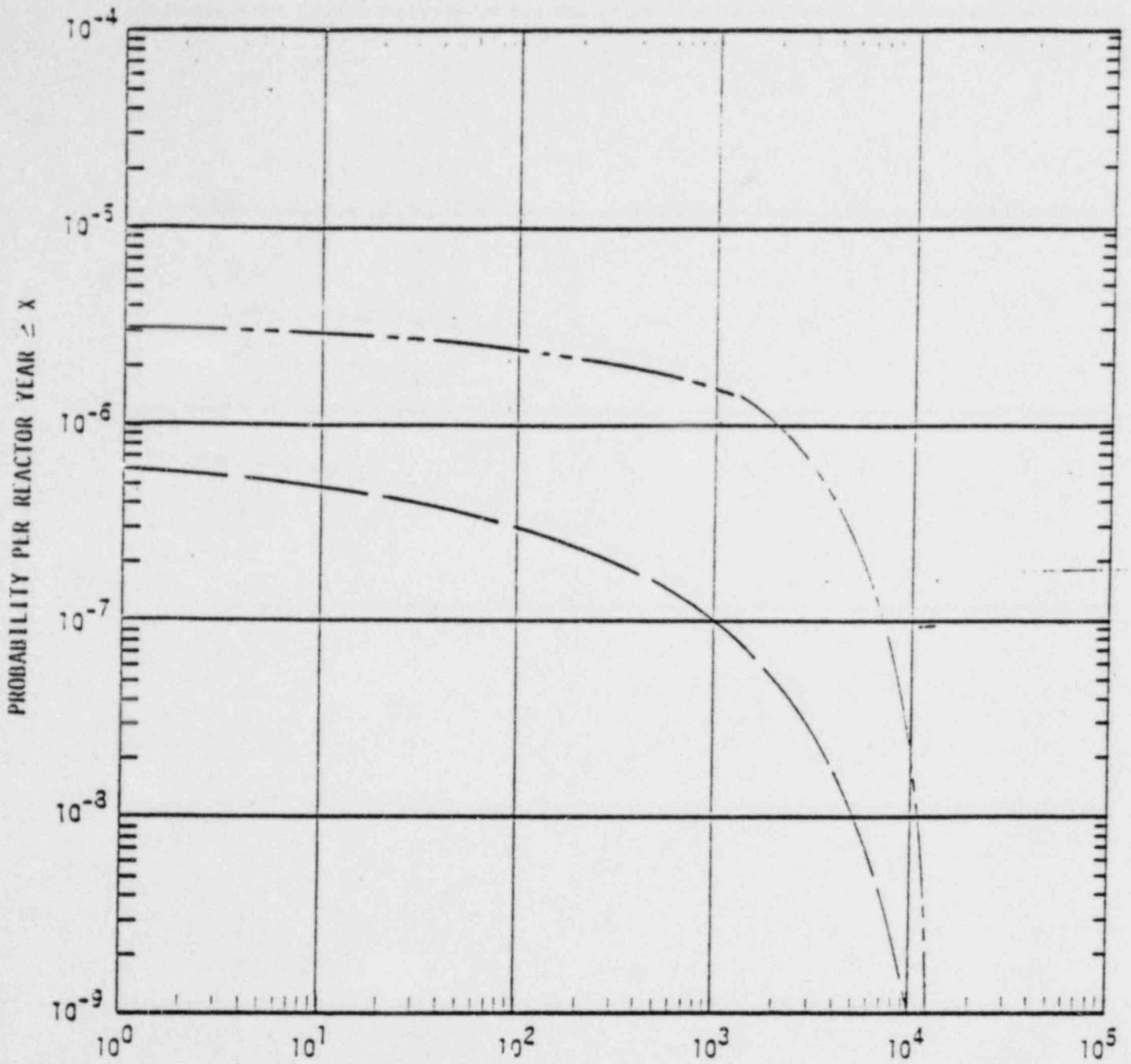
3) WIND ROSE WEIGHTED 1970 CENSUS POPULATION DISTRIBUTION

4) INDIAN POINT SITE (POPULATION AND METEOROLOGY)

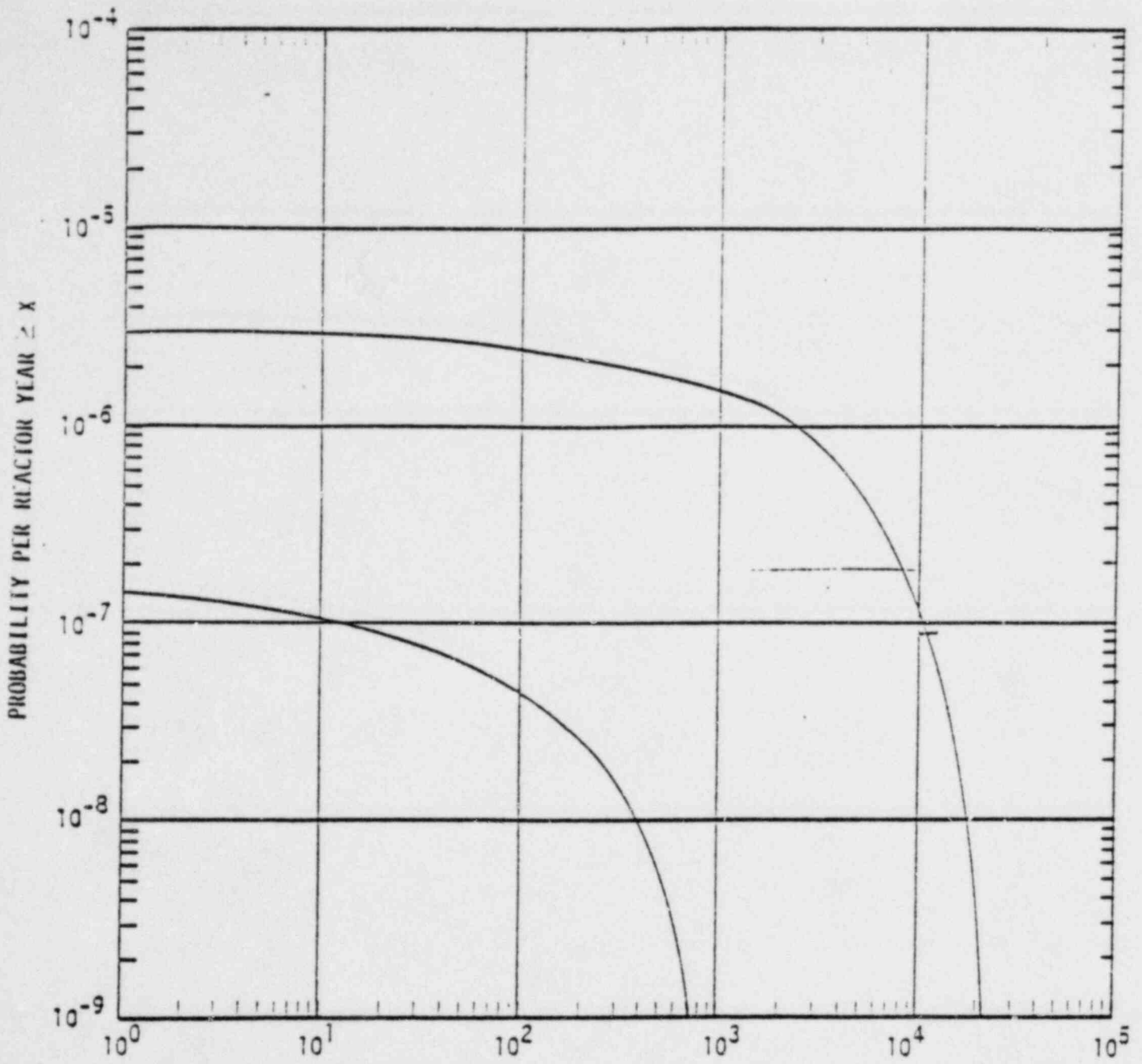
EVACUATION SCENARIOS - ENTIRE CLOUD EXPOSURE + EITHER 4 HOURS GROUND EXPOSURE, NO SHIELDING WITHIN GIVEN DISTANCE; OR 7 DAYS GROUND EXPOSURE, NORMAL SHIELDING BEYOND GIVEN DISTANCE

NO EVACUATION - ENTIRE CLOUD EXPOSURE + 1 DAY GROUND EXPOSURE, NORMAL SHIELDING

SHELTERING - ENTIRE CLOUD EXPOSURE + 1 DAY GROUND EXPOSURE, SHIELDING ASSUMES BRICK HOUSE WITH NO BASEMENT.

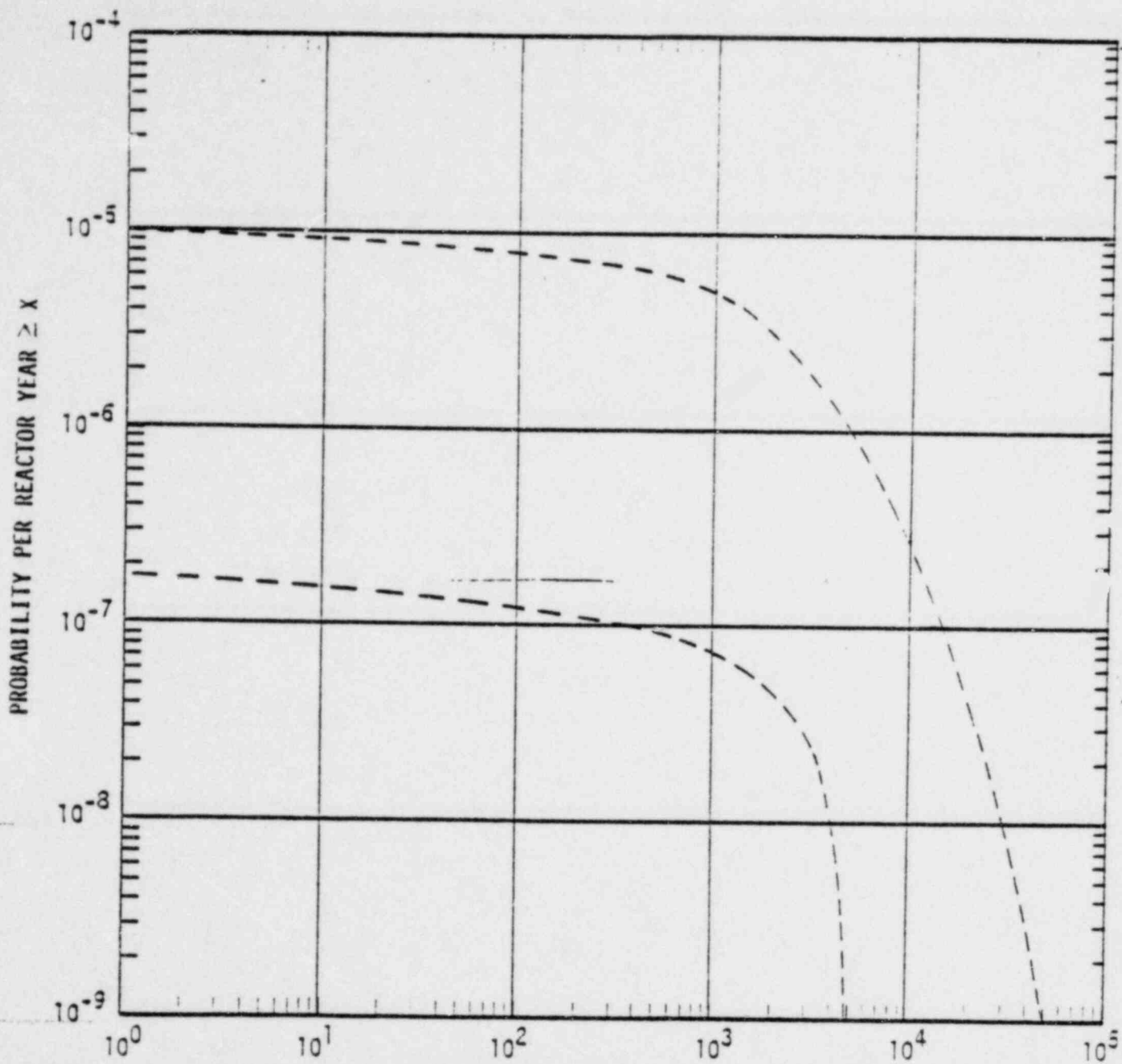


Emergency Response - 1-5 hour delay ————; ————

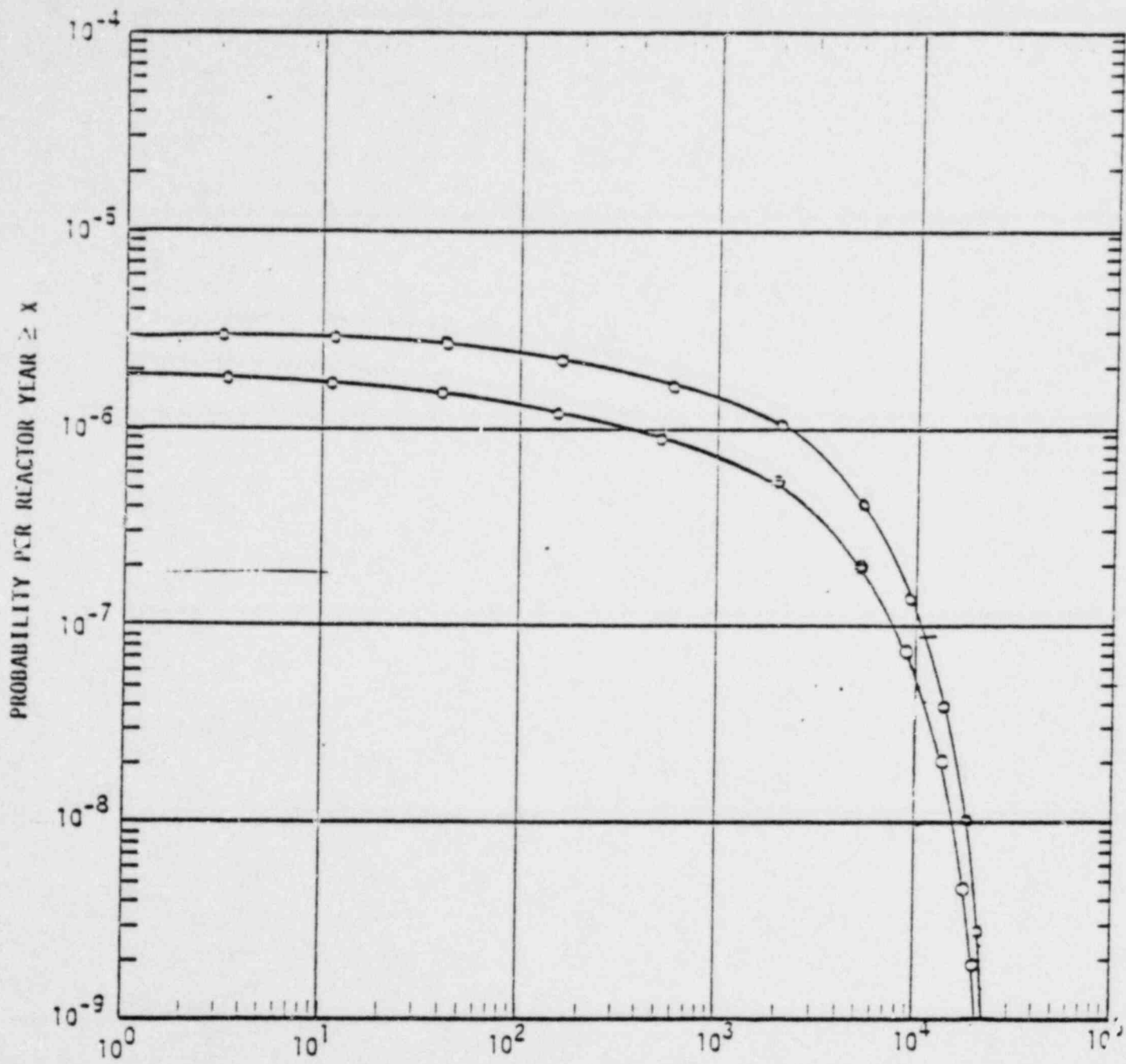


Site Spread —————





Design Spread - - - - -



Power Reduction Spread —○—

## INSIGHTS

- o INDIAN POINT SITE WORSE THAN  
TYPICAL
- o INDIAN POINT REACTOR BETTER THAN  
TYPICAL
- o INDIAN POINT IS NOT DOMINANT SOCIETAL  
RISK
- o DESIGN/OPERATION IS LEAST CERTAIN  
AND MOST SIGNIFICANT VARIABLE