

ENCLOSURE 3

OVERVIEW

ZION/INDIAN POINT
PROBABILISTIC RISK ASSESSMENT
STUDY REVIEW BOARD MEETING

Prepared for
COMMONWEALTH EDISON COMPANY
Chicago, Illinois
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PICKARD, LOWE AND GARRICK, INC.
CONSULTANTS - NUCLEAR POWER
IRVINE, CALIFORNIA WASHINGTON, D.C.

ZION/INDIAN POINT PROBABILISTIC RISK ASSESSMENT

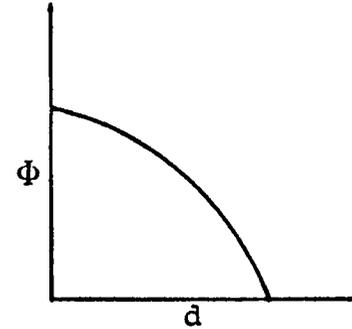
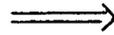
PURPOSE

- QUANTIFICATION OF RISK
 - HEALTH AND SAFETY
 - + PROPERTY DAMAGE
- QUANTITATIVE BASIS FOR EVALUATING THE IMPACT ON RISK OF
 - PLANT MODIFICATIONS
 - EMERGENCY PLANNING
- TRAINING IN PRA

PROBABILISTIC RISK ANALYSIS

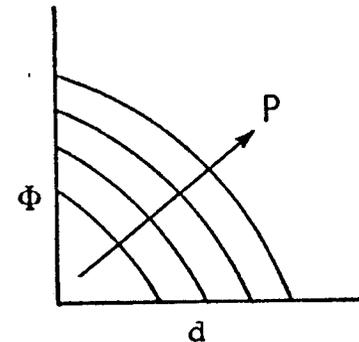
FUNDAMENTALLY:

$$R = \{ \langle s_i, \phi_i, d_i \rangle \}$$



INCLUDING UNCERTAINTY:

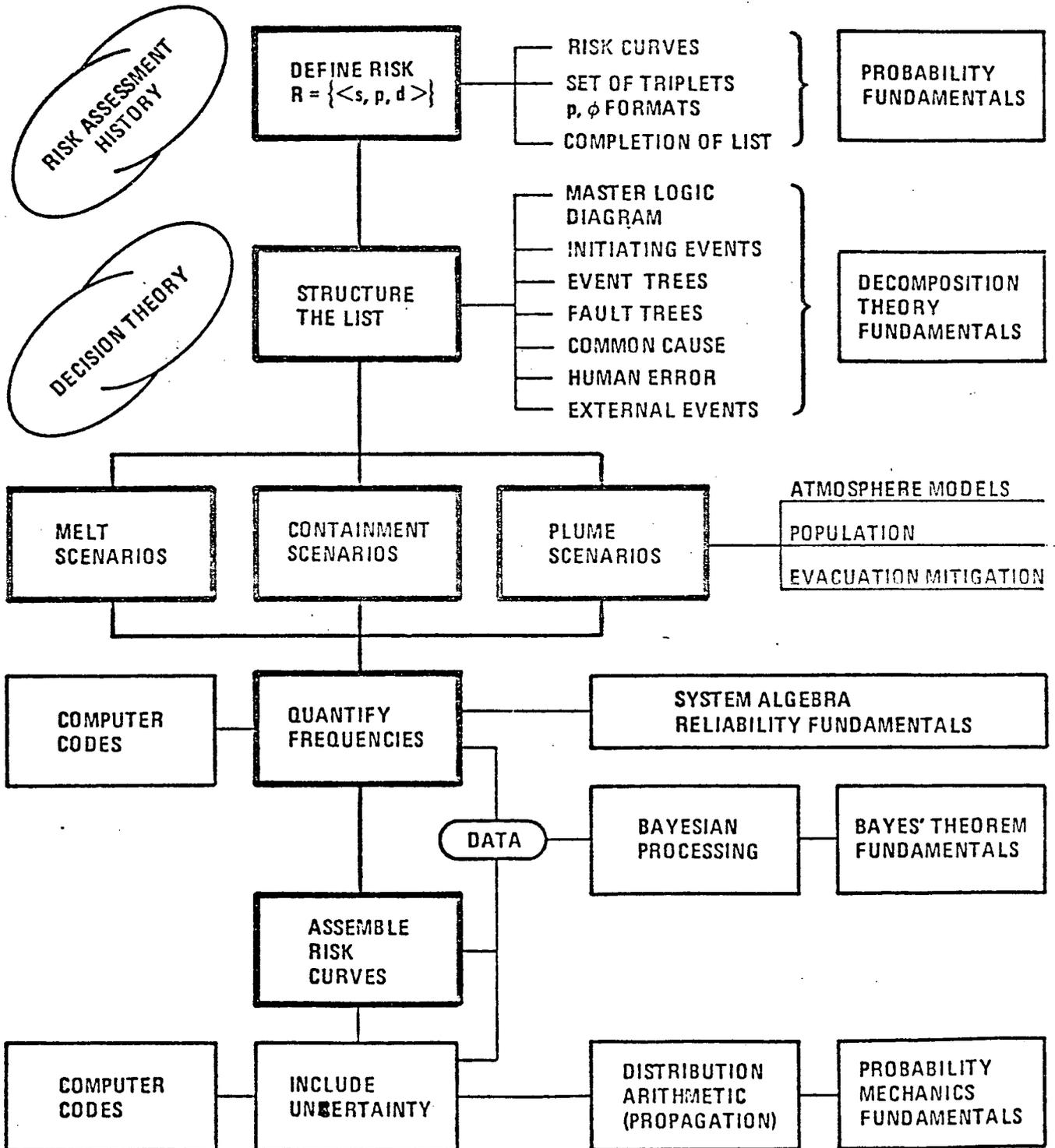
$$R = \{ \langle s_i, p_i(\phi_i), q_i(d_i) \rangle \}$$



INCLUDE "OTHER" CATEGORY

ALLOWANCE FOR SCENARIOS NOT OTHERWISE ON LIST

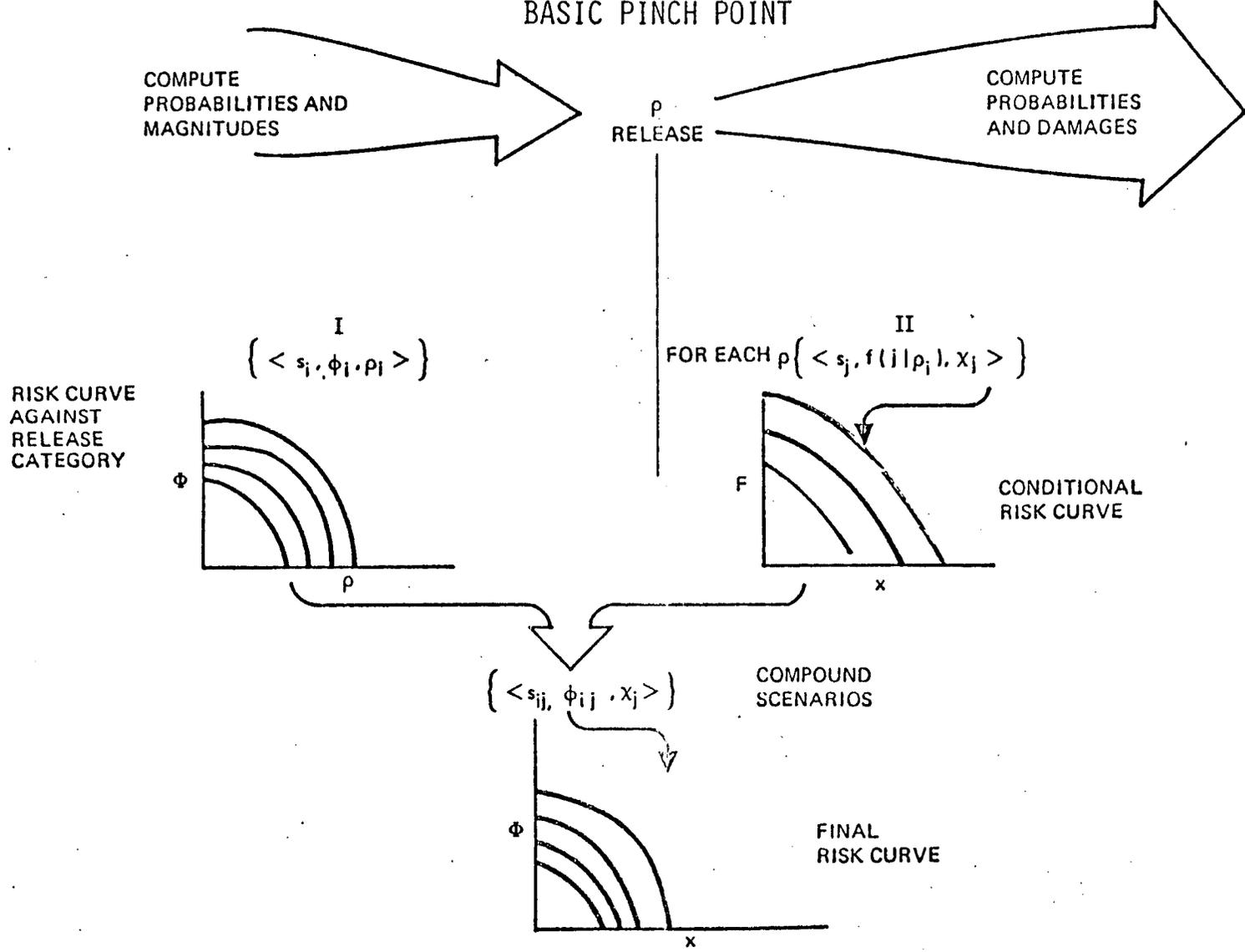
PROBABILISTIC RISK ASSESSMENT

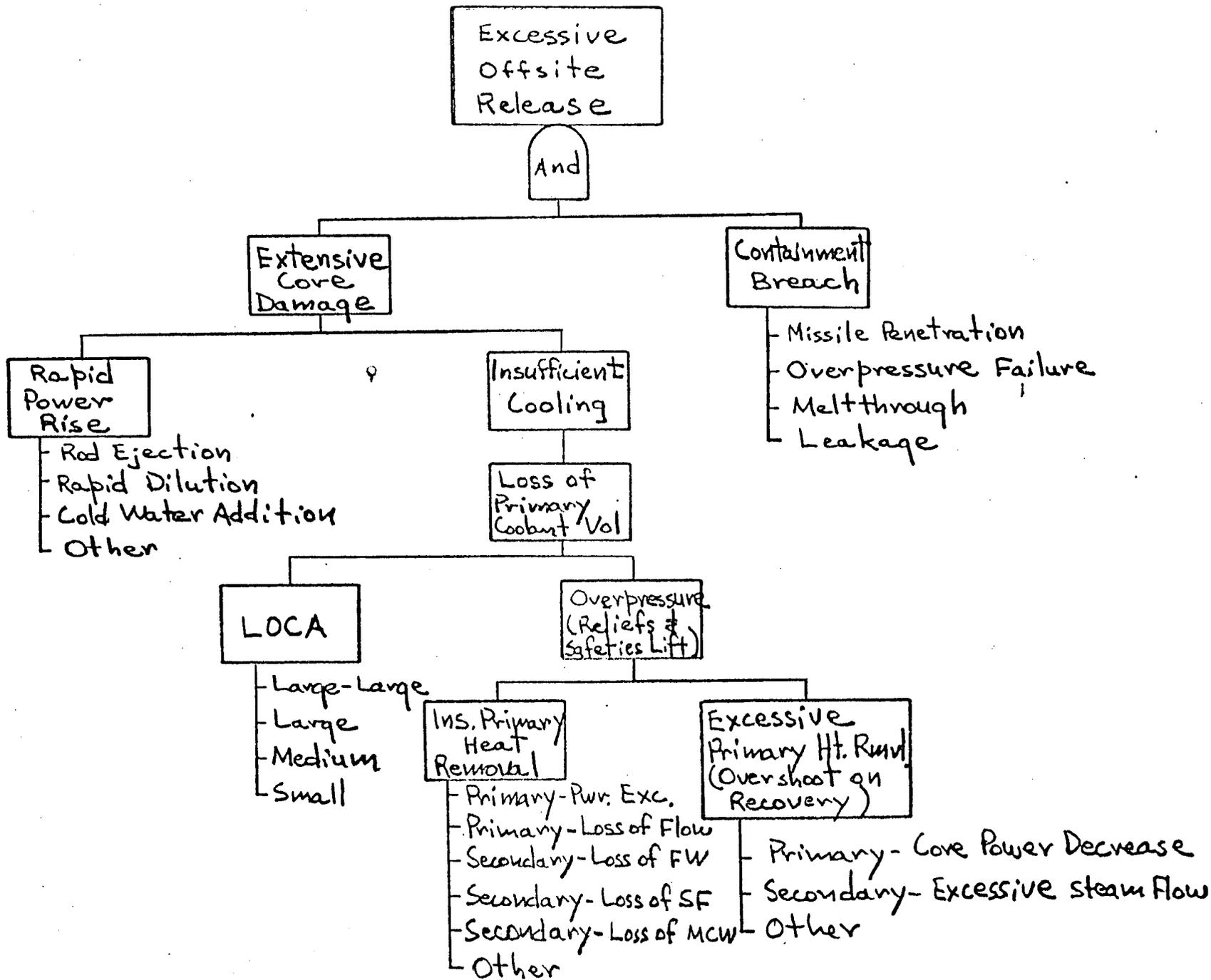


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STRUCTURING THE SCENARIO LIST

BASIC PINCH POINT

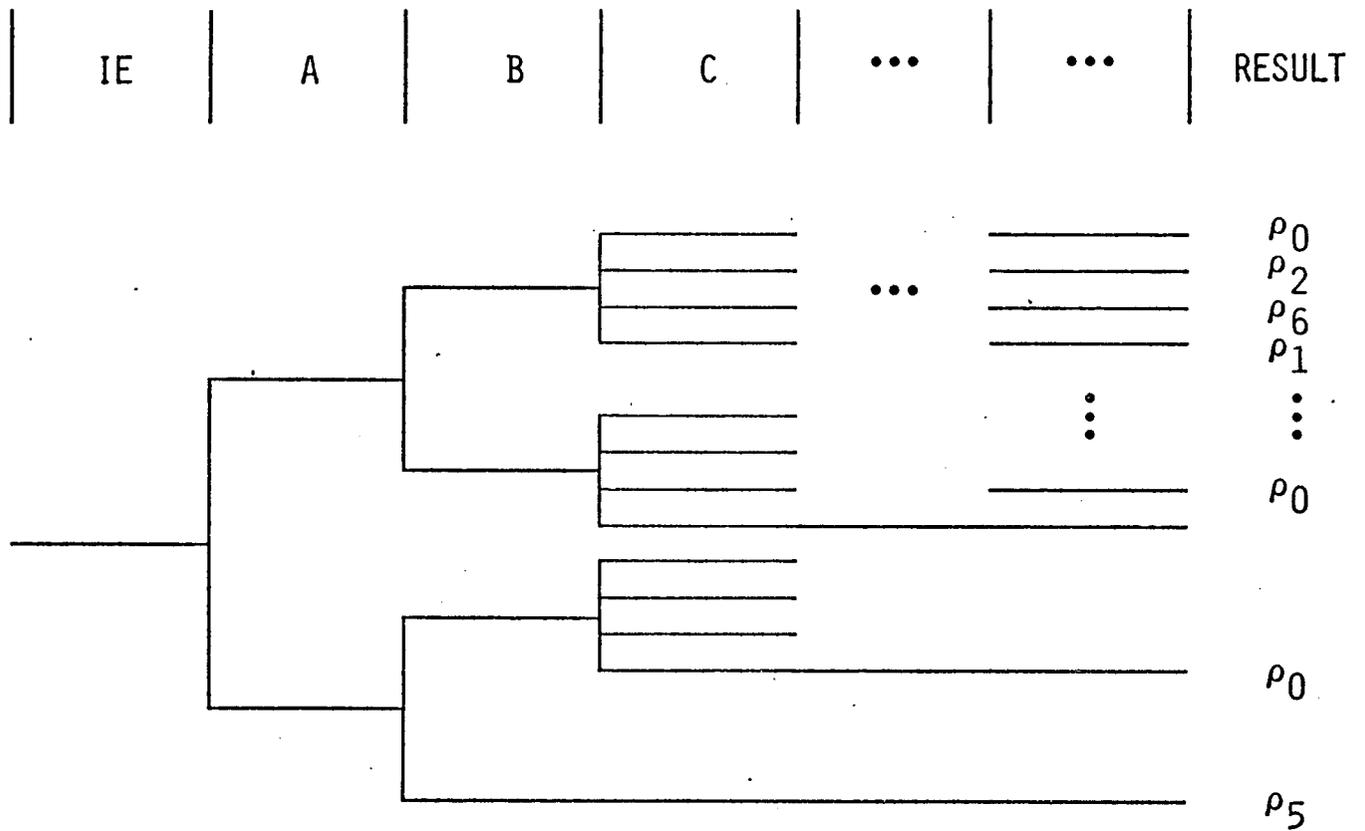




ZION/INDIAN POINT MASTER LOGIC DIAGRAM

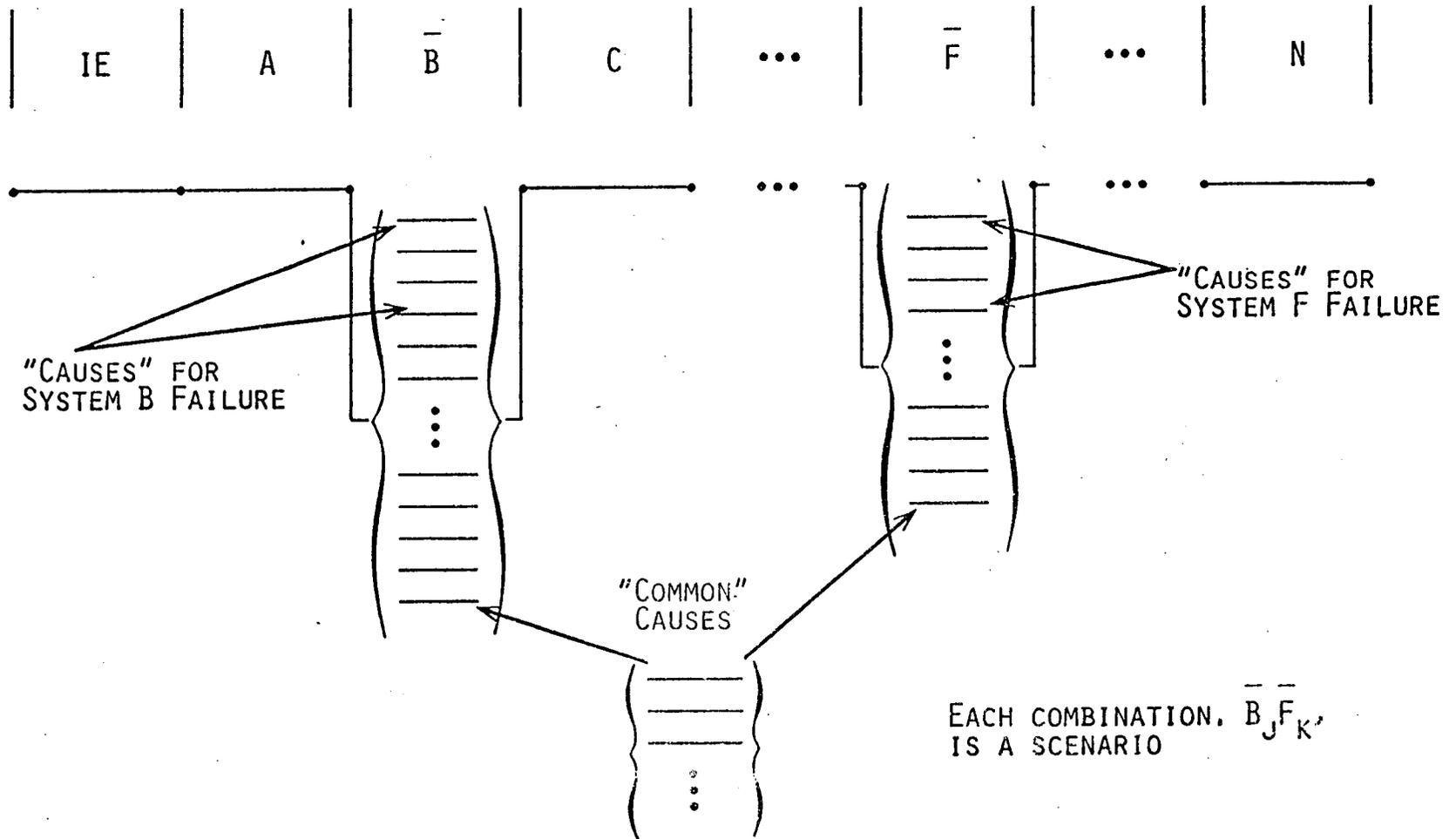
STRUCTURING THE SCENARIO LIST

(3) EVENT TREE DIAGRAM

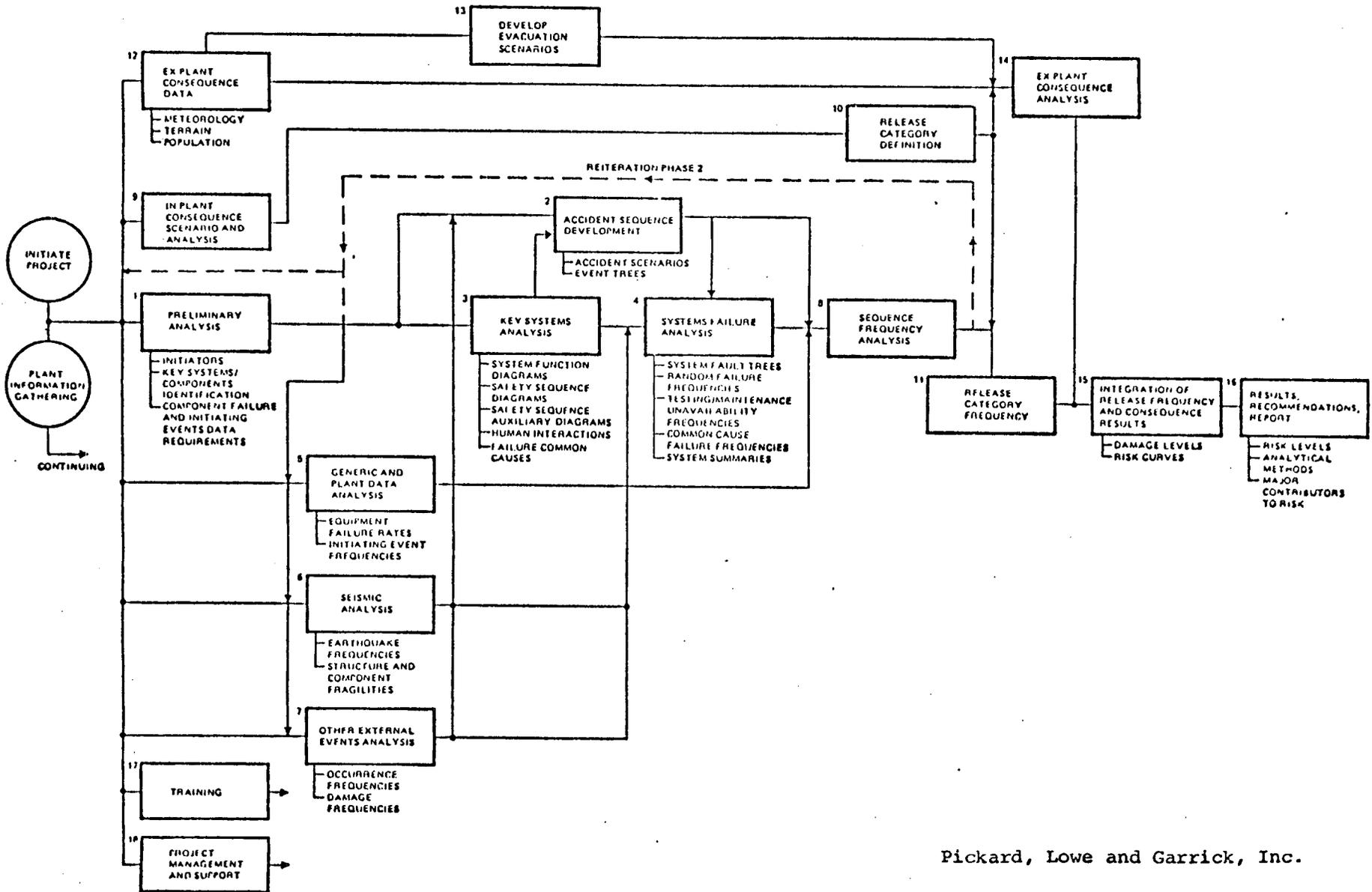


STRUCTURING THE SCENARIO LIST

(4) SCENARIOS INCLUDING SYSTEM FAILURE MODES



PROBABILISTIC RISK ASSESSMENT TASK NETWORK



PROGRESS AND SCHEDULE
ZION/INDIAN POINT PROBABILISTIC RISK ASSESSMENT
JUNE 1980

SPECIFIC TASKS	PERCENT COMPLETE	PERCENT OF EFFORT
EVENT/FAULT TREES	90	30
QUANTIFICATION	20	10
INPLANT CONSEQUENCES	18	5
EXPLANT CONSEQUENCES	75	25
EXTERNAL CAUSES	35	15
REPORT PREPARATION	15	15
		100

OVERALL

~56% COMPLETE

SCHEDULED COMPLETION

SEPTEMBER 1980

KEY POINTS

ZION/INDIAN POINT PROBABILISTIC RISK ASSESSMENT

RISK TRIPLET $\langle s_i, \varphi_i, d_i \rangle$

DISCRETIZE SCENARIOS AND RELEASE CATEGORIES

ASSIGN UNCERTAINTY TO φ AND d

COMPONENT TO SYSTEM LOGIC

FAILURE MODES

CUT SETS

CAUSE SETS

RANDOM HARDWARE FAILURES

TEST AND MAINTENANCE

HUMAN ERROR

DESIGN ERROR

ENVIRONMENTAL FACTORS

OTHER COMMON CAUSES

COMBINATIONS

SITE SPECIFIC CONSEQUENCES

EVACUATION

PLUME DIRECTIONAL DEPENDENCE