

Attachment  
CEC-99-075

PIPING CONFIGURATION VERIFICATION PROGRAM  
STATUS REPORT

Commonwealth Edison Company  
Dresden Units 2 and 3  
Quad Cities Units 1 and 2

Prepared by

NUTECH Engineers

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INTRODUCTION

This report describes the status of activities being performed to resolve the issues regarding apparent discrepancies found between the as-built and as-analyzed condition of certain Mark I torus attached piping at Dresden Units 2 & 3 and Quad Cities Units 1 & 2. A previous report, "Program Description and Status Report," NUTECH Document CEC-99-024, dated June 22, 1987, describes the background, the details of the program for resolution, and the status of the effort at that time.

The purpose of this report is to advise the NRC of the current status of work being performed. Additional biweekly reports will be issued to update the status of these activities and highlight any new developments. The previous status report, CEC-99-061, was dated August 14, 1987.

## 2.0 STATUS

The status of the program is summarized on the Figures 2.0-1 and 2.0-2, and Tables 2.0-1 and 2.0-2, for Dresden and Quad Cities, respectively. The figures show the DDR status superposed on the program logic diagram. The tables present essentially the same information in tabular format, with "% complete" added. These figures and tables will be updated on each biweekly report to indicate progress. Status of the ongoing FSAR/operability analyses will be reported as significant milestones are reached.

### 2.1 Second Level Screening

As of July 10, 1987, all DDRs were processed through second level screening, with the exception of 13 DDRs which are included in models being addressed as part of the formal assessments discussed in 2.2 below.

### 2.2 Formal Assessments for FSAR/Operability Compliance

As identified in the last status report, five piping models are in the process of being formally assessed for FSAR/operability compliance. These five models are:

D2.02	D2 - ECCS Suction Header
D3.02	D3 - ECCS Suction Header
Q2.04	QC2 - HPCI Pump Suction
Q2.09.01	QC2 - RHR Pump Discharge A/B
D3.10	D3 - Pressure Suppression

The status of each of these is addressed below.

## D2.02

This model was previously updated and analyzed for the relevant static, thermal, seismic and hydrodynamic loads. The pipe stress and pipe support calculations which demonstrated operability were completed on August 3, 1987.

With the exception of two connections to 4 inch diameter branch lines, and the local stresses at an integral stanchion attachment at pipe support M-3202-33, all large bore piping also satisfied FSAR criteria based on that analysis.

Also, based on that analysis, thirty-eight (38) of a total of forty (40) pipe supports on this model were shown to satisfy FSAR criteria. Supports M-3202-35 and M-3209-13 are the two that did not.

Detailed calculations to demonstrate FSAR compliance for these piping and pipe support components which previously were shown only to satisfy operability (but not FSAR) criteria are in progress (See Section 3.0).

## D3.02

This model was previously updated and analyzed for the relevant static, thermal, seismic and hydrodynamic loads. The pipe stress and pipe support calculations which demonstrated operability were completed on August 3, 1987.

With the exception of two branch connections to 4 inch diameter lines, and the local stresses at an integral stanchion attachment at pipe support M-3404-14, all

large bore piping in this model was also shown to satisfy FSAR criteria based on that analysis.

Also, based on that analysis, thirty-seven (37) of a total of forty (40) pipe supports on this model were shown to satisfy FSAR criteria. Supports M-3402-34, M-3403-06, and M-3405-05 are the three supports that did not.

Detailed calculations to demonstrate FSAR compliance for these piping and pipe support components which previously were shown only to satisfy operability (but not FSAR) criteria are in progress. (See Section 3.0).

#### Q2.04

This model has been updated and analyzed for the relevant static, thermal, seismic and hydrodynamic loads. The pipe stress and pipe support calculations to demonstrate operability are underway. The current protection is for completion of the operability evaluation by September 8, 1987.

#### Q2.09.1

This model has been updated and analyzed for the relevant static, thermal, seismic and hydrodynamic loads. The pipe stress and pipe support calculations to demonstrate operability were completed on August 12, 1987. All large bore piping in the model was also shown to satisfy FSAR criteria. With the exception of pipe support M-1809-05, the other three pipe supports on this model satisfied FSAR criteria.

More detailed calculations to demonstrate FSAR compliance for support M-1809-05 are in progress (See Section 3.0).

#### D3.10

This model has been updated and analyzed for the relevant static, thermal, and hydrodynamic loads. The pipe stress and pipe support calculations which demonstrated operability were completed on August 24, 1987.

With the exception of three (3) unreinforced fabricated tees, all large bore pipe stresses were also shown to satisfy FSAR criteria based on that analysis.

Also, based on that analysis, eight of a total of ten pipe supports were shown to satisfy FSAR criteria. Supports M-3410-04 and M-3410-11 were those that did not.

Detailed calculations to demonstrate FSAR compliance for these piping and pipe support components which have been shown to satisfy operability (but not FSAR) are in progress (see Section 3.0).

#### 2.3 FSAR Compliance of DDRs Which Passed 2nd Level Screening

The DDRs which "passed" the second level screening criteria are being evaluated for FSAR compliance. Work on these is in progress. Completion of these FSAR evaluations is scheduled for 11/9/87.

#### 2.4 Planned Activities

The following activities are scheduled during the next two week period.

1. Complete analysis of Q2.04 model as described above.
2. Perform additional analysis as required to demonstrate FSAR compliance of large bore piping and pipe support components of D2.02 model which, based on analysis performed to date, have demonstrated operability but not FSAR compliance.
3. Perform additional analysis as required to demonstrate FSAR compliance of all large bore piping and pipe support components of D3.02 model which, based on analysis performed to date, have demonstrated operability but not FSAR compliance.
4. Perform analysis as required to demonstrate FSAR compliance of pipe support M-1809-05 of D2.09.1 model.
5. Perform additional analysis as required to demonstrate FSAR compliance of all large bore piping and pipe support components of D3.10 model which, based on analysis performed to date, have demonstrated operability but not FSAR compliance.

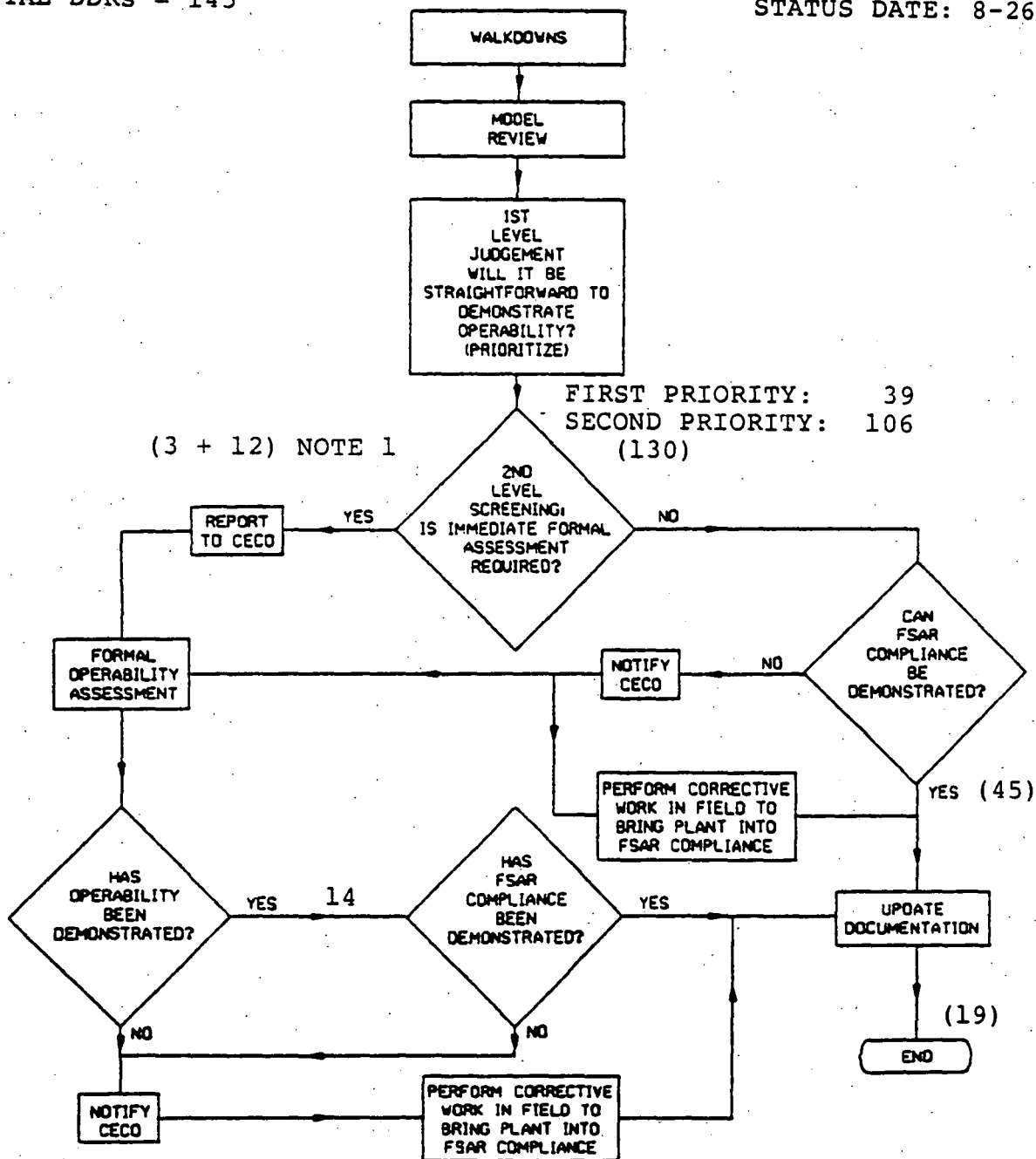
Figure 2.0-1

STATUS SUMMARY

DRESDEN 2 & 3

TOTAL DDRs = 145

STATUS DATE: 8-26-87



NOTE 1: Three DDRs require formal assessment. Twelve additional DDRs are being evaluated with those piping models being formally assessed.





Table 2.0-1  
STATUS SUMMARY  
DRESDEN 2 & 3

Status Date: 8-26-87

Activity Description	Total Scope	Completed	% Complete
<b>Configuration Walkdown</b>			
D2	13	13	100%
D3	15	15	100%
Total (Models)	<u>28</u>	<u>28</u>	<u>100%</u>
<b>Model Review</b>			
D2	13	13	100%
D3	15	15	100%
Total (Models)	<u>28</u>	<u>28</u>	<u>100%</u>
<b>1st Level Judgement of DDRs</b>			
D2	66	66	100%
D3	79	79	100%
Total (DDRs)	<u>145</u>	<u>145</u>	<u>100%</u>
<b>2nd Level Screening of First Priority DDRs</b>			
D2	17	17	100%
D3	22	22	100%
Total (DDRs)	<u>39</u>	<u>39</u>	<u>100%</u>
<b>2nd Level Screening of Second Priority DDRs</b>			
D2	49	44	Note 1 90%
D3	57	50	Note 1 88%
Total (DDRs)	<u>106</u>	<u>94</u>	<u>89%</u>
<b>DDRs Requiring Formal Operability</b>			
D2	1	1	100%
D3	2	1	50%
Total (DDRs)	<u>3</u>	<u>2</u>	<u>67%</u>
<b>DDRs Resolved for FSAR</b>			
D2	66	30	45%
D3	79	15	19%
Total (DDRs)	<u>145</u>	<u>45</u>	<u>31%</u>

Note 1: Five D2 and seven D3 Second Priority DDRs are being addressed with models having other DDRs which required formal assessment of those models.

Table 2.0-2  
STATUS SUMMARY  
QUAD CITIES 1 & 2

Status Date: 8-26-87

Activity Description	Total Scope	Completed	% Complete
<b>Configuration Walkdown</b>			
QC1	18	18	100%
QC2	19	19	100%
Total (Models)	<u>37</u>	<u>37</u>	<u>100%</u>
<b>Model Review</b>			
QC1	18	18	100%
QC2	19	18	95%
Total (Models)	<u>37</u>	<u>36</u>	<u>97%</u>
<b>1st Level Judgement of DDRs</b>			
QC1	100	100	100%
QC2	119	119	100%
Total (DDRs)	<u>219</u>	<u>219</u>	<u>100%</u>
<b>2nd Level Screening of First Priority DDRs</b>			
QC1	24	24	100%
QC2	22	22	100%
Total (DDRs)	<u>46</u>	<u>46</u>	<u>100%</u>
<b>2nd Level Screening of Second Priority DDRs</b>			
QC1	76	76	100%
QC2	97	96	99%
Total (DDRs)	<u>173</u>	<u>172</u>	<u>99%</u>
<b>2nd Priority DDRs Requiring Formal Operability</b>			
QC1	0	0	100%
QC2	2	1	50%
Total (DDRs)	<u>2</u>	<u>1</u>	<u>50%</u>
<b>DDRs Resolved for FSAR</b>			
QC1	100	20	20%
QC2	119	24	20%
Total (DDRs)	<u>219</u>	<u>44</u>	<u>20%</u>

Note 1: One Q2 second priority DDR is being addressed with a model having another DDR which required formal assessment of that model.

### 3.0

#### SCHEDULE

The schedule for performing additional calculations as necessary to demonstrate FSAR compliance for those components of the D2.02, D3.02, Q2.09.1, and D3.10 models which based on the assessments to date have only been shown to satisfy operability is provided in Table 3.0-1.

A schedule of 11/9/87 has been set for completing the FSAR compliance evaluations of all DDRs not included in the formal operability assessments. The schedule for remaining activities (e.g. modifications, documentation updating) will be established as the need for those activities becomes known.

The schedules for other major activities are shown on Figures 3.0-1 and 3.0-2 for Dresden and Quad Cities, respectively.





Table 3.0-1

<u>ACTIVITY/DELIVERABLE</u>	<u>SCHEDULED DATE</u>	<u>ACTUAL DATE</u>
1. Complete Formal Assessment of Dresden Models D2.02 and D3.02	08/03/87(R1)	08/03/87
2. Complete Formal Assessment of Quad Cities Model Q2.09.01.	08/07/87(R1)	08/12/87
3. Complete Formal Assessment of Quad Cities Model Q2.04.	09/08/87(R2)	
4. Complete Formal Assessment of Dresden Model D3.10	08/24/87(R1)	08/24/87
5. Complete FSAR compliance calculation for pipe supports: M-1809-05 (Q2.09.1) M-3202-35 (D2.02) M-3204-13 (D2.02) M-3402-34 (D3.02) M-3403-06 (D3.02) M-3405-05 (D3.02)	08/28/87	
6. Complete FSAR compliance calculation for 4 inch branch connections (models D2.02 and D3.02): Line No. 2-1418A-4"-LX (D2.02) Line No. 2-1418B-4"-LX (D2.02) Line No. 3-1418A-4"-LX (D3.02) Line No. 3-1418B-4"-LX (D3.02)	08/31/87	

7. Complete FSAR compliance calculation for integral stanchion attachment at supports:

M-3202-33 (D2.02)

M-3404-14 (D3.02)

09/10/87

8. Complete FSAR compliance calculation for three (3) branch connections (tees) and pipe supports M-3410-04 and M-3410-11 (Model D3.10)

09/14/87

9. Completion of FSAR Compliance Evaluations of all DDRs

11/09/87



More detailed calculations to demonstrate FSAR compliance for support M-1809-05 are in progress (See Section 3.0).

### D3.10

This model has been updated and analyzed for the relevant static, thermal, and hydrodynamic loads. The pipe stress and pipe support calculations which demonstrated operability were ~~compiled~~ *completed* on August 24, 1987.

With the exception of three (3) unreinforced fabricated tees, all large bore pipe stresses were also shown to satisfy FSAR criteria based on that analysis.

Also, based on that analysis, *eight* of a total of *ten* pipe supports were shown to satisfy FSAR criteria. Supports M-3410-04 and M-3410-11 were those that did not.

Detailed calculations to demonstrate FSAR compliance for these piping and pipe support components which have been shown to satisfy operability (but not FSAR) are in progress (see Section 3.0).

## 2.3 FSAR Compliance of DDRs Which Passed 2nd Level Screening

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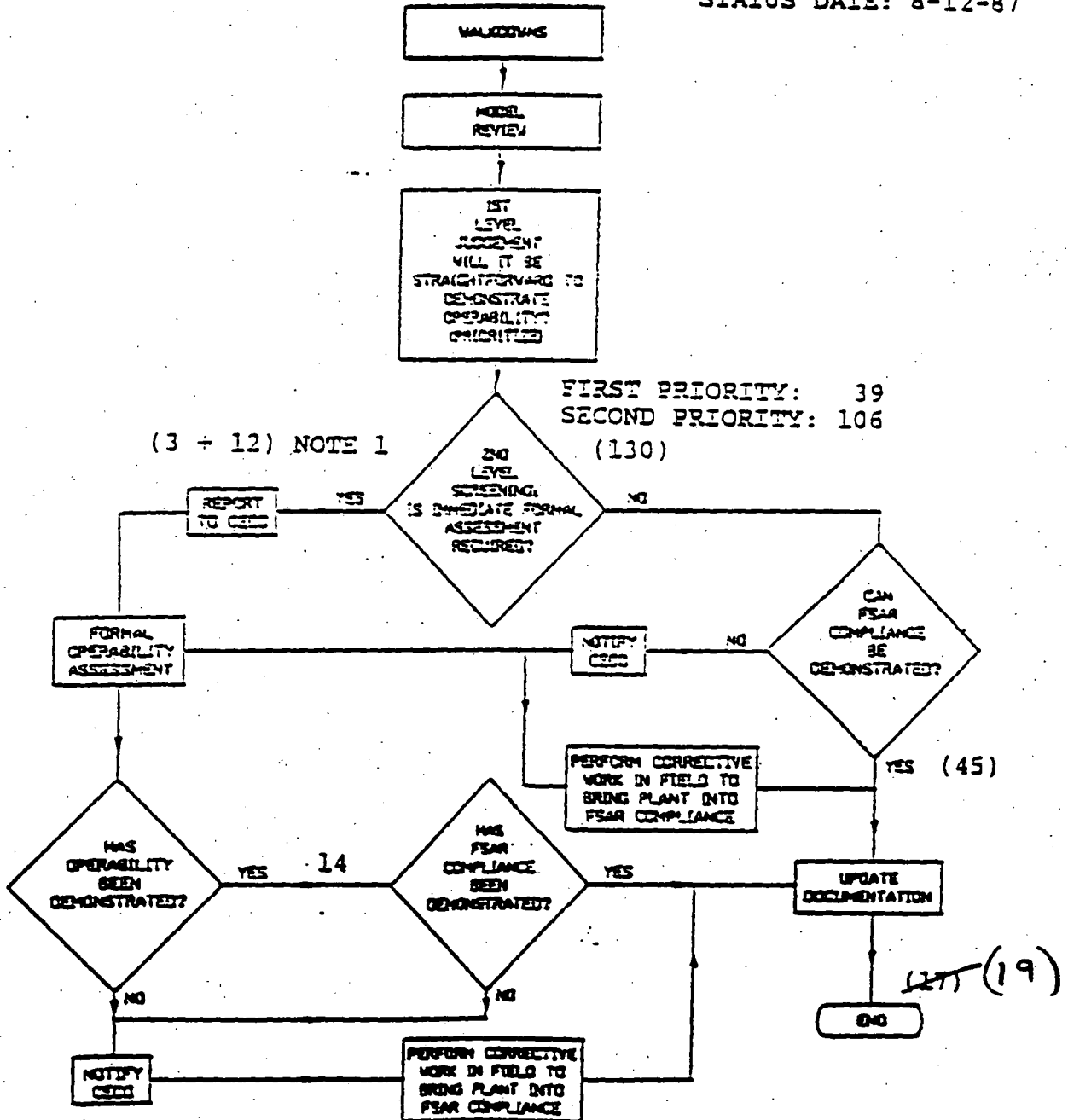
Figure 2.0-1

STATUS SUMMARY

DRESDEN 2 & 3

TOTAL DDRs = 145

STATUS DATE: 8-12-87



NOTE 1: 3 DDRs require formal assessment. 12 additional DDRs are being evaluated with those piping models being formally assessed.

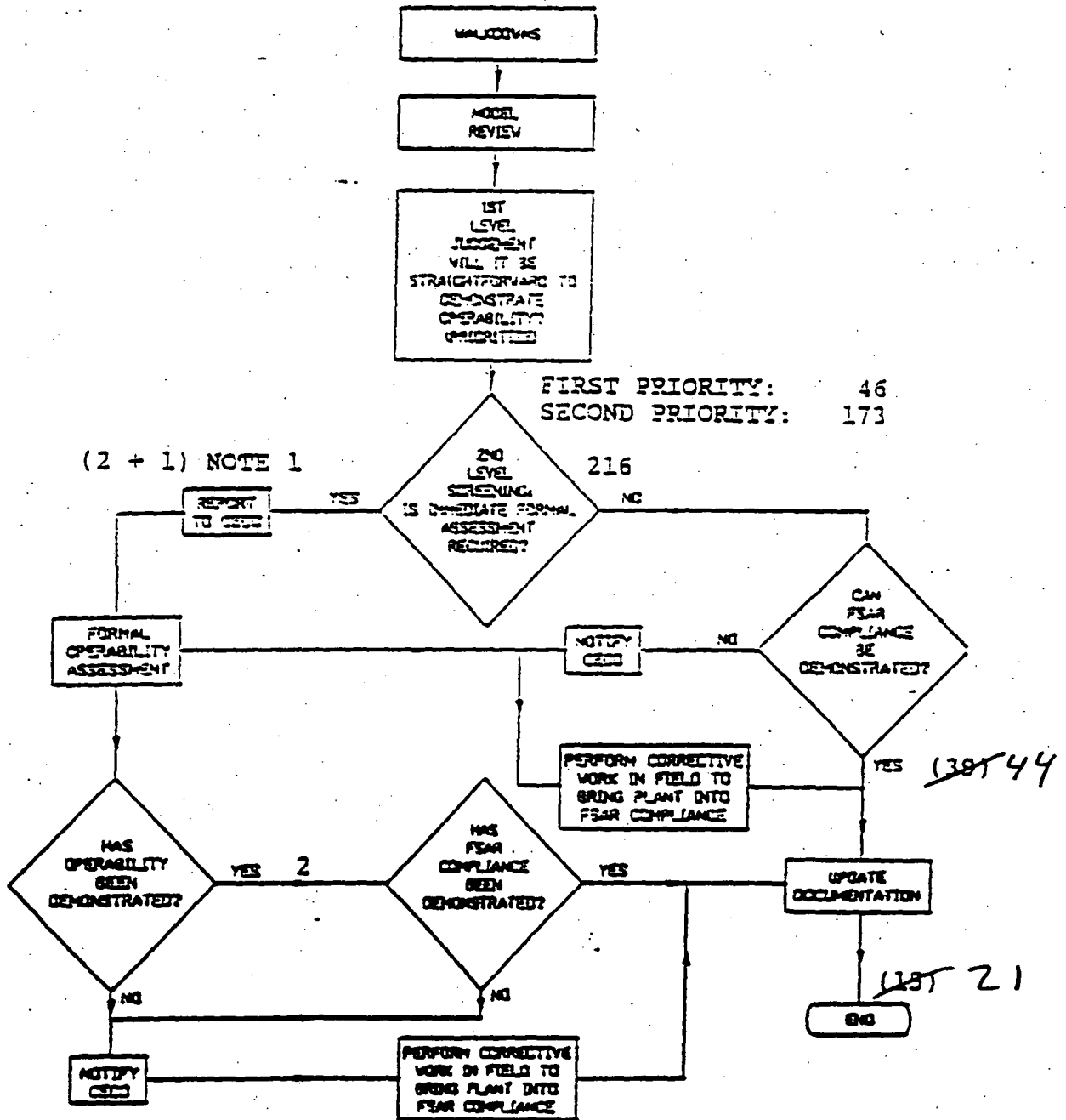
Figure 2.0-2

STATUS SUMMARY

TOTAL DDRs = 219

QUAD CITIES 1 & 2

STATUS DATE: 8-12-87



NOTE 1: 2 DDRs require formal assessment. 1 additional DDR is being evaluated with a model being formally assessed.

Table 2.0-1  
STATUS SUMMARY  
DRESDEN 2 & 3

Status Date: 8-26-87

Activity Description	Total Scope	Completed	% Complete
Configuration Walkdown			
D2	13	13	100%
D3	<u>15</u>	<u>15</u>	<u>100%</u>
Total (Models)	28	28	100%
Model Review			
D2	13	13	100%
D3	<u>15</u>	<u>15</u>	<u>100%</u>
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Total (DDRs)	145	145	100%
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D3	<u>22</u>	<u>22</u>	<u>100%</u>
Total (DDRs)	39	39	100%
2nd Level Screening of Second Priority DDRs			
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Total (DDRs)	106	94	90 <u>89%</u>
DDRs Requiring Formal Operability			
D2	1	1	100%
D3	<u>2</u>	<u>1</u>	<u>50%</u>
Total (DDRs)	3	2	67%
DDRs Resolved for FSAR			
D2	66	30	45%
D3	<u>79</u>	<u>15</u>	<u>19%</u>
Total (DDRs)	145	45	31%

Note 1: Five D2 and seven D3 Second Priority DDRs are being addressed with models having other DDRs which required formal assessment of those models.