UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 20, 2000

Mr. John B. Cotton
Vice President, TMI Unit 1
AmerGen Energy Company, LLC
P.O. Box 480
Middletown, PA 17057

SUBJECT: SITE-SPECIFIC WORKSHEETS FOR USE IN THE NUCLEAR REGULATORY COMMISSION'S SIGNIFICANCE DETERMINATION PROCESS (TAC NO. MA6544)

Dear Mr. Cotton:

The purpose of this letter is to provide you with one of the key implementation tools to be used by the Nuclear Regulatory Commission (NRC) in the revised reactor oversight process, which is currently expected to be implemented at Three Mile Island Nuclear Station, Unit 1, in April 2000. Included in the enclosed Risk-Informed Inspection Notebook are the Significance Determination Process (SDP) worksheets that inspectors will be using to risk-characterize inspection findings. The SDP is discussed in more detail below.

On January 8, 1999, the NRC staff described to the Commission plans and recommendations to improve the reactor oversight process in SECY-99-007, "Recommendations for Reactor Oversight Process Improvements." SECY-99-007 is available on the NRC's web site at www.nrc.gov/NRC/COMMISSION/SECYS/index.html. The new process, developed with stakeholder involvement, is designed around a risk-informed framework, which is intended to focus both the NRC's and licensee's attention and resources on those issues of more risk significance.

The performance assessment portion of the new process involves the use of both licensee-submitted performance indicator data and inspection findings that have been appropriately categorized based on their risk significance. In order to properly categorize an inspection finding, the NRC has developed the SDP. This process was described to the Commission in SECY-99-007A, "Recommendations for Reactor Oversight Process Improvements (Follow-up to SECY-99-007)," dated March 22, 1999, also available at the same NRC web site noted above.

The SDP for power operations involves evaluating an inspection finding's impact on the plant's capability to limit the frequency of initiating events; ensure the availability, reliability, and capability of mitigating systems; and ensure the integrity of the fuel cladding, reactor coolant system, and containment barriers. As described in SECY-99-007A, the SDP involves the use of three tables: Table 1 is the estimated likelihood for initiating event occurrence during the degraded period, Table 2 describes how the significance is determined based on remaining mitigation system capabilities, and Table 3 provides the bases for the failure probabilities associated with the remaining mitigation equipment and strategies.

As a result of the recently concluded Pilot Plant review effort, the NRC has determined that site-specific risk data is needed in order to provide a repeatable determination of the significance of an issue. Therefore, the NRC has contracted with Brookhaven National Lab (BNL) to develop site-specific worksheets to be used in the SDP review. These enclosed worksheets were developed based on your Individual Plant Examination (IPE) submittals that were requested by Generic Letter 88-20. The NRC plans to use this site-specific information in evaluating the significance of issues identified at your facility when the revised reactor oversight process is implemented industry wide. It is recognized that the IPE utilized during this effort may not contain current information. Therefore, the NRC or its contractor will conduct a site visit to discuss with your staff any changes that may be appropriate. Specific dates for the site visit have not been determined, but will be communicated to you in the near future. All site visits should be accomplished by June 2000. The NRC is not requesting a written response or comments on the enclosed worksheets developed by BNL.

We will coordinate our efforts through your licensing or risk organizations as appropriate. If you have any questions, please contact me at 301-415-1402.

Sincerely,

Timothy G. Colburn

Timothy G. Colburn, Senior Project Manager, Section 1
Project Directorate 1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure: As Stated

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significance of an issue. Therefore, the NRC has contracted with Brookhaven National Lab (BNL) to develop site-specific worksheets to be used in the SDP review. These enclosed worksheets were developed based on your Individual Plant Examination (IPE) submittals that were requested by Generic Letter 88-20. The NRC plans to use this site-specific information in evaluating the significance of issues identified at your facility when the revised reactor oversight process is implemented industry wide. It is recognized that the IPE utilized during this effort may not contain current information. Therefore, the NRC or its contractor will conduct a site visit to discuss with your staff any changes that may be appropriate. Specific dates for the site visit have not been determined, but will be communicated to you in the near future. All site visits should be accomplished by June 2000. The NRC is not requesting a written response or comments on the enclosed worksheets developed by BNL.

We will coordinate our efforts through your licensing or risk organizations as appropriate. If you have any questions, please contact me at 301-415-1402.

Sincerely,

/RA/

Timothy G. Colburn, Senior Project Manager, Section 1
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Three Mile Island Nuclear Station, Unit No. 1

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RISK-INFORMED INSPECTION NOTEBOOK FOR

THREE MILE ISLAND NUCLEAR GENERATING STATION

UNIT 1

PWR, BABCOCK & WILCOX, TWO-LOOP PLANT WITH LARGE DRY CONTAINMENT

Prepared by

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Enclosure

NOTICE

This notebook was developed for the NRC's inspection teams to support risk-informed inspections. The activities involved in these inspections are discussed in "Reactor Oversight Process Improvement," SECY-99-007A, March 1999. The user of this notebook is assumed to be an inspector with an extensive understanding of plant-specific design features and operation. Therefore, the notebook is not a stand-alone document, and may not be suitable for use by non-specialists. This notebook will be periodically updated with new or replacement pages incorporating additional information on this plant. Technical errors in, and recommended updates to, this document should be brought to the attention of the following person:

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ABSTRACT

This notebook contains summary information to support the Significance Determination Process (SDP) in risk-informed inspections for the Three Mile Island Nuclear Generating Station, Unit 1.

SDP worksheets support the significance determination process in risk-informed inspections and are intended to be used by the NRC's inspectors in identifying the significance of their findings, i.e., in screening risk-significant findings, consistent with Phase-2 screening in SECY-99-007A. To support the SDP, additional information is given in an Initiators and System Dependency table, and as simplified event-trees, called SDP event-trees, developed in preparing the SDP worksheets.

The information contained herein is based on the licensee's IPE submittal. The information is revised based on IPE updates or other licensee or review comments providing updated information and/or additional details.

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FIGURES

TABLES

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1. INFORMATION SUPPORTING SIGNIFICANCE DETERMINATION PROCESS (SDP)

SECY-99-007A (NRC, March 1999) describes the process for making a Phase-2 evaluation of the inspection findings. In Phase 2, the first step is to identify the pertinent core damage scenarios that require further evaluation based on the specifics of the inspection findings. To aid in this process, this notebook provides the following information:

1. Initiator and System Dependency Table
2. Significance Determination Process (SDP) Worksheets
3. SDP Event Trees

The initiator and system dependency table shows the major dependencies between front-line- and support-systems, and identifies their involvement in different types of initiators. The information in this table identifies the most risk-significant front-line- and support-systems; it is not an exhaustive nor comprehensive compilation of the dependency matrix as known in Probabilistic Risk Assessments (PRAs). For pressurized water reactors (PWRs), the support systems for Reactor Coolant Pump (RCP) seals are explicitly denoted to assure that the inspection findings on them are properly accounted for. This table is used to identify the SDP worksheets to be evaluated, corresponding to the inspection's findings on systems and components.

To evaluate the impact of the inspection's finding on the core-damage scenarios, the SDP worksheets are developed and provided. They contain two parts. The first part identifies the functions, the systems, or combinations thereof that can perform mitigating functions, the number of trains in each system, and the number of trains required (success criteria) for each class of initiators. The second part of the SDP worksheet contains the core-damage accident sequences associated with each initiator class; these sequences are based on SDP event trees. In the parenthesis next to each of the sequence the corresponding event tree branch number(s) representing the sequence is included. Multiple branch numbers indicate that the different accident sequences identified by the event tree are merged into one through the boolean reduction. The classes of initiators that are considered in this notebook are 1) Transients, 2) Small Loss of Coolant Accident (LOCA), 3) Stuck-open Power Operated Relief Valve (PORV), 4) Medium LOCA, 5) Large LOCA, 6) Loss of Offsite Power (LOOP), 7) Steam Generator Tube Rupture (SGTR), and 8) Anticipated Transients Without Scram (ATWS). Main Steam Line Break (MSLB) events are included separately if they are treated as such in the licensee's Individual Plant Examination (IPE) submittal.

Following the SDP worksheets, the SDP event trees corresponding to each of the worksheets are presented. The SDP event trees are simplified event trees developed to define the accident sequences identified in the SDP worksheets.

The following items were considered in establishing the SDP event trees and the core-damage sequences in the SDP worksheets:

1. Event trees and sequences were developed such that the worksheet contains all the major accident sequences identified by the plant-specific IPEs. In cases where a plant-specific feature introduced a sequence that is not fully captured by our existing set of initiators and event trees, then a separate worksheet is included.

2. The event trees and sequences for each plant took into account the IPE models and event trees for all similar plants. Any major deviations in one plant from similar plants typically are noted at the end of the worksheet.

3. The event trees and the sequences were designed to capture core-damage scenarios, without including containment-failure probabilities and consequences. Therefore, branches of event trees that are only for the purpose of a Level II PRA analysis are not considered. The resulting sequences are merged using Boolean logic.

4. The simplified event-trees focus on classes of initiators, as defined above. In so doing, many separate event trees in the IPEs often are represented by a single tree. For example, some IPEs define four classes of LOCAs rather than the three classes considered here. The sizes of LOCAs for which high-pressure injection is not required are some times divided into two classes, the only difference between them being the need for reactor scram in the smaller break size. Some IPEs also may define several classes of transients, depending on the initiator's impact on the systems. Such differentiations generally are not considered in the SDP worksheets unless they could not be accounted for by the Initiator and System Dependency table.

5. Major operator actions during accident scenarios are assigned as high stress operator action or an operator action using simple, standard criteria among a class of plants. This approach resulted in the designation of some actions as high-stress operator actions, even though the PRA may have assumed a (routine) operator action; hence, they have been assigned an error probability less than 5E-2 in the IPE. In such cases, a note is given at the end of the worksheet.

The three sections that follow include the initiators and dependency table, SDP worksheets, and the SDP event-trees for the Three Mile Island Nuclear Generating Station, Unit 1.

1.1 INITIATORS AND SYSTEM DEPENDENCY

Table 1 provides the list of the systems included in the SDP worksheets, the major components in the systems, and the support system dependencies. The system involvements in different initiating events are noted in the last column.

Table 1 Initiators and System Dependency for Three Mile Island Nuclear Generating Station, Unit 1 (1)

Affected Systems	Major Components	Support Systems	Initiating Event
AC Power System	AC Power Distribution & AC Instrument Power	DC	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
EFW	2 MDPs	AC , DC	Transient, TPCS, LOOP, SGTR, ATWS, LNSRW, IA, LRW, DCA, DCB
	1 TDP	AC (2), DC	
Fire Service Water System	4 pumps taking suction from river	AC, DC	LOOP
Nuclear Service Closed Cooling Water (NSCCW)	3 50% pumps and 4 1/3 capacity heat exchangers	AC, DC, NSRW	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Nuclear Service River Water System (NSRW)	3 50% pumps	AD, DC	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Condensate / MFW	Three Condensate pumps	AC, DC	Transient, SGTR, DCB
	Two TDMFW Pumps	Vital instrument bus, DC, IA, SSCCW	
Containment Fan Coolers	3 Parallel Cooling Units	AC, DC, ESFAS, RBRW, NSCCW(for fan motor cooling)	Not needed
Containment / RB Spray System	2 trains, each with 1 pump	AC, DC, DHCCW, DHRW, ESFAS	Not needed

Table 1 (Continued)

Affected Systems	Major Components	Support Systems	Initiating Event
Decay Heat Closed Cooling Water System (DHCCW)	2 pumps	AC, DC, DHRW	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Decay Heat River Water System (DHRW)	2 pumps	AC, DC	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
HPI / Makeup and Purification	3 HPI pumps	AC, DC, NSCCW(pump B cooling), DHCCW	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
DC Power System	2 Buses, 2 battery chargers, and two batteries	6 hours battery depletion time	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Emergency AC (EDG)	2 EDGs, 1 SBO DG	DC, Fire service water (for SBO DG)	LOOP
Instrument Air (IA) and Service (SA)	IA: 3 air compressors, SA: 2 air compressors	AC, DC, SSCCW	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Intermediate Closed Cooling Water System (ICCW)	2 Pumps	AC, DC, NSRW(heat exchangers), IA	RCP Seal LOCA
Main Steam	Per SG: 1 ADV, 2 steam lines, 10 safety valves, 2 MSIVs and 3 turbine bypass valves	DC, IA, AC (for MSIVs)	Transient, SGTR, ATWS, LNSRW, DCB

Table 1 (Continued)

Affected Systems	Major Components	Support Systems	Initiating Event
Pressurizer Pressure Relief	2 Pressurizer Safety valves and 1 PORV with associated block valve	AC (block valve), vital AC, DC (PORV)	Transient, SLOCA, SORV, LOOP, SGTR, ATWS, LNSRW, DCB
RCP	Seals	3 HPI pumps for seal injection, ICCW for thermal barrier cooling, and IA for injection valve MU-V20, NSCCW (RCP motors)	LOOP, RCP seal LOCA, LNSRW, LRW
LPI / RHR	2 RHR/LPSI pumps and heat exchangers	AC, DC, DHCCW, DHRW, ESFAS	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, RCP seal LOCA, IA, LRW, DCA, DCB
Reactor Building River Water (RBRW)	2 pumps	AC, DC	Not needed
Secondary Service Closed Cooling Water System (SSCCW)	3 50% pumps and 4 1/3 capacity heat exchangers	AC, DC, SCRW	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB
Secondary Service River Water System (SCRW)	3 pumps	AC, DC	Transient, TPCS, VSB, SLOCA, SORV, MLOCA, LLOCA, LOOP, SGTR, ATWS, RCP seal LOCA, LNSRW, IA, LRW, DCA, DCB

<u>**Notes**</u>:

1. Plant internal event CDF = 4.1 E-5/yr, including contribution 3.E-6 from internal floods. (See page 10-6)
2. The dependency table, table 7.3-2, of the IPE shows this dependency of TDEFW on AC power.

1.2 SDP WORKSHEETS

This section presents the SDP worksheets to be used in the Phase 2 evaluation of the inspection findings for the Three Miles Island Nuclear Generating Station, Unit 1. The SDP worksheets are presented for the following initiating event categories:

1. Transient
2. Transient with Loss of Power Conversion System (TPCS)
3. Very Small LOCA (VSB)
4. Small LOCA (SLOCA)
5. Stuck-open PORV (SORV)
6. Medium LOCA (MLOCA)
7. Large LOCA (LLOCA)
8. LOOP
9. Steam Generator Tube Rupture (SGTR)
10. Anticipated Transients Without Scram (ATWS)
11. Loss of Nuclear Service River Water (LNSRW)
12. Loss of Instrument Air (IA)
13. Loss of River Water (LRW)
14. Loss of DC Bus A (DCA)
15. Loss of DC Bus B (DCB)

Table 2.1 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 Transient

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**
Power Conversion System (PCS)	1/2 MFW trains and 1/3 Condensate pumps to 1/2 SG, MFW ramps back (1 train)
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
Primary Bleed (FB)	1//2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) (1)
Early Inventory, HPI Injection (EIHP)	1/3 HPI pumps injecting from BWST (1 multi-train system)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary building (operator action)(2)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1. TRA - PCS - EFW - HPR (4)			
2 TRA - PCS - EFW - EIHP (5)			
3 TRA - PCS - EFW - FB (6)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.2 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Transients with Loss of PCS (TPCS)

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed: | ***Full* Creditable Mitigation Capability for Each Safety Function:**

Safety Functions Needed	Full Creditable Mitigation Capability for Each Safety Function
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
Primary Bleed (FB)	1/2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) (1)
Early Inventory, HPI Injection (EIHP)	1/3 HPI pumps injecting from BWST (1 multi-train system)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (Operator action)(2)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1. TPCS - EFW - HPR (4)			
2 TPCS - EFW - EIHP (5)			
3 TPCS - EFW - FB (6)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.3 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Very Small LOCA (VSB) <0.9"

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
Primary Bleed (FB)	1/2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) (1)
Early Inventory, HPI Injection (EIHP)	1/3 HPI pumps injecting from BWST (1 multi-train system)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (Operator action)(2) or BWST makeup (operator action) (3)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 VSB - HPR (2, 5)			
2 VSB - EIHP (3, 6)			
3 VSB - EFW - FB (7)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

(3) The HEP for operator failure to makeup BWST is 1.27E-3. (Event HLT1B on page E-75)

Table 2.4 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Small LOCA (> 0.9" and <5") [1]

Estimated Frequency (Table 1 Row) ________	Exposure Time ________	Table 1 Result (circle): A B C D E F G H	
Safety Functions Needed: **Early Inventory, HPI Injection (EIHP)** **High Pressure Recirculation (HPR)**	***Full* Creditable Mitigation Capability for Each Safety Function:** 1/3 HPI pumps injecting from BWST (1 multi-train system) 1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (Operator action)[2]		
Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 SLOCA - HPR (2)			
2 SLOCA - EIHP (3)			
Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event: If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.			

Notes:

(1) The IPE specifically stated that no decay heat removal is needed. The heat removed through the break is adequate.
(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.5 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Stuck Open PORV or SRV (SORV)

Estimated Frequency (Table 1 Row) ________	Exposure Time ________	Table 1 Result (circle): A B C D E F G H	
Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**		
Isolation of Small LOCA (BLK)	Closure of the block valve if open (operator action)(1)		
Early Inventory, HPI Injection (EIHP)	1/3 HPI pumps injecting from BWST (1 multi-train system)		
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains (Operator action)(2)		
Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 SORV - BLK - HPR (2)			
2 SORV - BLK - EIHP (3)			
Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:			
If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.			

Notes:

(1) The HEP for operator failure to isolate the PORV by closing the block valve is 3.33E-3. (Event HRC1 on page E-91)

(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.6 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Medium LOCA < 10"

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed: | ***Full* Creditable Mitigation Capability for Each Safety Function:**

Safety Functions Needed	Full Creditable Mitigation Capability for Each Safety Function
Early Inventory, HP Injection (HPI)	1/3 HPI pumps injecting from BWST (1 multi-train system)
Low Pressure Injection (LPI)	1 / 2 LPI trains (1 multi-train system)
Low Pressure Recirculation (LPR)	1/2 LPI trains taking suction from containment sump (Operator action) (1)
RHR Drop Line (DLINE)	Open the 3 valves in drop line to prevent boron precipitation. (operator action) (2)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 MLOCA - DLINE (2)			
2 MLOCA - LPR (3)			
3 MLOCA - LPI (4)			
4 MLOCA - HPI (5)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:
If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP for operator failure to initiate low pressure recirculation is 2.71E-3. (Event HSR3 on page E-136)

(2) The HEP for operator failure to open drop line is 3.33E-4. (Event HDT1 on page E-47)

Table 2.7 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Large LOCA >10"

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**
Low Pressure Injection (LPI)	1 / 2 LPI trains (1 multi-train system) (1)
Low Pressure Recirculation (LPR)	1/2 LPI trains taking suction from containment sump (Operator action) (2)
RHR Drop Line (DLINE)	Open the 3 valves in drop line to prevent boron precipitation. (operator action) (3)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 LLOCA - DLINE (2)			
2 LLOCA - LPR (3)			
3 LLOCA - LPI (4)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The IPE stated that core flood tanks are not needed to mitigate a LLOCA.

(2) The HEP for operator failure to initiate low pressure recirculation is 1.78E-2. (Event HSR1 on page E-134)

(3) The HEP for operator failure to open drop line is 3.33E-4. (Event HDT1 on page E-47)

Table 2.8 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 —— LOOP

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**
Emergency AC Power (EAC)	1 / 2 EDGs (1 multi-train system) or SBO DG (operator action) (1)
Turbine-driven EFW Pump (TDEFW)	1/1 TDEFW train (1 ASD train)
Recovery of AC Power in < 1 hrs (REC1)	Recovery of an AC source (high stress operator action) (2)
Recovery of AC Power in < 6 hrs (REC6)	Recovery of an AC source (Operator action)(3)
Secondary Heat Removal (EFW)	1/2 MDEFW train after AC recovered-Excluding TDEFW credited earlier (1 multi-train system)
HP Injection (HPI)	1/3 HPI pumps injecting from BWST (1 multi-train system)
Primary Bleed (FB)	1/2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) (4)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (operator action)(5)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1. LOOP - EFW - HPR (1)			
2 LOOP - EFW - EIHP (1)			
3 LOOP - EFW - FB (1)			
4 LOOP - EAC - EFW - HPR (4, 10) (AC recovered)			
5 LOOP - EAC - EFW - FB (5, 11) (AC recovered)			

6 LOOP - EAC - EFW - HPI (6, 12) (AC recovered)			
7 LOOP - EAC - REC6 (7)			
8 LOOP - EAC - TDEFW - REC1 (13)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP for operator failure to start SBO DG and connect it to an emergency bus was not found.

(2) The probability of operator failure to recover ac power, given failure of TDAFW, is 8.36E-4. (Event HRE3 on page E-95)

(3) The probability of operator failure to recover ac power, given TDAFW initially available, is 4.94E-5. (Event HRE1 on page E-93)

(4) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(5) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.9 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 —— SGTR

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	*Full* Creditable Mitigation Capability for Each Safety Function:
Main Feedwater System (MFW)	1/2 MFW trains and 1/3 Condensate pumps to 1/2 SG, MFW ramps back (1 train)
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
High Pressure Injection (HPI)	1/3 HPI pumps (1 multi-train system)
Primary Bleed (FB)	1/2 SRVs open (1 multi-train system) or 1/1 PORV open (operator action) (1)
Pressure Equalization (EQ)	RCS cooldown and depressurization using pressurizer spray or 1/1 PORV or pressurizer vent valve (Operator action)(2)
Shutdown Cooling (SDC)	1/2 RHR pumps with heat exchangers (operator action)(3)
Isolate Faulted SG (ISOSG)	Isolation of FW and EFW to the faulted SG, reclosure of the ADV and SVs, and closure of MSIVs (operator action) (4)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (operator action)(5)

Circle Affected Functions	Recovery of Failed Train	*Remaining Mitigation Capability Rating for Each Affected Sequence*	Sequence Color
1 SGTR - SDC - ISOSG (3,8)			
2 SGTR - EQ (4,9)			
3 SGTR - HPI (5, 10, 15)			
4 SGTR - MFW - EFW - HPR (12)			
5 SGTR - MFW - EFW - ISOSG (12)			

6 STGR - MFW - EFW - FB (14)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(2) The HEP for operator failure to depressurize the RCS to DHR condition is 4.77E-5 (event HCD4 on page E-41)

(3) The human error probability for operator failure to initiate decay heat removal was not found in IPE.

(4) The human error probability for operator failure to isolate faulted S is 2.443E-2.. (top event IGA on page 7.4.1-14)

(5) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.10 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 —— ATWS

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	**Full Creditable Mitigation Capability for Each Safety Function:**
Turbine Trip (TTP)	Turbine trip (1 train)
Secondary Steam Relief (MSSV)	2 / 9 main steam safety valves (MSSVs) open on 1/2 SGs (1 multi-train system)
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
Primary Relief (SRV)	2/2 SRVs (1 train)
Emergency Boration (HPI)	1/3 HPI pumps injecting from BWST(operator action) [1]

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 ATWS - HPI (2)			
2 ATWS - SRV (3)			
3 ATWS - EFW (4)			
4 ATWS - MSSV (5)			
5 ATWS - TTP (6)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The HEP for operator failure to emergency borate was not found.

Table 2.11 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Loss of Nuclear Service River Water (LNSRW) (1)

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**
Seal Injection (SEALINJ)	1 / 2 remaining HPI pumps (1 multi-train system)
Power Conversion System (PCS)	1/2 MFW trains and 1/3 Condensate pumps to 1/2 SG, MFW ramps back (1 train)
Secondary Heat Removal (EFW)	1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)
Primary Bleed (FB)	1/2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) (2)
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary building (operator action)(3)

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1. LNSRW - SEALINJ (5)			
2. LNSRW - PCS - EFW - HPR (3)			
3 LNSRW - PCS - EFW - FB (4)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The LNSRW initiator was considered in IPE but no event tree was provided. Its frequency is 6.34E-3 per year. The dominant sequences are given in this sheet however the underlying event tree is not provided. NSRW provides cooling to the intermediate closed cooling water system (ICCW) heat exchangers and nuclear service closed cooling water system (NSCCW) heat exchangers. ICCW provides cooling to the RCP thermal barriers. NSCCW provides cooling to HPI pump B motor, RCP motors, and containment fan motors. A high containment pressure signal would isolate cooling to RCP motors

(2) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(3) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.12 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 Unit 1 — Loss of Instrument Air (IA)[1]

Estimated Frequency (Table 1 Row) _________ Exposure Time _________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	***Full* Creditable Mitigation Capability for Each Safety Function:**		
Early Inventory, HPI Injection (EIHP)	1/3 HPI pumps injecting from BWST (1 multi-train system)		
High Pressure Recirculation (HPR)	1/3 HPI pumps taking suction from 1/2 LPI trains with isolation of sump drain line to auxiliary Building (Operator action)[2]		

Circle Affected Functions	**Recovery of Failed Train**	***Remaining Mitigation Capability Rating for Each Affected Sequence***	**Sequence Color**
1 IA - HPR			
2 IA - EIHP			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) Loss of Instrument air Frequency in IPE is estimated to be 3.9 E-3 per year. Based on note 25 page 7.3-30, loss of instrument air would fail ICCW and RCP seal injection, resulting in a seal LOCA. In addition, it would cause loss of feedwater. Therefore, a "very small" LOCA event tree of the IPE can be used.

(2) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

Table 2.13 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Loss of River Water (LRW)[1]

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	Full Creditable Mitigation Capability for Each Safety Function:		
Operator Tripping RCPs (TRIPRCP) Secondary Heat Removal (EFW)	Operator trips the RCPs to prevent a seal LOCA (operator action) [2] 1/2 MDEFW trains (1 multi-train system) or 1 TDEFW train (1 ASD train)		
Circle Affected Functions	**Recovery of Failed Train**	**Remaining Mitigation Capability Rating for Each Affected Sequence**	**Sequence Color**
1. LRW - TRIPRCP (3)			
2. LRW - EFW (2)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) Loss of LRW is estimated to be 1.24E-4 per year in the IPE. It represents failure of all the river water systems, including nuclear, secondary cooling, and decay heat river water systems. It will cause a loss of ICCW and HPI pumps. Secondary heat removal using EFW is not affected. The operator needs to trip the RCPs to prevent a RCP seal LOCA.

(2) The HEP for operator failure to trip the RCPs is 5.594E-3 (event OTA on page C-68).

Table 2.14 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 — Loss of DC Bus A (DCA)(1)

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	*Full* Creditable Mitigation Capability for Each Safety Function:
Secondary Heat Removal (EFW)	1/ 1 MDEFW train (1-train) or 1 TDEFW train (1 ASD train)
Early Inventory, HP Injection (HPI)	1/2 HPI pumps injecting from BWST (1 multi-train system)
Low Pressure Injection (LPI)	1 / 1 LPI train (1 train)
Low Pressure Recirculation (LPR)	1/1 LPI train taking suction from containment sump (Operator action) (2)
RHR Drop Line (DLINE)	Open the 3 valves in drop line to prevent boron precipitation. (operator action) (3)

Circle Affected Functions	Recovery of Failed Train	*Remaining Mitigation Capability Rating for Each Affected Sequence*	Sequence Color
1 DCA - EFW - DLINE (3)			
2 DCA - EFW - LPR (4)			
3 DCA - EFW - LPI (5)			
4 DCA - EFW - HPI (6)			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The frequency of loss of a DC bus is 1.92E-2 per year. In addition to loss of control power for 1 train of all systems, a loss of DC bus A leads to loss of main feedwater and the only PORV. If EFW is lost, the pressurizer safety valves would open and stick open resulting is a medium LOCA. Therefore, the event tree is similar to that of a medium LOCA.

(2) The HEP for operator failure to initiate low pressure recirculation is 2.71E-3. (Event HSR3 on page E-136)

(3) The HEP for operator failure to open drop line is 3.33E-4. (Event HDT1 on page E-47)

Table 2.15 SDP Worksheet for Three Mile Island Nuclear Generating Station Unit 1 Unit 1 — Loss of DC Bus B (DCB)[1]

Estimated Frequency (Table 1 Row) ________ Exposure Time ________ Table 1 Result (circle): A B C D E F G H

Safety Functions Needed:	*Full* Creditable Mitigation Capability for Each Safety Function:
Power Conversion System (PCS)	1/2 MFW trains and 1/3 Condensate pumps to 1/2 SG, MFW ramps back (1 train)
Secondary Heat Removal (EFW)	1/1 MDEFW train (1 train) or 1 TDEFW train (1 ASD train)
Primary Bleed (FB)	1/2 SRVS open (1 multi-train system) or 1/1 PORV open (operator action) [2]
Early Inventory, HPI Injection (EIHP)	1/2 HPI pumps injecting from BWST (1 multi-train system)
High Pressure Recirculation (HPR)	1/2 HPI pumps taking suction from 1/1 LPI train with isolation of sump drain line to auxiliary building (operator action)[3]

Circle Affected Functions	Recovery of Failed Train	*Remaining Mitigation Capability Rating for Each Affected Sequence*	Sequence Color
1. DCB - PCS - EFW - HPR			
2 DCB - PCS - EFW - EIHP			
3 DCB - PCS - EFW - FB			

Identify any operator recovery actions that are credited to directly restore the degraded equipment or initiating event:

If operator actions are required to credit placing mitigation equipment in service or for recovery actions, such credit should be given only if the following criteria are met: 1) sufficient time is available to implement these actions, 2) environmental conditions allow access where needed, 3) procedures exist, 4) training is conducted on the existing procedures under conditions similar to the scenario assumed, and 5) any equipment needed to complete these actions is available and ready for use.

Notes:

(1) The frequency of loss of a DC bus is 1.92E-2 per year. It basically leads to loss of control power for 1 train of all systems. It does not cause a loss of main feedwater and the PORV remains operable. Therefore, the event tree is the same as that of a transient.

(2) The HEP used in the IPE is 1.29E-2 for the failure of the operator to manually establish HPI cooling (feed and bleed). (Event HBW1, page E-33)

(3) The HEP assessed in the IPE for switch over to recirculation is 4.76E-05. (event HSR2 on page E-135)

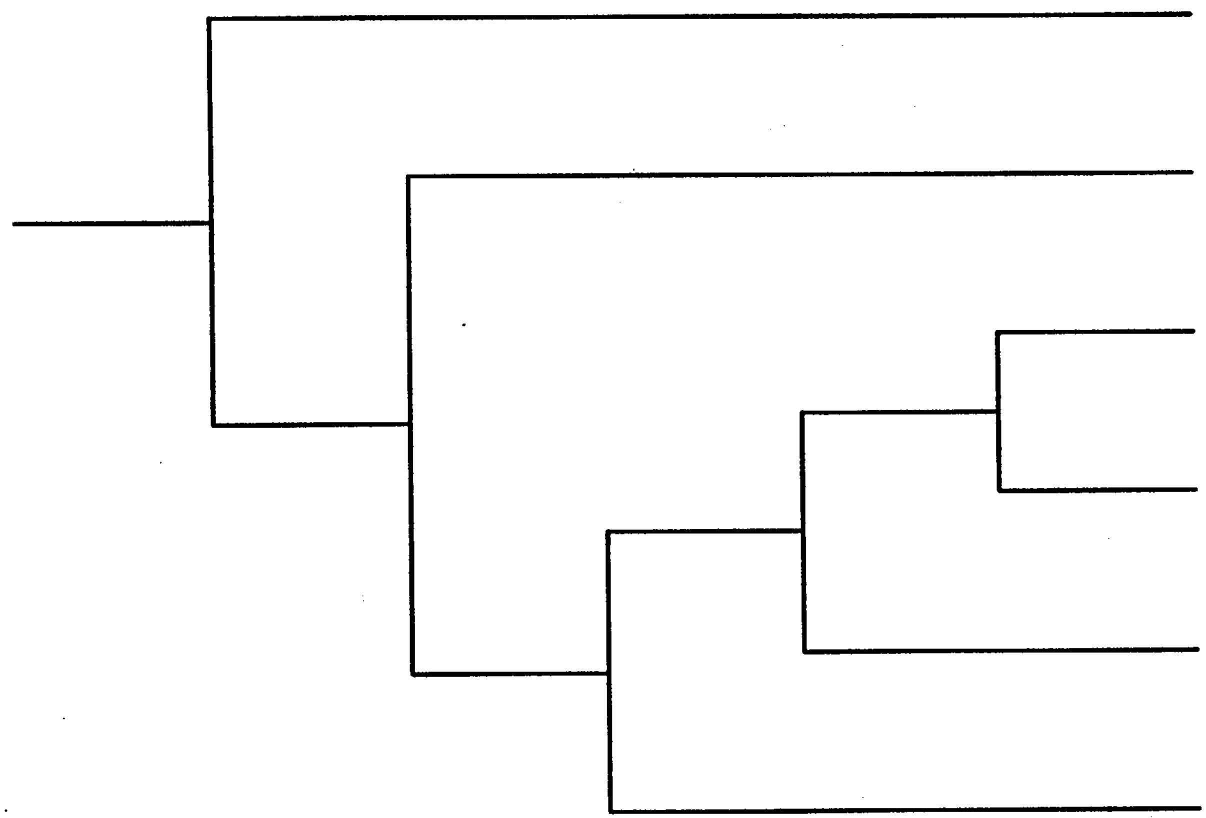
1.3 SDP EVENT TREES

This section provides the simplified event trees called SDP event trees used to define the accident sequences identified in the SDP worksheets in the previous section. An event tree for the stuck-open PORV is not included since it is similar to the small LOCA event tree. The event tree headings are defined in the corresponding SDP worksheets.

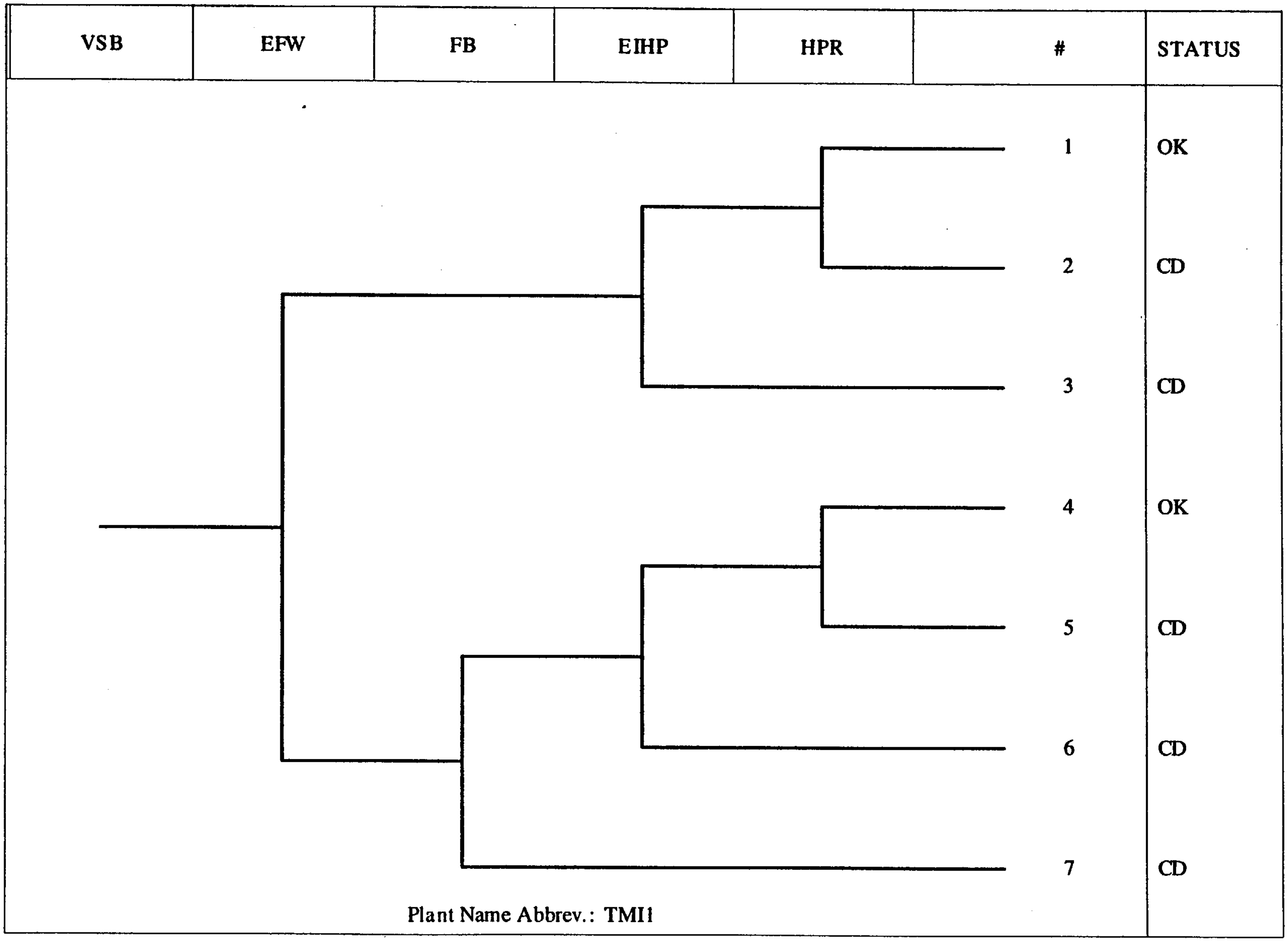
The following event trees are included:

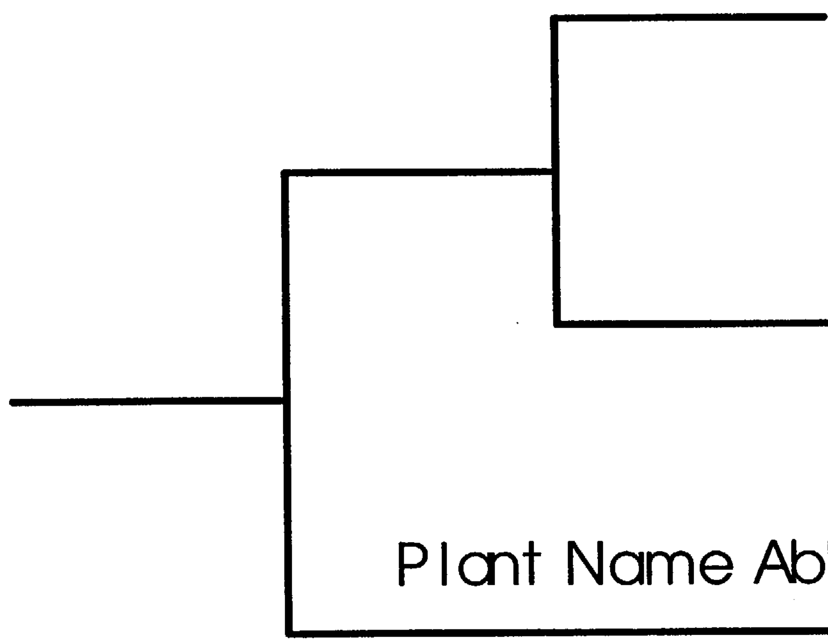
1. Transients
2. Very Small LOCA
3. Medium LOCA
4. Large LOCA
5. LOOP
6. Steam Generator Tube Rupture (SGTR)
7. Anticipated Transients Without Scram (ATWS)
8. Loss of Nuclear Service River Water (LNSRW)
9. Loss of River Water (LRW)
10. Loss of DC Bus A (DCA)

TRANS	PCS	EFW	FB	EIHP	HPR	#	STATUS
						1	OK
						2	OK
						3	OK
						4	CD
						5	CD
						6	CD



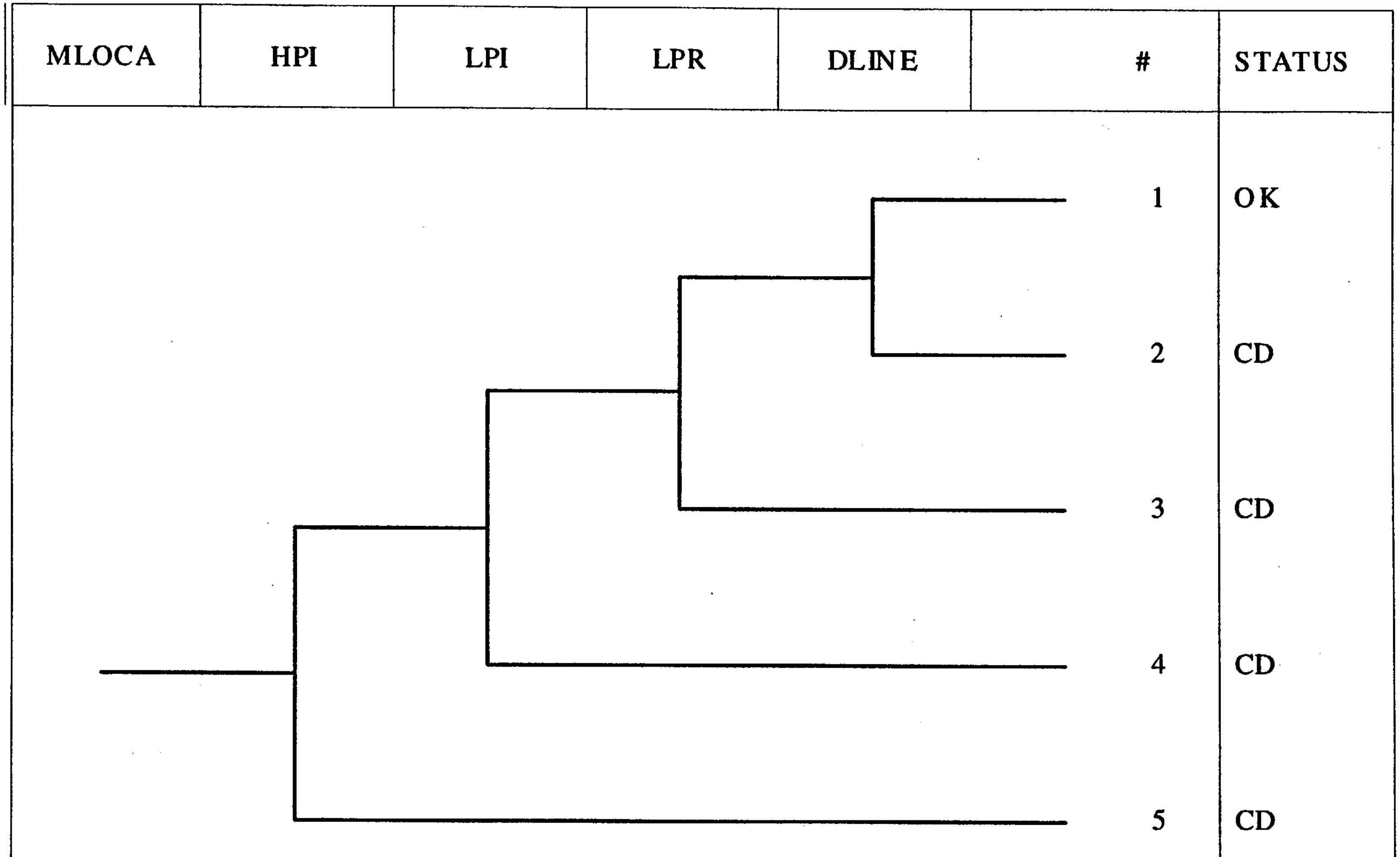
Plant Name Abbrev.: TMI1


VSB
EFW
FB
EIHP
HPR
#
STATUS
1
OK
2
CD
3
CD
4
OK
5
CD
6
CD
7
CD
Plant Name Abbrev.: TMI1



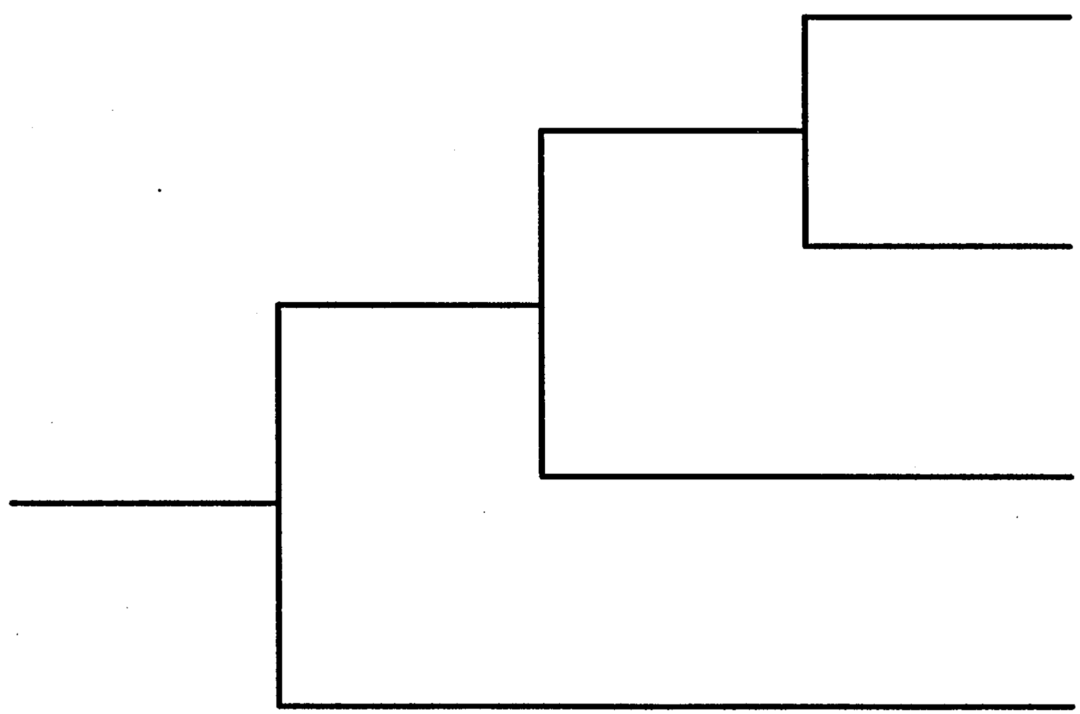
SLOCA	EIHP	HPR	#	STATUS
			1	OK
			2	CD
			3	CD

Plant Name Abbrev.: TMI1

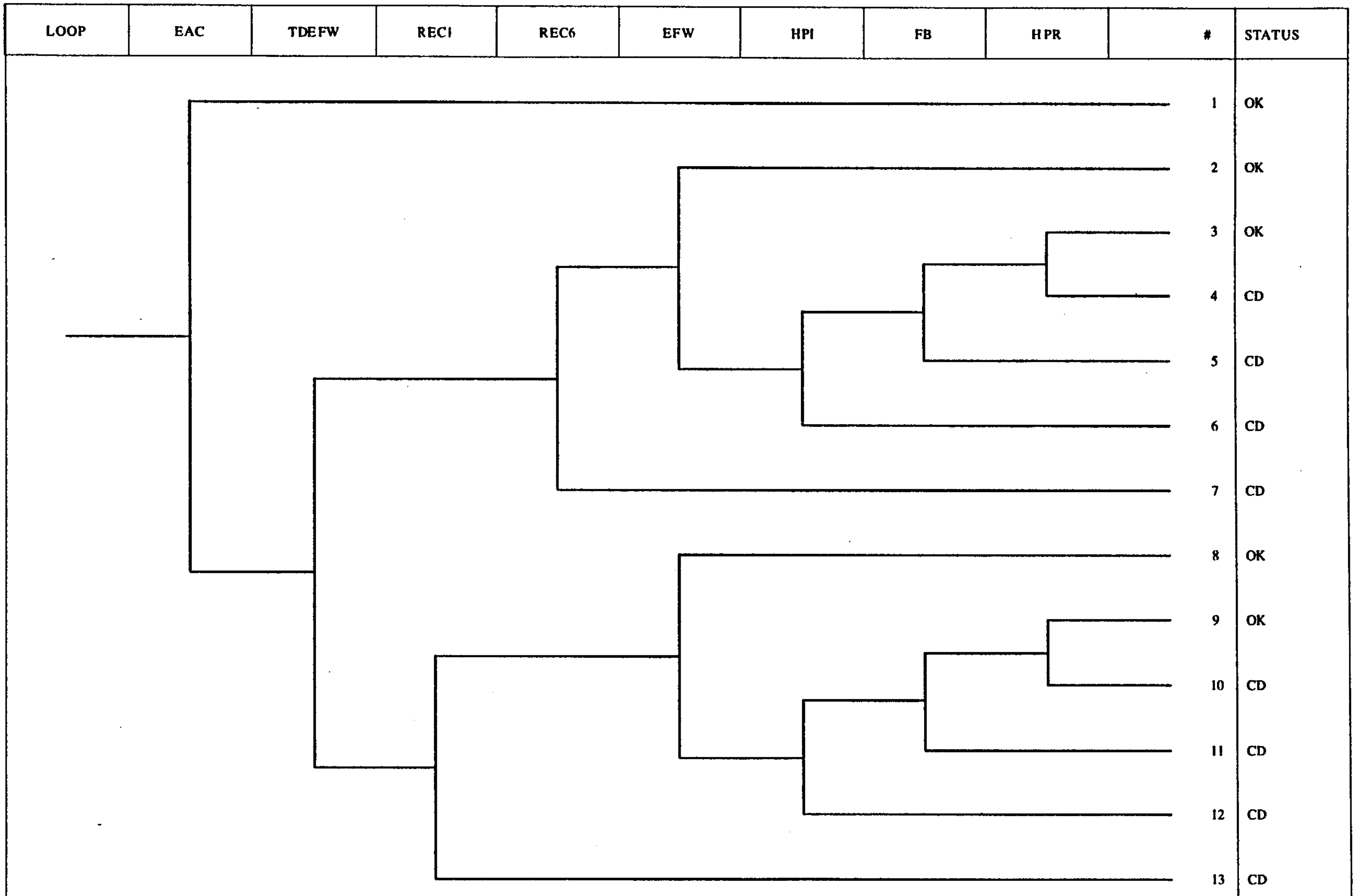


Plant Name Abbrev.: TMI1

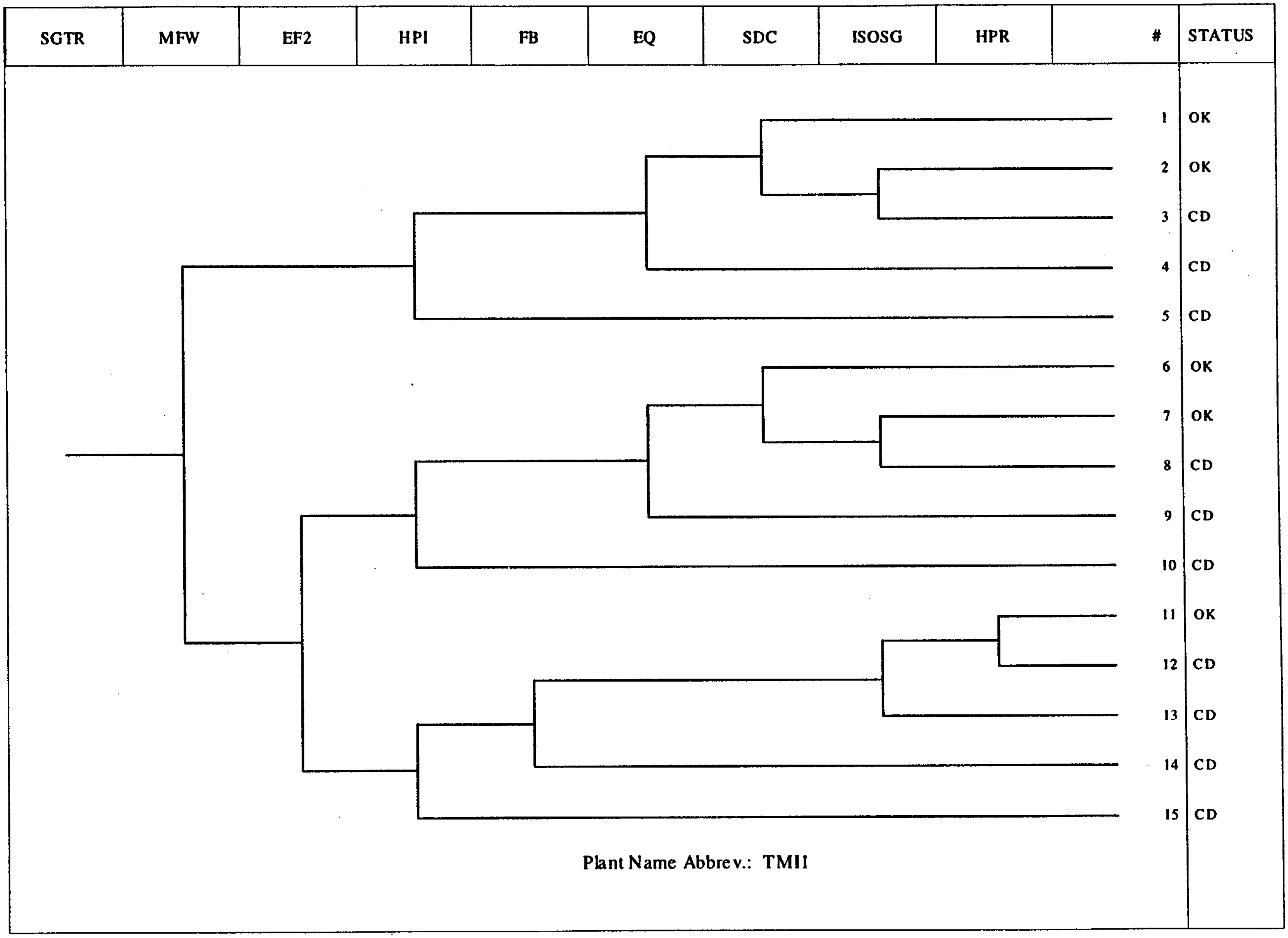
LLOCA	LPI	LPR	DLINE	#	STATUS
				1	OK
				2	CD
				3	CD
				4	CD



Plant Name Abbrev.: TMI1

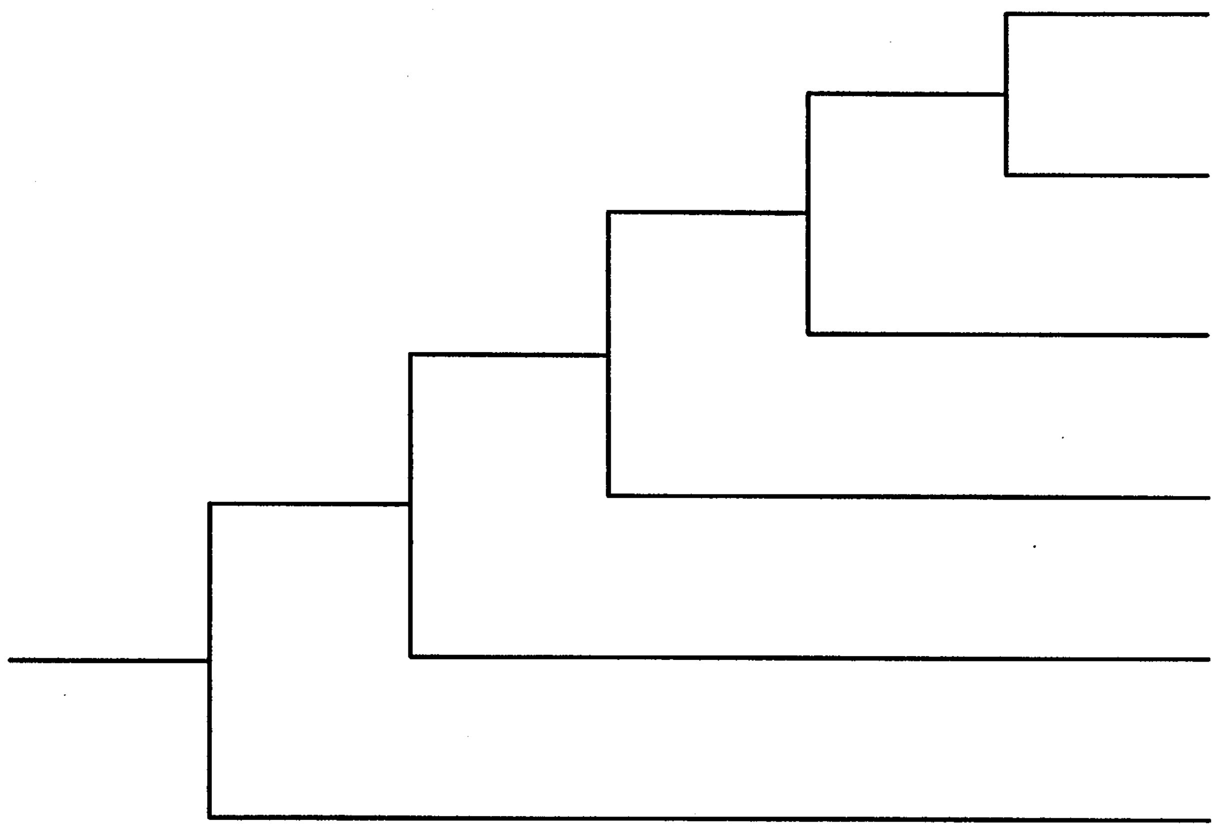


Plant Name Abbrev.: TMI1



Plant Name Abbrev.: TMI1

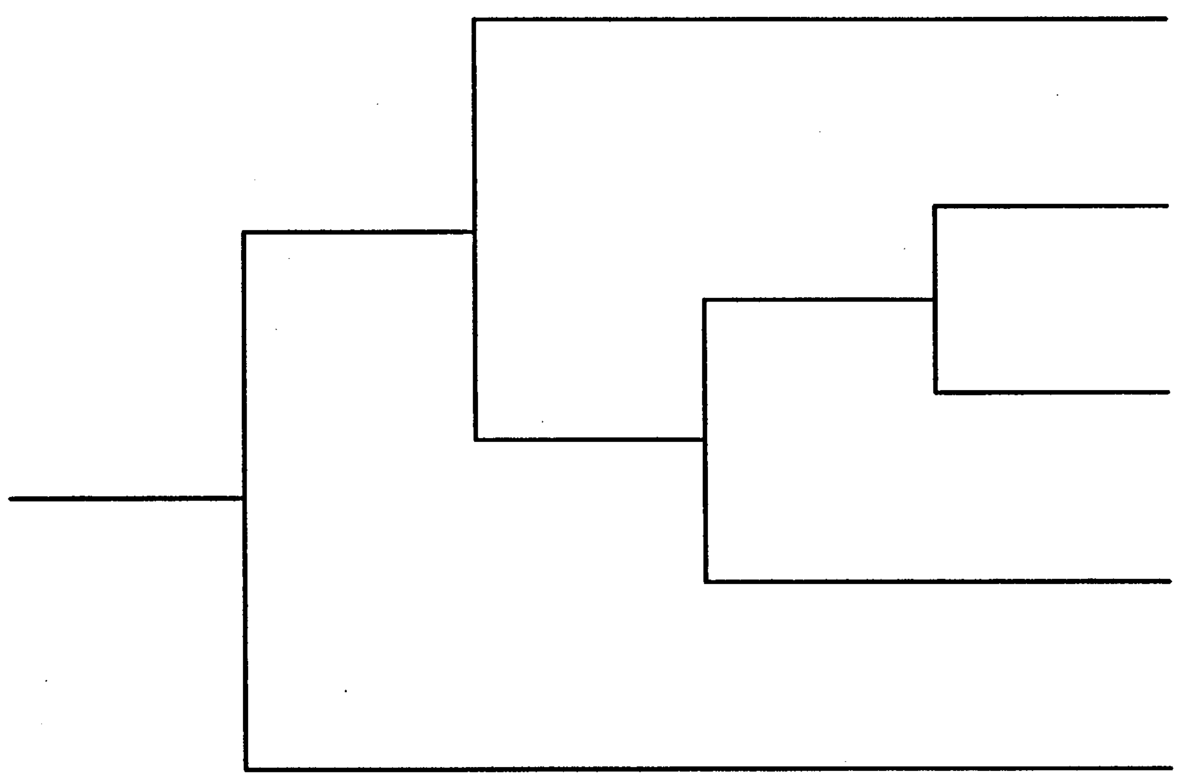
ATWS	TTP	MSSV	EFW	SRV	HPI	#	STATUS



#	STATUS
1	OK
2	CD
3	CD
4	CD
5	CD
6	CD

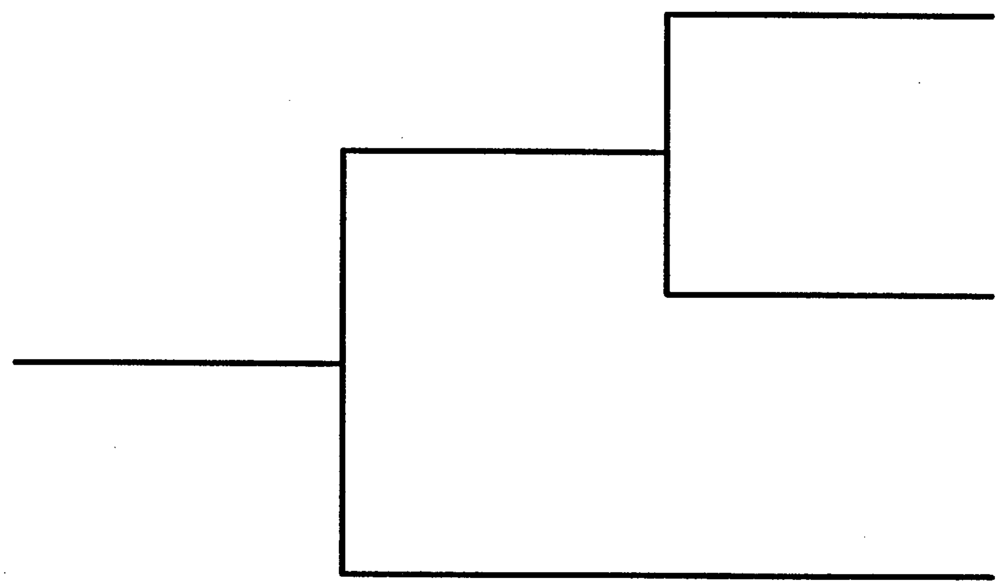
Plant Name Abbrev.: TMI1

LNSRW	SEALINJ	PCS	FB	HPR	#	STATUS



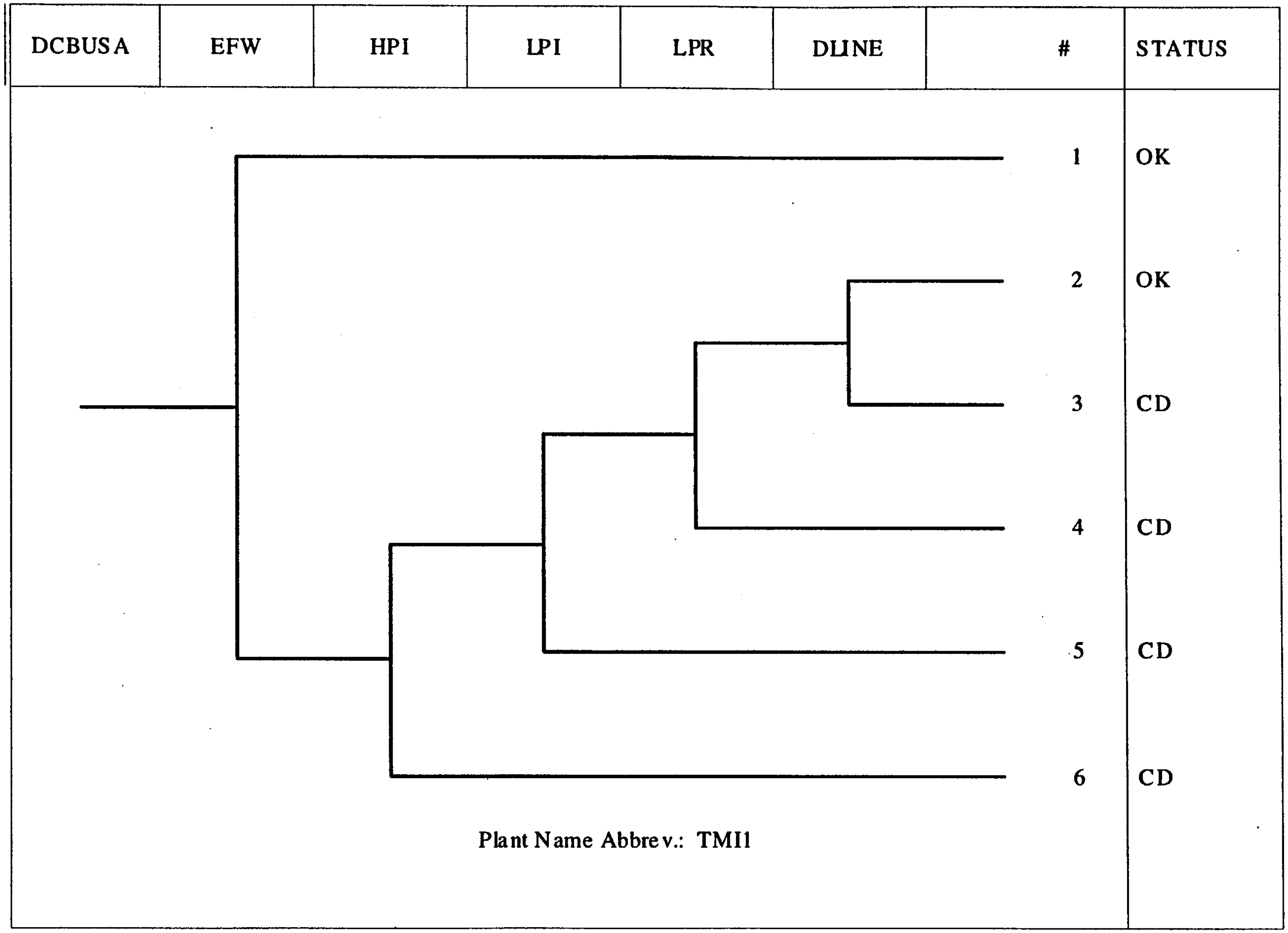
#	STATUS
1	OK
2	OK
3	CD
4	CD
5	CD

Plant Name Abbrev.: TMI 1



LRW	TRIPRCP	EFW	#	STATUS
			1	OK
			2	CD
			3	CD

Plant Name Abbrev.: TMI1


DCBUSA
EFW
HPI
LPI
LPR
DLINE
#
STATUS
1
OK
2
OK
3
CD
4
CD
5
CD
6
CD
Plant Name Abbrev.: TMI1

2. RESOLUTION AND DISPOSITION OF COMMENTS

This section documents the comments received on the material included in this report and their resolution. This section is blank until comments are received and are addressed.

REFERENCES

1. NRC SECY-99-007A, Recommendations for Reactor Oversight Process Improvements (Follow-up to SECY-99-007), March 22, 1999.

2. General Public Utility Nuclear Corporation, "Three Mile Island Nuclear Generating Station, Unit 1 Individual Plant Examination Submittal Report," Updated Version, May 1993.