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

March 30, 1992

Docket Nos. 50-317
and 50-318

LICENSEE: Baltimore Gas and Electric Company (BG&E)

FACILITY: Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2

SUBJECT: MEETING MINUTES REGARDING THE MARCH 25, 1991, MEETING TO DISCUSS ENGINEERING PROGRAMS, INITIATIVES, AND SCHEDULES

PURPOSE:

The meeting was convened to provide Mr. Charles H. Cruse, Manager, Nuclear Engineering Department, an opportunity to provide a broad overview of his department in support of the Calvert Cliffs Nuclear Power Plant. The meeting was held in the NRC One White Flint North Office in Rockville, Maryland. A list of attendees is attached as Enclosure 1 and the reference material provided by BG&E is attached as Enclosure 2.

SUMMARY:

The topics discussed during the meeting included items I through VI, X, XI, XIX and XX of Enclosure 2. Mr. Cruse indicated that the Engineering Department has increased its staff and reorganized in the past year to provide improved and more effective engineering support for the Calvert Cliffs facility. He further indicated that the engineering workload has been more clearly defined and progress is being made to reduce the backlog; upgrading procedures, drawings, and vendor technical manuals; actions have been and are being taken to improve the 10 CFR 50.59 screening and evaluation processes; and an extensive self-assessment process is in place to provide assurance of continued improvement within the Nuclear Engineering Department.

Additional discussions were held related to modifications implemented on the auxiliary feedwater system (AFW) including additional modifications pending to enhance the overall reliability of the AFW. The upgrading scheduled for the saltwater system during the current Unit 1 refueling outage, the status of current licensing activities, the recent event leading to shutdown of both units, and upcoming site visits were also discussed.

The meeting was informative and provided the NRC staff general insights relative to the Nuclear Engineering Department in relation to its support of the Calvert Cliffs Nuclear Power Plant and the actions being taken to improve the department's overall efficiency and effectiveness.

Sincerely,
Original Signed By
Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Attendees
2. BG&E Presentation

cc w/enclosures:
See next page

DISTRIBUTION:
Docket File
NRC & Local PDRs
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RACapra
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ACRS (10)
RLobel, 17G21
CCowgill, RI

cc: Licensee and Plant Service List

OFFICE	LA:PDI-1	PM:PDI-1	D:PDI-1		
NAME	CSVogan	DGMcDonald:pc	RACapra		
DATE	3/30/92	03/30/92	3/30/92	/ /	/ /

FILENAME:CC.MEE

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1/1

The meeting was informative and provided the NRC staff general insights relative to the Nuclear Engineering Department in relation to its support of the Calvert Cliffs Nuclear Power Plant and the actions being taken to improve the department's overall efficiency and effectiveness.

Sincerely,

Daniel G. McDonald Jr.

Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Attendees
2. BG&E Presentation

cc w/enclosures:
See next page

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Enclosure 1

List of Attendees

Participants	Organization
D. McDonald	NRC
R. Capra	NRC
J. Calvo	NRC
C. Cruse	BG&E
G. Detter	BG&E
K. Denslow*	Halliburton NUS Environmental Corp.

*Denotes part time attendance

BALTIMORE GAS AND ELECTRIC

NUCLEAR ENERGY DIVISION

CALVERT CLIFFS NUCLEAR POWER PLANT

1991 - 1992
NUCLEAR ENGINEERING
OVERVIEW

FOR THE

NUCLEAR REGULATORY COMMISSION

Mr. Daniel G. McDonald, Jr.
Mr. Robert A. Capra
Mr. Jose A. Calvo

March 25, 1992

By:

Mr. C. H. Cruse
Manager
Nuclear Engineering Department

BALTIMORE GAS AND ELECTRIC

NUCLEAR ENGINEERING OVERVIEW

CONTENTS

BALTIMORE GAS AND ELECTRIC

I. 50.59 PROCESS

IPAT INSPECTION IDENTIFIED WEAKNESS 50.59 SCREENING AND 50.59 PREPARATION GUIDANCE

- IMMEDIATE CORRECTIVE ACTION
  - INTERIM MANDATORY GUIDANCE ISSUED
    - ALL SAFETY-RELATED CHANGES RECEIVE 50.59 EVALUATIONS AND POSRC REVIEW
    - ONLY NONSAFETY-RELATED ITEMS WITH NO SAFETY IMPACT NOR REQUIRED 50.59 CAN BYPASS POSRC; JUSTIFICATION MUST BE DOCUMENTED
  - 20 PERCENT SAMPLE OF 1991 PACKAGES NOT REQUIRING 50.59 WERE SCREENED BY POSRC; COMPLETED WITH NO CONCERNS IDENTIFIED
  - CREATED TASK FORCE TO ENHANCE 50.59 PROCESS PROCEDURES AND TRAINING

BALTIMORE GAS AND ELECTRIC

I. 50.59 PROCESS

- ONGOING CORRECTIVE ACTIONS
  - REVISIONS TO PROCEDURES - ECD 7/30/92
  - 50.59 RETRAINING (2-DAY COURSE) - ECD 11/30/92
    - NSAC 125 STRESSED
    - EMPHASIS ON IPAT IDENTIFIED WEAKNESS
    - PLANT SPECIFIC EXAMPLES
  - SAMPLE 50.59 SCREENS AND SAFETY EVALUATIONS
    - COMPLETED AFTER TRAINING TO VERIFY TRAINING - ECD 7/30/93
  - IMPLEMENT CONTINUING TRAINING PROGRAM

BALTIMORE GAS AND ELECTRIC

II. BACKLOG REDUCTION STATUS

- FACILITY CHANGE REQUEST
  - REDUCED OPEN FCRs FROM 910 TO 719
  - GOAL $\leq$ 400 FCRs OPEN BY END OF 1992
    - 52 FCRs SCHEDULED TO BE COMPLETED DURING UNIT 1 OUTAGE
    - IMPROVE NON-OUTAGE FCR COMPLETION RATE
    - IMPLEMENT PROCEDURE CHANGE TO DELETE NON-MODIFICATION CHANGES FROM FCR LIST
    - IMPROVE PRIORITIZATION AND SCHEDULING PROCESS

BALTIMORE GAS AND ELECTRIC

II. BACKLOG REDUCTION STATUS

- MINOR MODIFICATIONS
  - NUMBER OF OPEN MINOR MODS STEADY AT APPROXIMATELY 1,100
  - COMPLETED OR VOIDED APPROXIMATELY 700 IN LAST 12 MONTHS
  - CREATED PLANT DESIGN SUPPORT UNIT TO PROVIDE RESPONSIVE DESIGN OF MINOR MODS
  - GOAL TO REDUCE THE NUMBER OF MINOR MODS IN DESIGN AND TO REDUCE BACKLOG OF MINOR MODS IN CLOSEOUT
- TEMPORARY MODIFICATIONS
  - REDUCED FROM 68 TO 40 IN LAST 12 MONTHS
  - GOAL < 20 TMs GREATER THAN 90 DAYS OLD PER UNIT
  - GOAL < 5 TMs GREATER THAN 30 MONTHS OLD PER UNIT

Facility Change Requests

Generate 11 Million MWH

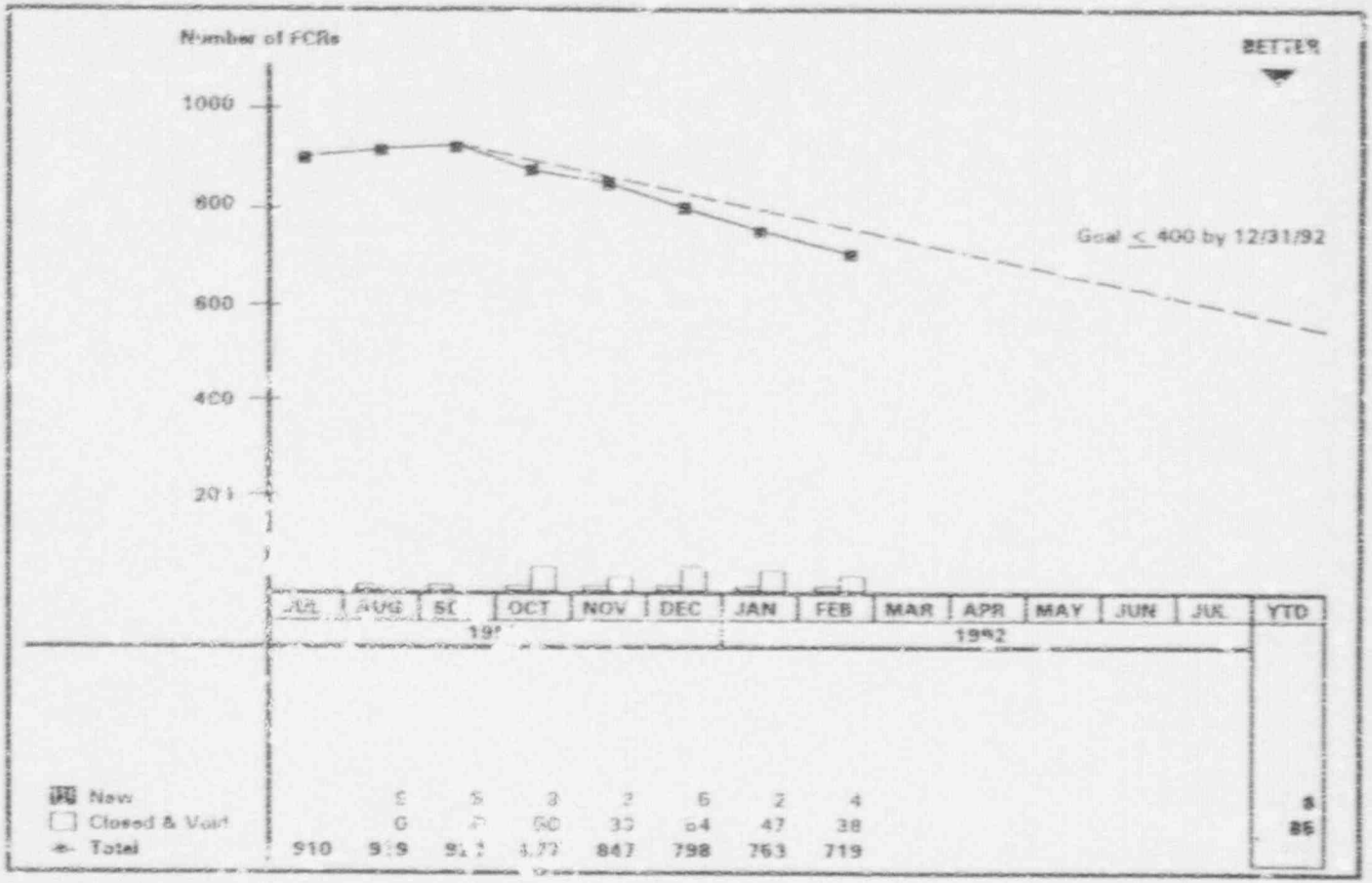
Dept - 4131 Plant Engineering Section

DEFINITION
The number of Facility Change Requests (FCRs) initiated and closed/void each month and the total open by responsible organization.

OBJECTIVE #13
Develop and implement a program to reduce backlog of FCRs.

GOAL
≤ 400 FCRs open by the end of 1992.

REMARKS



2.1

FEBRUARY 15, 1992

OWNER: Unit Heads

SOURCE: Vincent / Sordick

PERIOD: 16th - 15th

Meeting Goal? YES

Primary Systems (4131-02)		Secondary Systems (4131-03)		Auxiliary Systems (4131-04)		E&C Systems (4131-05)		P&[illegible] Office (4131-06/01)	
Month	# FCRs	Month	# FCRs	Month	# FCRs	Month	# FCRs	Month	# FCRs
Sep	172	Sep	180	Sep	183	Sep	170	Sep	213
Oct	152	Oct	185	Oct	173	Oct	161	Oct	208
Nov	143	Nov	184	Nov	171	Nov	160	Nov	209
Dec	145	Dec	178	Dec	168	Dec	157	Dec	161
Jan	127	Jan	172	Jan	160	Jan	152	Jan	142
Feb	121	Feb	165	Feb	156	Feb	153	Feb	124
Mar		Mar		Mar		Mar		Mar	
YES				YES		YES		YES	

Minor Modifications

Dept - 4131 Plant Engineering Section

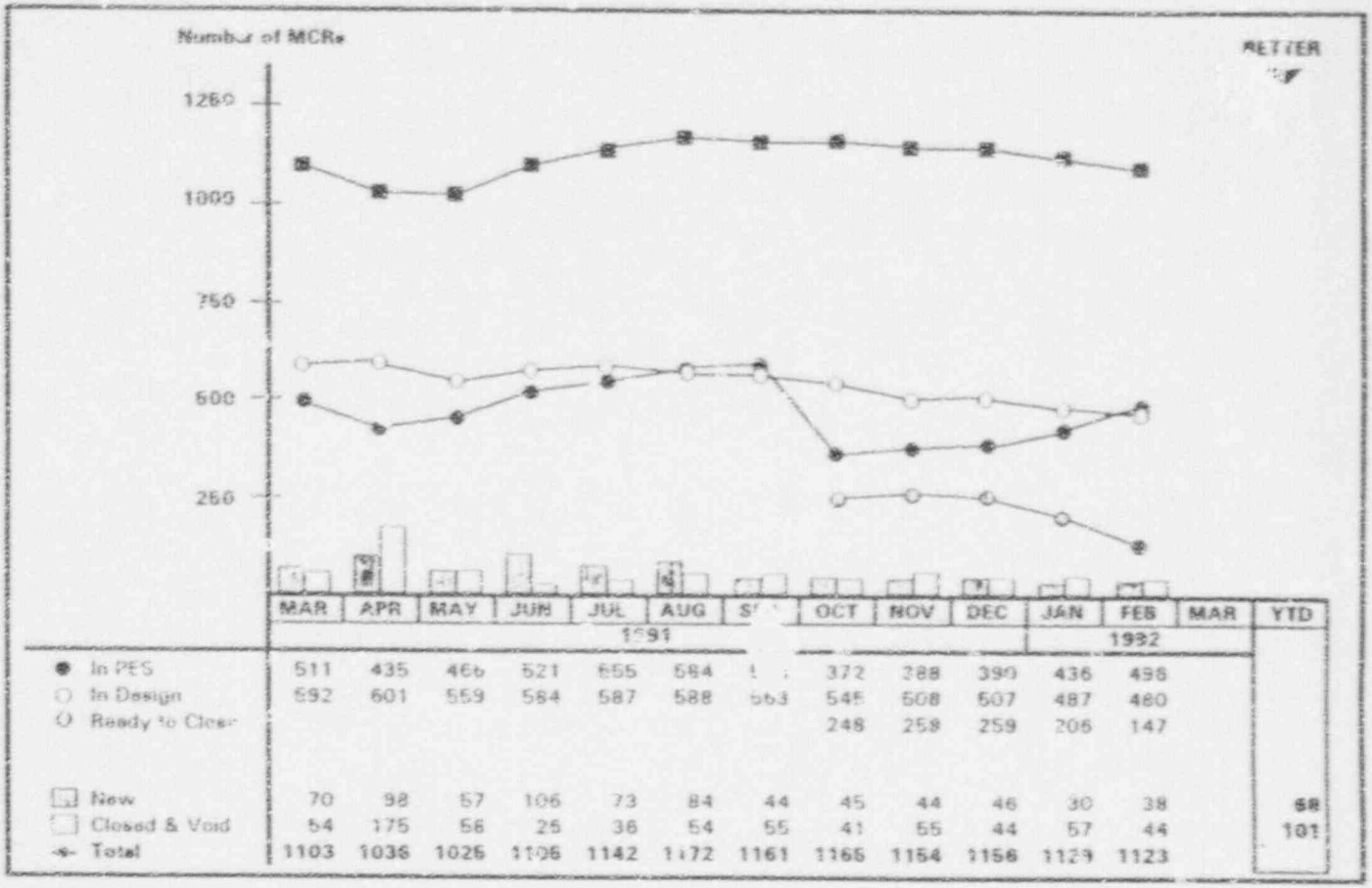
DEFINITION
The number of Minor Modifications (MCRs) initiated and closed/void each month, the total ready to close, and the total open by responsible organization.

OBJECTIVE #14 / sub-objective
By December 31, 1992, reduce backlog of FCR/MCR closeout after field work is complete.

GOAL

REMARKS

Generate 11 Million MWH



	MAR	APR	MAY	JUN	JUL	AUG	S	OCT	NOV	DEC	JAN	FEB	MAR	YTD
	1991										1992			
In PES	511	435	466	521	655	684		372	388	390	436	498		
In Design	592	601	559	584	587	588	563	545	508	507	487	480		
Ready to Close								248	259	259	206	147		
New	70	98	57	106	73	84	44	45	44	46	30	38		68
Closed & Void	64	175	58	25	36	54	55	41	55	44	57	44		101
Total	1103	1038	1026	1106	1142	1172	1161	1165	1154	1156	1129	1123		

2.3

FEBRUARY 15, 1992

OWNER: Unit Heads

SOURCE: Trojan / Faggioli

PERIOD: 16th - 15th

Meeting Goal? YES

Primary Systems (4131-02)

	Dec	Jan	Feb	YTD
InPES	80	89	103	
InDES	104	100	99	
R to C	53	42	30	
In	8	5	8	14
Out	8	12	7	19
Total	237	231	232	

YES

Secondary Systems (4131-03)

	Dec	Jan	Feb	YTD
InPES	135	150	171	
InDES	175	168	156	
R to C	89	71	51	
In	18	10	13	23
Out	17	19	15	34
Total	399	390	388	

YES

Auxiliary Systems (4131-04)

	Dec	Jan	Feb	YTD
InPES	111	124	139	
InDES	144	139	137	
R to C	74	59	44	
In	18	9	11	20
Out	15	17	13	30
Total	330	[illegible]	320	

YES

E&C Systems (4131-05)

	Dec	Jan	Feb	YTD
InPES	64	73	83	
InDES	84	80	78	
R to C	43	34	22	
In	4	5	6	11
Out	4	9	9	18
Total	190	186	183	

YES

P&SU & Office (4131-06/01)

P&SU is responsible for closing all MMODs, including MMODs designated as "Out"

YES

Temporary Modifications

Improve Safety and Quality

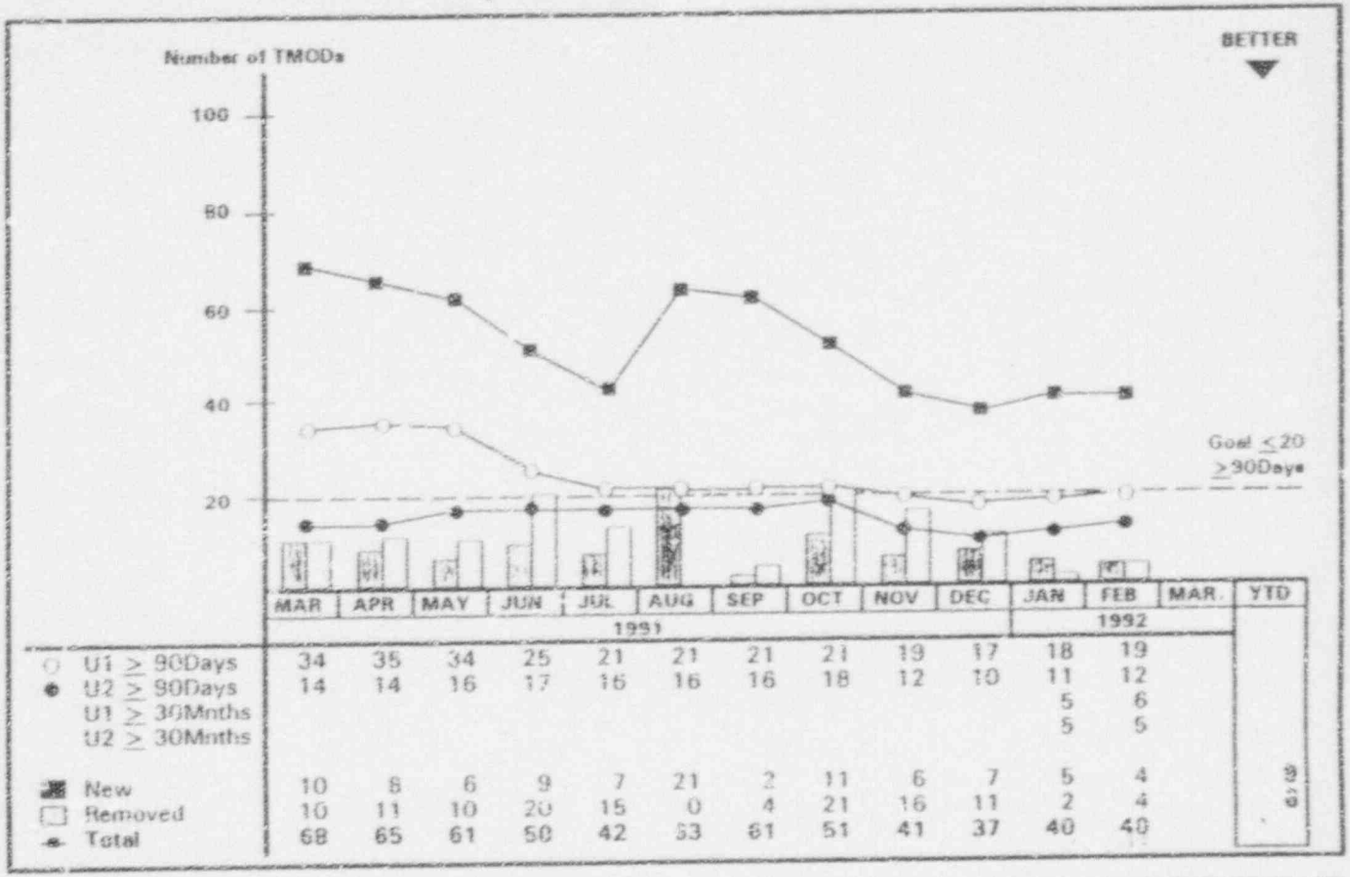
Dept - 4131 Plant Enginsaring Section

DEFINITION
The number of Temporary Modifications (TMODs) removed and installed each month and the number installed greater than 90 days and 30 months per unit.

OBJECTIVE #02
Reduce and maintain the number of TMODs.

GOAL
< = 20 greater than 90 days old per unit
< = 5 greater than 30 months old per unit

REMARKS



	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR.	YTD
	1991										1992			
○ U1 ≥ 90Days	34	35	34	25	21	21	21	21	19	17	18	19		
● U2 ≥ 90Days	14	14	16	17	16	16	16	18	12	10	11	12		
U1 ≥ 30Mnths											5	6		
U2 ≥ 30Mnths											5	5		
New	10	8	6	9	7	21	2	11	6	7	5	4		6/89
Removed	10	11	10	20	15	0	4	21	16	11	2	4		
Total	68	65	61	50	42	63	61	51	41	37	40	40		

FEBRUARY 15, 1992

1.5

OWNER: Unit Heads

SOURCE: Vincent / LeBarron

PERIOD: 16th - 15th

Meeting Goal? YES

Primary Systems (4131-02)	Dec	Jan	Feb	YTD
In				
Out				
Total	5	6	6	

YES

Secondary Systems (4131-03)	Dec	Jan	Feb	YTD
In				
Out				
Total	7	10	9	

YES

Auxiliary Systems (4131-04)	Dec	Jan	Feb	YTD
In				
Out				
Total	23	22	23	

YES

E&C Systems (4131-05)	Dec	Jan	Feb	YTD
In				
Out				
Total	2	2	2	

YES

P&SU & Office (4131-06/01)	Dec	Jan	Feb	YTD
In				
Out				
Total	0	0	0	

YES

BALTIMORE GAS AND ELECTRIC

III. DRAWING IMPROVEMENT PROJECT

- OBTAIN STATUS OF ALL DCNs - *COMPLETE*
- CONSOLIDATE DRAWING DATABASES - *COMPLETE*
- ESTABLISH CONFIGURATION CONTROL ORGANIZATION - *COMPLETE*
- INCORPORATE DRAWING PROGRAM IN NEW MODIFICATION PROCEDURES, CCI-700 - *COMPLETE*
- IMPLEMENT NEW DRAWING HIERARCHY - *COMPLETE*
- DEVELOP DRAFTING STANDARDS - *COMPLETE*
- REDUCE NUMBER OF OPEN DCNs

  (ISSUED BY ENGINEERING BUT NOT IMPLEMENTED)

  - WORKING IN CONJUNCTION WITH FCR BACKLOG REDUCTION
- REDUCE DCR BACKLOG

  (RETURNED TO ENGINEERING FOR REVIEW AND DRAWING UPDATING)

  - DCRs ISSUED PRIOR TO CCI-700 REDUCED FROM 400 TO 120 SINCE SEPTEMBER 1991

BALTIMORE GAS AND ELECTRIC

III. DRAWING IMPROVEMENT PROJECT

- SINCE IMPLEMENTATION OF CCI-700 (OCTOBER 1991), 132 DCRs HAVE BEEN INITIATED. SIXTY (60) OF THESE HAVE BEEN CLOSED

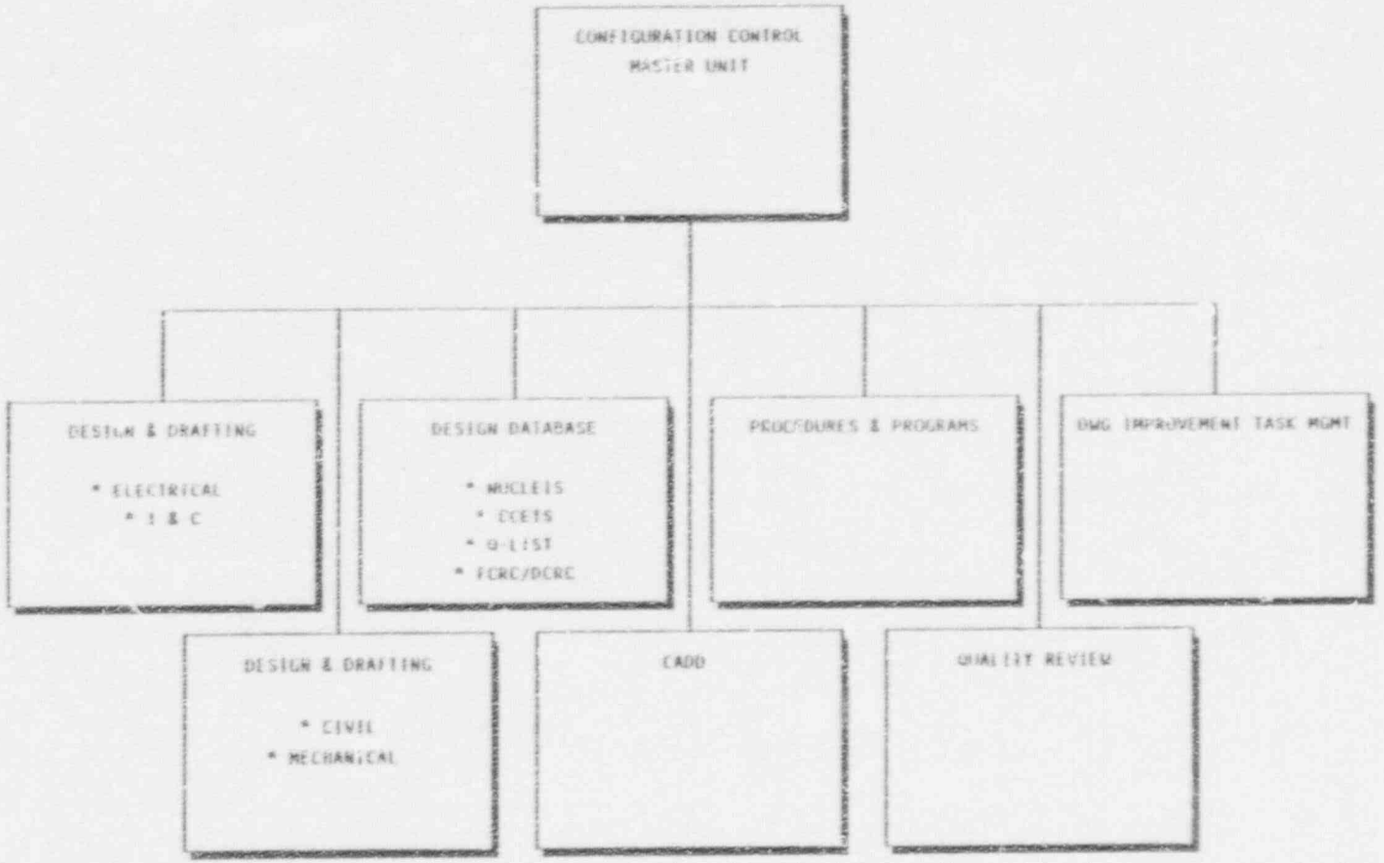
- CADD INSTALLATION
  - TWELVE INTEGRAPH CADD WORKSTATIONS IN PLACE
- RETRIEVE ORIGINAL DRAWINGS FROM BECHTEL (5,000 DRAWINGS)
  - CRITICAL DRAWINGS RETURNED
  - CATEGORY I DRAWINGS BEING RETURNED AT A RATE OF 300/MONTH
- CRITICAL/CATEGORY I CADD CONVERSION

(125 CRITICAL AND 4,000 CATEGORY I DRAWINGS BEING CONVERTED TO CADD)

- ALL CRITICALS AND 1,200 CATEGORY I CONVERTED

Task #3

Nuclear Engineering Department
Design Engineering Section



Task #4.

CCI-700 SERIES PROCEDURES

CCI-702 Change Control Process Overview

CCI-703 Initiation of a Design Change, Modification and Equivalency Change

CCI-704 Design Change and Modification Engineering Process

CCI-705 Design Change and Modification Implementation

CCI-706 Equivalency Evaluation , Design Change and Modification Package Closeout

CCI-707 Drawing and Technical Database Change Control

BREAKDOWN OF DAYS FOR RDC COMPLETION BY CATEGORY

DESIGN & DRAFT" 3 DES REVIEW

RDC	CR	C1	C2	C3/4
OVERALL	2	2	150	180
DES	---	---	90	100
D&D	1	1	30	40
DES	1	1	20	30

DRAWING AND FIELD CONFLICT

DRAWING TO DRAWING CONFLICT

2 BUSINESS DAYS

BREAKDOWN OF DAYS FOR RDC COMPLETION
BY CATEGORY
DESIGN & DRAFTING
DES REVIEW

RDC	CR	C1	C2	C3/4
OVERALL	45	90	150	180
D&D	30	45	100	110
DES	10	30	35	55

FOR INFO ERRORS, ADD MISSING INFO, CLARIFY INFO, AND E.E.'s

BALTIMORE GAS AND ELECTRIC

IV. VENDOR TECH MANUAL PROJECT

- PROJECT STATUS AND SCOPE
  - COMPLETED SCOPE (1990-1991)
    - COMMITMENT 8/90 - 12/91: INTERNALLY UPGRADED 750 PUBS
    - ACTUAL 8/90 - 12/91: 906 PUBS INTERNALLY UPGRADED; 751 PUBS ISSUED FOR USE
  - CURRENT SCOPE (1992)
    - ESTIMATED 2/92 - 3/92: 560 PUBS INTERNALLY UPGRADED
- HIGH PRIORITY MANUALS ARE WORKED SOONER IN THE PROJECT (E.G., EDSFI PANELS, CONTROL ROOM HVAC, EQ EQUIPMENT)

BALTIMORE GAS AND ELECTRIC

IV. VENDOR TECH MANUAL PROJECT

- PROJECT QUALITY AND EFFECTIVENESS
  - QUALITY
    - NO REWORK ITEMS IN 1991
    - NO CONTENT OR ACCURACY CONCERNS FROM USERS
    - TWO VENDOR PEER QUALITY REVIEWS -- NO DEFICIENCIES
    - VENDOR QUALITY AUDIT -- NO DEFICIENCIES
  - EFFECTIVENESS
    - CUSTOMERS ARE SATISFIED WITH DELIVERABLES

BALTIMORE GAS AND ELECTRIC

V. LOSS OF CONTROL AND INDICATING POWER PROJECT

POTENTIAL FOR DESIGN FLAWS AND INADEQUATE OPERATING PROCEDURES COULD LEAD TO SIGNIFICANT UNMANAGEABLE PLANT TRANSIENTS UPON LOSS OF CONTROL AND INSTRUMENT POWER SUPPLIES

- INPO - SIGNIFICANT OPERATING EVENT REPORT
  - DELIVERABLES
    - COMPLETE LOAD LISTS FOR EACH BUS
    - COMPLETE LOSS OF POWER EFFECTS ANALYSIS FOR EACH BUS AND ALL BREAKERS
    - COMPLETE REVIEW OF EFFECTS ANALYSIS BY LICENSED OPERATORS FOR OVERALL PLANT EFFECTS AND OPERATING PROCEDURE UPDATE
    - VALIDATE PLANT SIMULATOR
    - CONDUCT TRAINING ON NEW PROCEDURES
    - INITIATE CORRECTIVE ACTIONS FOR ANY PROBLEMS IDENTIFIED

BALTIMORE GAS AND ELECTRIC

V. LOSS OF CONTROL AND INDICATING POWER STUDY

- STAFFING AND COSTS
  - 55 PEOPLE WORKED ON PROJECT
  - ESTIMATED TOTAL COST $7.7M
- STATUS
  - VITAL DC BUSSES COMPLETED
  - VITAL AC INSTRUMENT BUSSES COMPLETED
  - NON-VITAL INSTRUMENT BUSSES APPROXIMATELY 25 PERCENT COMPLETE
- RESULTS
  - NO DC SAFETY SIGNIFICANT ISSUES IDENTIFIED
  - DRAWING CONTROL PROBLEMS CONFIRMED, SPECIFIC DRAWING CORRECTIONS INITIATED

BALTIMORE GAS AND ELECTRIC

VI. SELF-ASSESSMENT AND ERROR REDUCTION

- PERFORMANCE OBJECTIVES - STATUS MONTHLY
- PERFORMANCE STANDARDS - STATUS MONTHLY
  - QUALITY INDEX
- PERFORMANCE INDICATORS - STATUS MONTHLY
- CUSTOMER SATISFACTION SURVEY - QUARTERLY
- A/E ASSESSMENTS - QUARTERLY
- QUALITY TASK FORCE - ONGOING
- DESIGN ENGINEERING PROCESS IMPROVEMENT - COMPLETED WITH ENGINEERING PRODUCT
- SURVEILLANCES - PERFORMED BY QA DEPARTMENT AS REQUESTED
- OUTSIDE CONSULTANT ASSESSMENT - AS NEEDED
  - TENERA
    - EQ PROGRAM
    - DESIGN BASIS PROGRAM
    - LIFE CYCLE MANAGEMENT
    - Q-LIST

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VII. PROCEDURE IMPROVEMENTS

- REVISED MODIFICATION PROCEDURES (NEW CCI-700 SERIES)
  - IMPROVED FCR PROCESS, ADDED MCR REQUEST AND EQUIVALENCY
  - CHANGE PROCESS REFOCUSED TO BROADEN INVOLVEMENT OF AS MANY SECTIONS/UNITS AS POSSIBLE TO REDUCE OVERLOAD IN DESIGN AND FRUSTRATION IN FIELD
    - LIKE-FOR-LIKE/EQUIVALENCY -- PROCUREMENT ENGINEERING AND PLANT ENGINEERING
    - 50.59 SCREENING -- TRAINED INDIVIDUALS
  - SCATTERED PROCEDURES BROUGHT TOGETHER AND REFORMATTED TO EASE PROCEDURE USE
- REVIEWED AND UPGRADED PROCEDURES IN NUCLEAR FUEL UNIT AND NUCLEAR ENGINEERING UNIT
- IMPLEMENTING PROCEDURE UPGRADE PROCESS FOR DESIGN AUTHORITY AND MODIFICATION DIRECTIVES

Design Authority and Modifications

Preliminary Scoping Presentation

March 12, 1992

Program Analysis Overview

1) **Program Analysis Approach**

- **Intent**
  - Identify Business Process Disconnects
  - Establish Process Ownership
  - Provide Process Improvement Recommendations
- **Approach**
  - Top-down Interviews
  - Process Modeling and Analysis
  - Presentation of Results
- **Benefits**
  - Improved Communications
  - Improved Processes
  - Process to Procedure Match

2) **What's Been Done So Far**

- **Program Level Interviews, identifying:**
  - Customer/Owner Relationships
  - Significant Program Issues
  - Processes Needing Detailed Analysis:
    - *Modifications Closeout*
    - *Modifications Evaluation*
    - *Engineering Delegation*
    - *Design Interface*

3) **What's Next**

- **Program Analysis Interviews**
  - Validating Issues
  - Defining Boundaries
- **Modeling and Analysis of the Modifications Process**

BALTIMORE GAS AND ELECTRIC

VIII. ENGINEERING TRAINING

- ACCREDITED IAW INPO 82-022
- DESIGNED TO BROADEN GENERAL KNOWLEDGE LEVEL OF NEWLY HIRED TECHNICAL STAFF
- 315 TOTAL TECHNICAL STAFF PERSONNEL INCLUDED; 95 GRANDFATHERED, 137 COMPLETED COURSE
- CURRICULUM
  - ORIENTATION TRAINING
  - 12-WEEK COMPREHENSIVE CLASSROOM PROGRAM
    - APPLIED FUNDAMENTALS - 4 WEEKS
    - PLANT SYSTEMS - 5 WEEKS
    - INTEGRATED PLANT OPERATIONS - 1 WEEK
    - PLANT TOURS - 4 - 3 HOUR TOURS
    - SIMULATOR DEMONSTRATION - 8 HOURS HANDS-ON
    - INDUSTRY TOPICS - 1 WEEK

BALTIMORE GAS AND ELECTRIC

VIII. ENGINEERING TRAINING

- JOB SPECIFIC TRAINING
  - QUALIFICATION CARDS OR QUALIFICATION BOARD
- CONTINUING TRAINING
  - 4-6 SESSIONS PER YEAR
  - RECENT TOPICS: RELIABILITY, INDUSTRY EVENTS, MODIFICATION PROCESS, DESIGN CRITERIA

BALTIMORE GAS AND ELECTRIC

IX. SURVEILLANCE TEST PROGRAM

- TECHNICAL ADEQUACY REVIEW PROJECT
  - DETAILED REVIEW OF IMPLEMENTING PROCEDURES FOR TECHNICAL ADEQUACY - *COMPLETED 11/30/91*
  - 177 DEFICIENCIES DOCUMENTED, 269 POSSIBLE TECHNICAL ISSUES IDENTIFIED
  - ALL ISSUES SCREENED FOR TECHNICAL MERIT, OPERABILITY, AND REPEATABILITY
    - TWO LERs RESULTED
  - TO DATE, 225 ISSUES CLOSED
- PROCEDURE UPGRADES
  - REVISE STPs TO COMMON FORMAT
  - 75 PERCENT OF STPs REWRITTEN AND UPGRADED
  - ECD 12/92

BALTIMORE GAS AND ELECTRIC

IX. SURVEILLANCE TEST PROGRAM

- TECHNICAL SPECIFICATION CROSS-REFERENCE LIST
  - VERIFY ALL SURVEILLANCES ARE ADDRESSED IN IMPLEMENTING PROCEDURE
  - REVALIDATED AND REISSUED ON JANUARY 23, 1992
- PC-BASED STP SCHEDULING SYSTEM DEVELOPED AND IMPLEMENTED
- PC-BASED STP DATA TRENDING PROGRAM DEVELOPED AND IMPLEMENTED

BALTIMORE GAS AND ELECTRIC

X. SALTWATER PROJECT

- BIOFOULING PROGRAM BEING DEVELOPED FOR CLEANING INTAKE STRUCTURE
- TEST PROGRAM
  - EDGs #11 AND #12 TESTED IN FEBRUARY
  - TESTING OF 3 OF 8 TYPES OF HX COMPLETE FOR UNIT 1
  - SPENT FUEL POOL HX WILL BE TESTED IN MARCH
  - FOUR OTHER HXs TYPES WILL BE TESTED DURING OUTAGE
- LICENSING BASIS REVIEW
  - MODELS CREATED FOR 4 HXs; MODEL BENCHMARKING IN PROGRESS
  - LICENSING BASIS REVIEW IN PROGRESS
- INSPECTION AND MAINTENANCE PROGRAM
  - PLANT ENGINEERING GUIDELINE BEING WRITTEN
- PROCEDURE REVIEW AND UPGRADE
  - COMPLETE ALL PRIORITY 1 STPs, STPs AND AOPs BY DECEMBER 1992

BALTIMORE GAS AND ELECTRIC

X. SALTWATER PROJECT

- SYSTEM OVERHAUL
  - REPLACING ALL SALTWATER PIPING IN UNIT 1 SERVICE WATER HX ROOM
  - CLEAN, INSPECT AND REPAIR UNDERGROUND PIPING
  - CLEAN INTAKE STRUCTURE

BALTIMORE GAS AND ELECTRIC

XI. AFW PROJECT

- IMPROVE AFW SYSTEM RELIABILITY
  - ELIMINATE TURBINE OVERSPEED TRIP ON START-UP
  - REDUCE WEAR ON CHECK VALVES MS-103 AND MS-106
- ADD AIR OPERATED BYPASS VALVES AROUND STEAM INLET VALVES
  - COMPLETE ON UNIT 2
  - COMPLETE DURING 1992 OUTAGE ON UNIT 1
- RELOCATE EXISTING CHECK VALVES MS-103 AND MS-106 IN A HORIZONTAL RUN OF PIPE
  - COMPLETE ON UNIT 2
  - COMPLETE DURING 1992 OUTAGE ON UNIT 1

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XII. MOV PROJECT

SAFETY-RELATED MOTOR OPERATED VALVES

ENGINEERING	% PREPARED	% APPROVED
DIFFERENTIAL PRESSURE CALCS	100%	62%
THRUST CALCULATIONS	36%	19%

FIELD ACTIVITIES	% COMPLETED
ACTUATOR OVERHAULS	66%
FOUR TRAIN LIMIT SWITCH INSTALLATION	22%
STATIC DIAGNOSTIC TEST	17%
DIFFERENTIAL PRESSURE TESTS	4%

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XIII. DIESEL PROJECT STATUS

- ADDITION OF TWO 5,000 KW SAFETY-RELATED DIESELS
  - SELF-COOLED
  - PERMANENT TIE TO 4KV BUSS II AND 24
  - NEW SEISMIC AND TORNADO PROJECTED FUEL OIL TANKS
- MODIFY EXISTING SWING DIESEL 12 TO MEET ALTERNATE AG CRITERIA
- PROJECT TEAM ESTABLISHED
- TANDEM SACM DIESELS PURCHASED; DELIVERY SEPTEMBER 1993 AND JANUARY 1994
- ENGINEERING CONTRACTED TO BECHTEL
- BUILDING CONSTRUCTION TO START APRIL 1993
- ECD - BOTH DIESELS OPERABLE END OF 1995

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XIV. INDEPENDENT SPENT FUEL STORAGE INSTALLATION

- DESIGNED FOR 40-YEAR PLANT LIFE
  - SPACE FOR 120 STORAGE MODULES
- NUHOMS SYSTEM
  - REINFORCED HORIZONTAL STORAGE MODULES
  - FUEL CONFINED IN STAINLESS STEEL DRY SHIELDED CANISTER
  - 24 FUEL ASSEMBLIES IN EACH CANISTER
- CONSTRUCTION OF SITE AND 48 MODULES TO BE COMPLETE IN THIRD QUARTER OF 1992
  - REINFORCED CONCRETE MODULES 75 PERCENT COMPLETE
  - DELIVERY OF NEW AUX BUILDING CRANE IN MAY 1992
  - ON-SITE TRANSFER CASK, TRAILER AND ALIGNMENT SYSTEM HAS BEEN DELIVERED
- COMPLETION OF 48 MODULES WILL EXPAND STORAGE CAPACITY TO AT LEAST 2003

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XV. FLOODING DESIGN GUIDELINE MANUAL

- POTENTIAL FOR SIGNIFICANT NUCLEAR PLANT INTERNAL FLOODING IDENTIFIED BY INPO SIGNIFICANT OPERATING EXPERIENCE REPORT
- FLOOD DESIGN GUIDELINE MANUAL ISSUED
  - PROVIDES METHOD FOR EVALUATING FLOODING VULNERABILITY OF PLANT DESIGN CHANGES
  - VALIDATES EFFECTS OF FLOODING AT CCNPP AND ASSESSES VULNERABILITY OF SAFE SHUTDOWN SYSTEMS TO INTERNAL PLANT FLOODING EVENTS

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XVI. LIFE CYCLE MANAGEMENT

- LIFE CYCLE MANAGEMENT/LICENSE RENEWAL INTEGRATES ENGINEERING EFFORTS TO ESTABLISH TECHNICAL AND REGULATORY BASIS FOR SAFE, ECONOMICAL OPERATION UP TO AND BEYOND CURRENT LICENSED LIFETIME

- STATUS

  - COMPLEMENT OF 14 FILLED
  - ACTIVE IN INDUSTRY GROUPS
  - DEVELOPED SCREENING METHODOLOGY AND COMPONENT EVALUATION METHODOLOGY
  - AREAS CURRENTLY BEING ADDRESSED
    - RCS/SGs
    - SALTWATER SYSTEM
    - COMPRESSED AIR SYSTEMS
    - CONTROL ROOM HVAC
    - REACTOR PRESSURE VESSEL

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XVII. REACTOR VESSEL EMBRITTLEMENT

- TECHNICAL STATUS
  - UNIT 1 ESTIMATED TO EXCEED SCREENING LIMIT AS SOON AS 1999 (2005 WITH NEW CORE DESIGN)
  - UNIT 2 IS NOT EXPECTED TO EXCEED SCREENING LIMIT
  - EXPECT UNIT 1 TO BE NEXT PLANT TO BE REVIEWED BY NRC
- RV ENGINEERING WORK GROUP ESTABLISHED AND STAFFED
  - ASSESSING IMPLICATION OF YANKEE ROWE AND PALISADES SITUATIONS
  - DEVELOPED PTS ACTION PLAN
    - PREPARE FOR NRC QUESTIONS
    - WORKING WITH McGUIRE TO COORDINATE SURVEILLANCE CAPSULE EFFORTS
    - DEVELOP DECISION TREE MODEL
      - LOW FLUENCE CORE DESIGNS
      - SHIELDING
      - ANNEALING
      - RG 1.154 ANALYSIS

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XVIII. PROBABILISTIC RISK ASSESSMENT

- STATUS
  - LEVEL 1 POINT QUANTIFICATION WITH GENERIC DATA - COMPLETED DECEMBER 1991
  - LEVEL 1 QUANTIFICATION WITH PLANT SPECIFIC DATA - MARCH 1992
    (IN PROGRESS OF REMOVING CONSERVATISMS/ADDING RECOVERY ACTIONS)
  - LEVEL 1 QUANTIFICATION WITH PLANT SPECIFIC DATA AND UNCERTAINTY ANALYSIS - COMPLETED SECOND QUARTER 1992
  - LEVEL 2 QUANTIFICATION WITH UNCERTAINTY ANALYSIS - SECOND QUARTER 1992
  - NRC SUBMITTAL - SEPTEMBER 1992
- APPLICATIONS
  - ANALYSES USING PRA TECHNIQUES
    - EVALUATION OF THE CORE MELT FREQUENCY AS IMPACTED BY THE EMERGENCY DIESEL GENERATOR DAY TANK VOLUME

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XVIII. PROBABILISTIC RISK ASSESSMENT

- EVALUATION OF THE INCREASE IN RISK DUE TO EXTENDING THE LOCAL LEAK RATE TEST FOR PENETRATION 41
- EVALUATION OF THE CHANGE IN 4KV BUS RELIABILITY RESULTING FROM THE PROPOSED ADDITION OF DIESEL GENERATORS
- EVALUATION OF THE SALTWATER SYSTEM HEAT EXCHANGER MAINTENANCE FREQUENCY
- RISK EVALUATION OF THE LPSI PUMP SEALS

- APPLICATIONS IN DEVELOPMENT
  - DEVELOPMENT OF A COMPONENT IMPORTANCE RANKING
  - MERGER OF RELIABILITY-CENTERED MAINTENANCE WITH PRA (GREATER MODEL DETAIL, FRONT-END FAILURE MODES AND EFFECTS ANALYSIS)
  - DEVELOPMENT OF A LIVING PRA PROCESS (IN-HOUSE MODELING, DATA COLLECTION COORDINATION WITH NPRDS, SAFETY SYSTEM PERFORMANCE INDICATORS [SSPIs] AND DIESEL GENERATOR RELIABILITY PROGRAM)

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XIX. EDSFI/DESIGN BASIS

- COMPLETED INTERNAL EDSFI AUDIT 91-01
  - 13 FINDINGS (11 HAVE BEEN RESOLVED)
  - 20 RECOMMENDATIONS (15 HAVE BEEN IMPLEMENTED)
- CREATED EDSFI PROJECT WITHIN THE DESIGN BASIS UNIT
- PREPARED EDSFI PROJECT PLAN
  - SPECIFIC DEFICIENCY RESOLUTIONS (AUDIT 91-01)
  - PROGRAM DEFICIENCY RESOLUTION
  - DESIGN BASIS DEFICIENCY CORRECTION
  - NRC EDSFI PREPARATION
- DEVELOPED DESIGN BASIS MATRIX CONCEPT
  - RELATES DESIGN BASIS TO IMPLEMENTING DOCUMENTS
  - COVERS BROAD SPECTRUM OF PLANT REQUIREMENTS
  - MEETS NUMARC 90-12 OBJECTIVES
  - MEETS NEAR-TERM PLANT NEEDS
- INITIATED DESIGN BASIS MATRIX PILOT PROJECT ON EDG SYSTEM
  - FEEDBACK TO DATE HAS BEEN POSITIVE

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XX. SUMMARY

- THE ENGINEERING ORGANIZATION IS STABLE AND EFFECTIVE
- COMMUNICATION BETWEEN THE THREE ENGINEERING GROUPS AND WITH OPERATIONS IS OPEN AND EFFECTIVE.
- PROCEDURES HAVE BEEN IMPROVED AND AN AMBITIOUS PROCEDURE UPGRADE PROCESS IS UNDERWAY.
- ENGINEERING WORKLOAD IS CLEARLY IDENTIFIED, TRACKED, AND AGGRESSIVELY BEING COMPLETED.
- COMPREHENSIVE PROJECTS ARE UNDERWAY TO IMPROVE THE QUALITY OF DRAWINGS AND VENDOR TECHNICAL MANUALS.
- MAJOR ENGINEERING PROJECTS ARE UNDERWAY TO IMPROVE THE PHYSICAL PLANT.
- ENGINEERING RESOURCES HAVE BEEN DEDICATED TO ENSURE THE LONG-TERM SAFETY, RELIABILITY AND AVAILABILITY OF THE PLANT.
- A BROAD SELF-ASSESSMENT PROCESS IS IN PLACE TO ENSURE THAT ENGINEERING WILL CONTINUE TO IMPROVE.