NOV 19 1990

Docket Nos. 50-390, 50-391
License Nos. CPPR-91, CPPR-92

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dear Mr. Kingsley:

SUBJECT: SUMMARY OF OCTOBER 3, 1990 TVA/NRC MEETING ON WATTS BAR

This letter refers to the meeting held on October 3, 1990, at the Watts Bar Nuclear Plant in Spring City, Tennessee. The purpose of the meeting was to discuss an overview, general plant status, special topics, and items from a previous meeting at TVA's Watts Bar Nuclear Plant. A list of attendees, a summary of the meeting, and a copy of your handout are enclosed.

In accordance with Section 2.790 of the NRC's "Rules of Practice, " Part 2, Title 10, Code Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this matter, please contact us.

Sincerely,

ORIGINAL SIGNED BY
KENNETH P. BARR

Bruce A. Wilson, Chief
TVA Projects

Enclosures:
1. List of Attendees
2. Meeting Summary
3. Handout

cc w/encls: (See page 2)

9012050075 901119
PDR ADOCK 05000390
A PDC

IE01

cc w/encls:
M. Runyon, Chairman
Tennessee Valley Authority
ET 12A 7A
400 West Summit Hill Drive
Knoxville, TN 37902

Director
Tennessee Valley Authority
ET 12A 11A
400 West Summit Hill Drive
Knoxville, TN 37902

J. B. Waters, Director
Tennessee Valley Authority
ET 12A 9A
400 West Summit Hill Drive
Knoxville, TN 37902

W. F. Willis
Chief Operating Officer
ET 12B 16B
400 West Summit Hill Drive
Knoxville, TN 37902

D. Nunn, Vice President
Nuclear Projects
Tennessee Valley Authority
400 West Summit Hill Drive
WT 12A 12A
Knoxville, TN 37902

J. H. Garrity
Vice President, Watts Bar Site
Watts Bar Nuclear Plant
P. O. Box 800
Chattanooga, TN 37402-2801

Dr. M. O. Medford
Vice President, Corporation Nuclear
Assurance, Licensing, and Fuels
Tennessee Valley Authority
6N 38A Lookout Place
Chattanooga, TN 37402-2801

Honorable Johnny Powell
County Judge
Meigs County Courthouse
Route 2
Decatur, TN 37322

Dr. Henry Myers, Science Advisor
Committee on Interior and
Insular Affairs
U. S. House of Representatives
Washington, D. C. 20515

Honorable Robert Aikman
County Judge
Rhea County Courthouse
Dayton, TN 37321

E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs
Tennessee Valley Authority
5N 157B Lookout Place
Chattanooga, TN 37402-2801

R. J. Stevens
Site Licensing Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P. O. Box 800
Spring City, TN 37381

TVA Representative
1191 Rockville Pike
Suite 402
Rockville, MD 29852

General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
ET 11B 33H
Knoxville, TN 37902

Michael H. Mobley, Director
Division of Radiological Health
T.E.R.R.A. Building, 6th Floor
150 -9th Avenue North
Nashville, TN 37247-3201

State of Tennessee

bcc w/encls: (See page 3)

bcc w/encls:
S. D. Ebneter, RII
S. Black, NRR
K. P. Barr, TVAP/RII
J. Rutberg, OGC
M. S. Callahan, GPA/CA
A. R. Long, TVAP/RII
G. C. Lainas, NRR
H. H. Livermore, TVAP/RII
F. J. Hebdon, NRR
P. S. Tam, NRR
Document Control Desk
DRP Section Chief

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 700
Spring City, TN 37381

TVA/RII	TVA/RII
HLivermore:vyg	KBarr
11/7/90	11/15/90

ENCLOSURE 1

ATTENDEES

TVA/NRC MEETING

OCTOBER 3, 1990

Nuclear Regulatory Commission:

K. P. Barr, Watts Bar Section Chief, TVA/RII
M. W. Branch, Watts Bar Senior Resident Inspector, TVA/RII
S. D. Ebneter, Regional Administrator, RII
F. J. Hebdon, Director, Project Directorage IV, NRR
G. C. Lainas, Assistant Director., RII Reactors
H. H. Livermore, Senior Project Engineer, TVA/RII
T. E. Murley, Director, NRR
J. G. Partlow, Associate, Director Projects for Inspection & Tech, Assistant, Reactor Projects - I/II
J. E. Richardson, Director, Engineering Tech
W. T. Russell, Director Projects for Inspection & Tech. Assistant, Reactor Projects - I/II
A. C. Thadani, Director, System Tech.
S. A. Varga, Division Director, Reactor Projects, I/II
B. A. Wilson, Chief, TVA Projects, TVA/RII

Tennessee Valley Authority:

K. W. Brown, Sr. Electrical Engineer
R. M. Bellamy, Project Manager
M. C. Brickey, Lead Electrical Engineer
W. R. Cobean, Jr., Advisor to TVA Board
S. W. Crowe, Site Quality Manager
D. E. Douthit, Program Manager
G. H. Eban, Technical Director., APTECH
W. L. Elliott, New Projects Engineering Manager
E. Fuller, Chairman, Program Team
J. H. Garrity, Vice President, WBN Site
R. L. George, Manager, Special Projects
J. D. Hutson, Chief, Electrical Engineer
M. K. Jones, Manager, Test and Startup
O. D. Kingsley, Senior Vice President, Nuclear Power
J. A. McDonald, Manager, Special Projects
M. O. Medford, Vice President, Nuclear Technology and Licensing
C. L. Nolan, Manager, Construction
D. E. Nunn, Vice President, Nuclear Projects
J. A. Scalice, Plant Manager
R. J. Stevens, Manager, Site Licensing
E. G. Wallace, Manager, Nuclear Licensing
T. R. Woods, Manager, Materials Engineering

ENCLOSURE 2

MEETING SUMMARY

Mr. Murley, The Director of NRR for the Nuclear Regulatory Commission opened the meeting by stating his purpose was to become more familiar with Watts Bar, and to provide support to Mr. Ebneter, RII Administrator. He stated that RII has the main focus of Quality at the plant, while NRR is the interpreter of issues and ultimately signs the WBN fuel load license.

Mr. Ebneter stated that TVA must assure that all systems are repaired and TVA must demonstrate the adequacy of design and construction by records prior to fuel load. Mr. Ebneter further stated that TVA must, in actuality, be ready for an NRC inspection when they say they are. Poor preliminary planning will waste manpower.

Mr. S. Crowe of TVA stated that Quality Control is monitoring on going work, and is working with Engineering in order to identify all post 1985 discovery work. He stated TVA will "do it right the first time."

Mr. Fuller, of the Program Team, stated TVA has a good grip on the problems and issues, and knows "where we are."

Mr. Russell of NRR wanted to know if the TVA CAPs validated, by examples, the findings of the Vertical Slice Review (VSR). Would the process have discovered it? TVA stated they intended to do another VSR prior to the scheduled NRC VSR in October 1991.

Mr. Murley requested that TVA sort through the TVA FSAR submittal issues and identify the significance of each, and which are trivial or substantive. NRR needs this information in order to prioritize their work. Mr. Murley stated that TVA will be notified as to the current status of NRR criteria reviews.

Mr. Murley presented some concerns in regard to TVAs implementation of a MIC Program:

- TVA should consider the need to look at existing (old) systems for MIC and not wait until it appears at some later date.

- TVA may need a procedure identifying systems to be looked at, and check sheet signoffs recording same.

Mr. Murley was not sure that TVA had addressed the full scope of the MIC problem.

In regards to records, TVA stated they have reviewed 1300 of 3 million records. They found 2000 discrepancies. Their analysis indicates a 95% confidence that 98% of the total record population is satisfactory. TVA ceased their record review based on these results. TVA briefly discussed

the findings presented in NRC Inspection Report 50-390/90-08 concerning missing records. TVA questioned whether they were responsible to identify each individual missing record, and were they expected to address each missing record.

Mr. Nunn of TVA stated that as long as the N-5 review is complete, TVA does not have to worry about a missing record.

Mr. Murley stated that NRC will review TVA's position on QA records and will respond by letter.

Mr. Medford of TVA discussed the status of the Westinghouse improved Technical Specification. He stated that TVA submitted the drafts in April and that NRR reviews are 1 1/2 months behind schedule (due April 1991). TVA is writing procedures on an "at-risk" basis. Mr. Murley of NRR stated that the schedule due date of April 1991 would be met.

In the area of old items, Mr. Kingsley of TVA summed up the meeting by stating that TVA will reassess the priority of all commitments and inform the NRC. He also noted that the snubber refurbishment program will be completed before fuel load.

In the category of new items, Mr. Kingsley stated that TVA will provide the NRC with details on how TVA plans to meet Ice Condenser operability requirement for Watts Bar. He also noted that TVA will: provide the NRC with the status on MIC discovery; provide status of where TVA stands on Bulletins and Generic Letters; and provide information on physical retrievability of calculation records. Mr. Kingsley also noted that a meeting with NRC was necessary to resolve issues on QA Records and to present TVA's program to show that verification of discovery is complete.

Mr. Murley reiterated that NRC would provide TVA further clarification on the QA Records issue.

A preselected number of attendees continued the meeting with a discussion of TVA's implementation of the recommendations contained in the Cobean Report. TVA has made considerable progress in developing and implementing an action plan for each recommendation contained in the report. The staff will continue to monitor TVA's activities related to Intimidation and Harassment complaints.

The next management meeting will be open to interested members of the public and will be held on November 14, 1990.

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT
UNIT 1

PRESENTATION TO:

NUCLEAR REGULATORY COMMISSION

OCTOBER 3, 1990

TVA/NRC MEETING
WATTS BAR NUCLEAR PLANT
OCTOBER 3, 1990

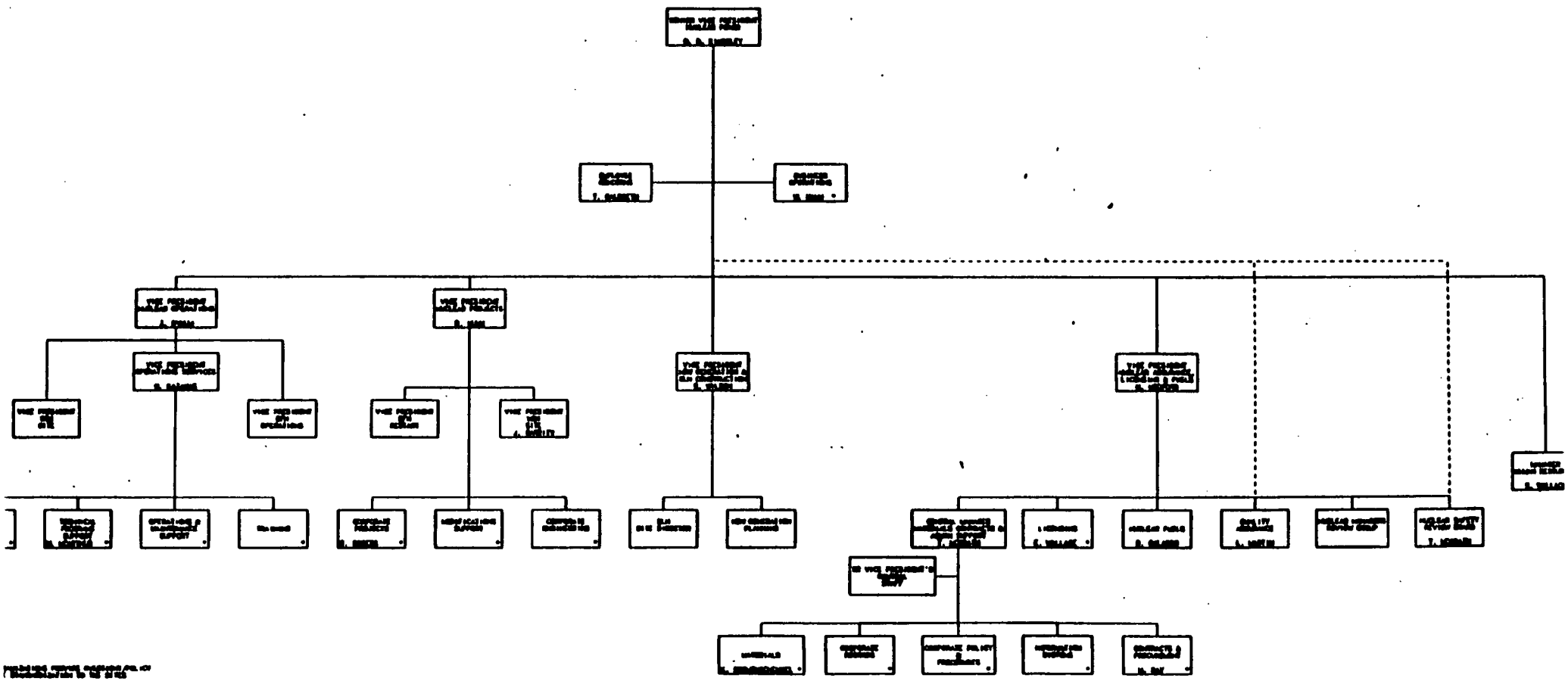
AGENDA

OPENING REMARKS	O. D. KINGSLEY T. E. MURLEY S. D. EBNETER
INTRODUCTION/OVERVIEW	J. H. GARRITY
WATTS BAR ORGANIZATION	
LICENSING	
HARDWARE STATUS	
SCHEDULE	
GENERAL PLANT STATUS	
CORRECTIVE ACTION PROGRAMS/ SPECIAL PROGRAMS	R. L. GEORGE E. D. FULLER
COMPLETION ACTIVITIES	R. L. GEORGE
PLANT OPERATIONS	J. A. SCALICE
BREAK	
TEST STATUS	M. K. JONES
SPECIAL TOPICS	
CABLE TESTING	W. L. ELLIOTT
MATERIAL ISSUES	R. M. BELLAMY
CERTIFICATION PROCESS	J. H. GARRITY
STATUS OF ITEMS FROM PREVIOUS MEETING	
QA ACTIVITIES	S. W. CROWE
IMPROVED WORK CONTROLS	C. L. NOLAN
QA RECORDS/CRITICAL CASE	R. L. GEORGE
CERTIFICATION OF CALCULATIONS	
SUMMARY	

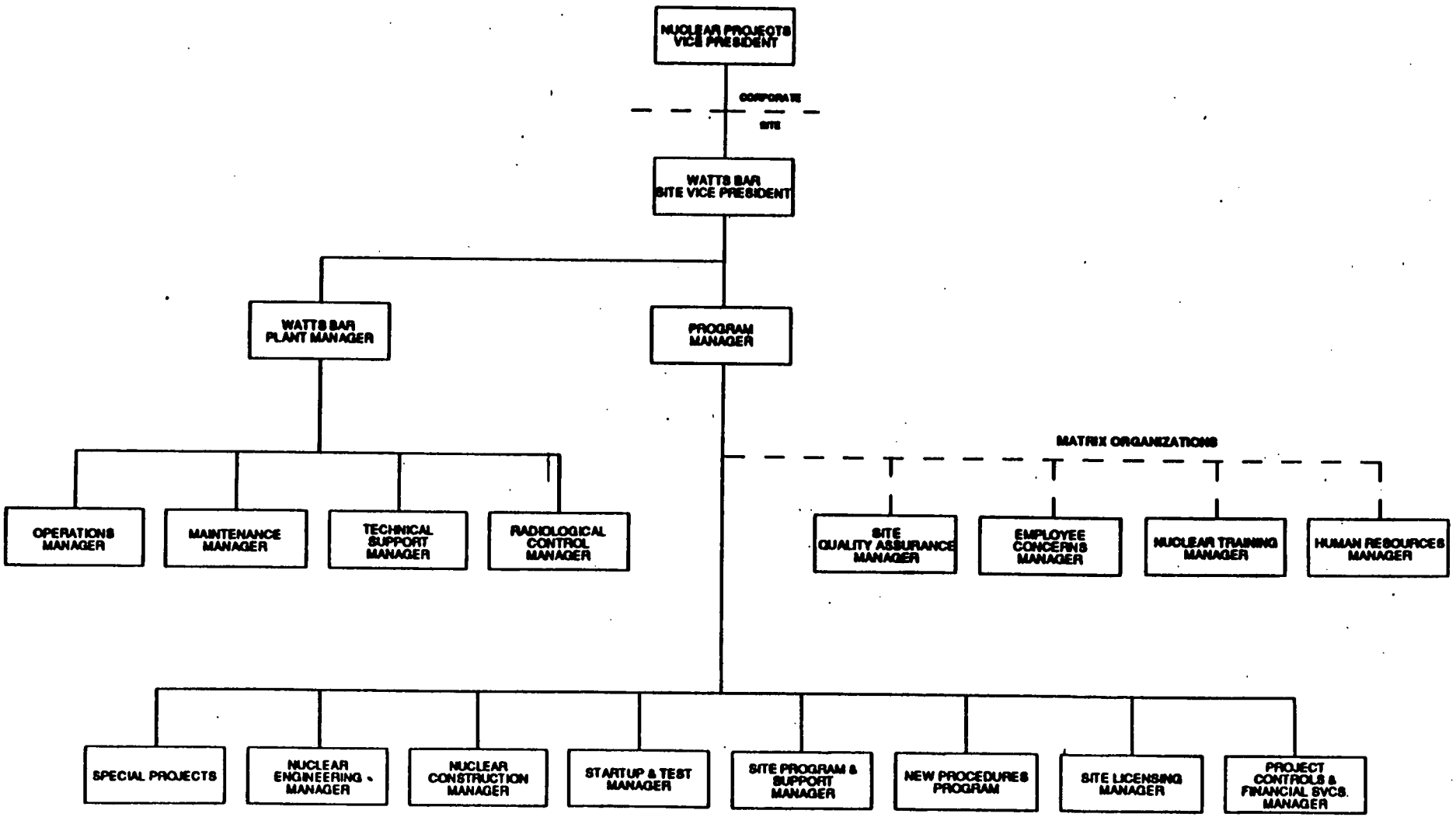
PRESENTATIONS BY:

O. D. KINGSLEY, SENIOR VICE PRESIDENT-NUCLEAR
J. H. GARRITY, WATTS BAR SITE VICE PRESIDENT
R. L. GEORGE, MANAGER-SPECIAL PROJECTS
E. D. FULLER, CHAIRMAN-PROGRAM TEAM
J. A. SCALICE, WATTS BAR PLANT MANAGER
M. K. JONES, STARTUP & TEST MANAGER
W. L. ELLIOTT, NUCLEAR ENGINEERING MANAGER
R. M. BELLAMY, PROJECT MANAGER
S.W. CROWE, SITE QUALITY ASSURANCE MANAGER
C. L. NOLAN, NUCLEAR CONSTRUCTION MANAGER

NUCLEAR POWER ORGANIZATION CHART

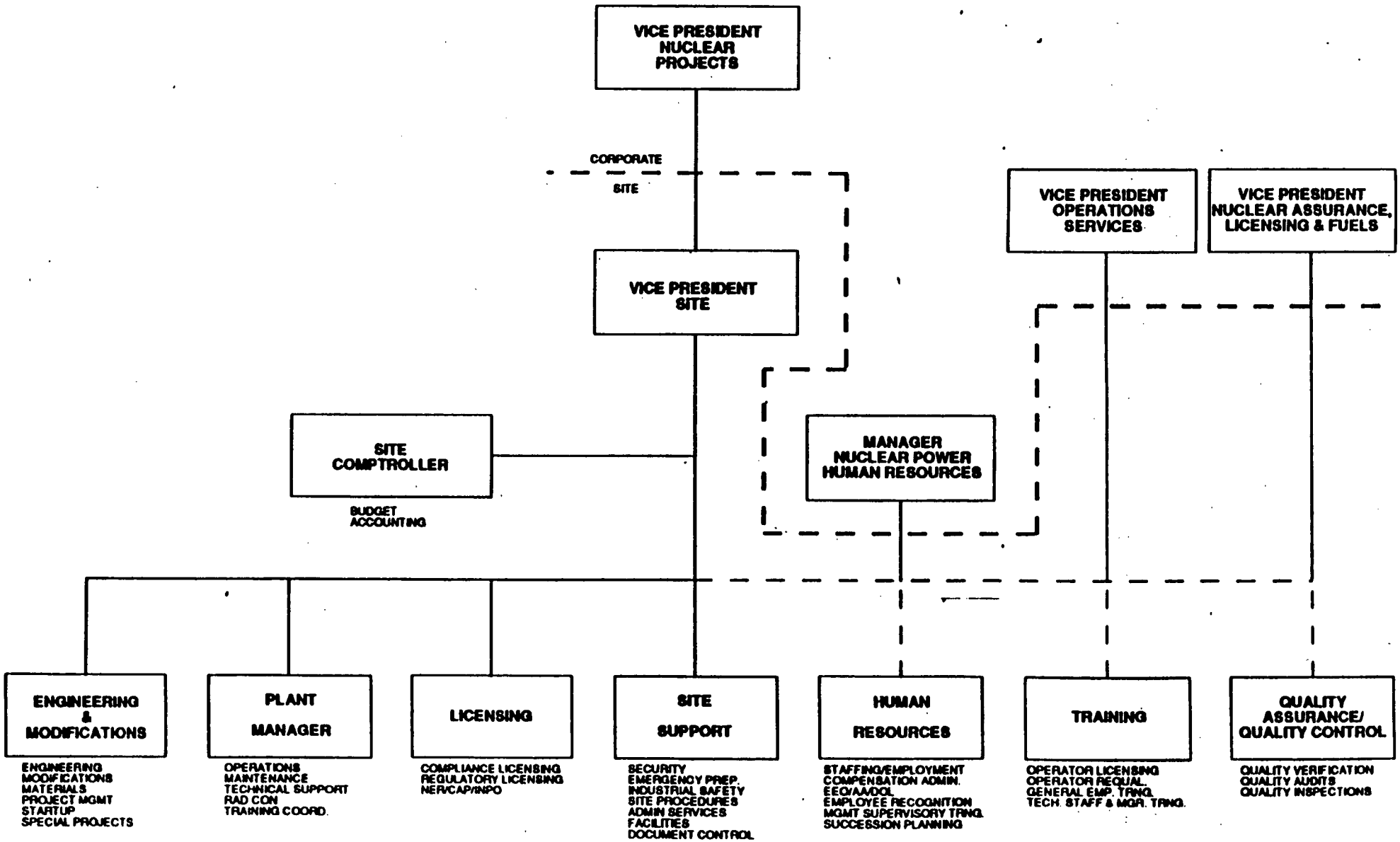


WATTS BAR NUCLEAR PROJECT ORGANIZATION CHART



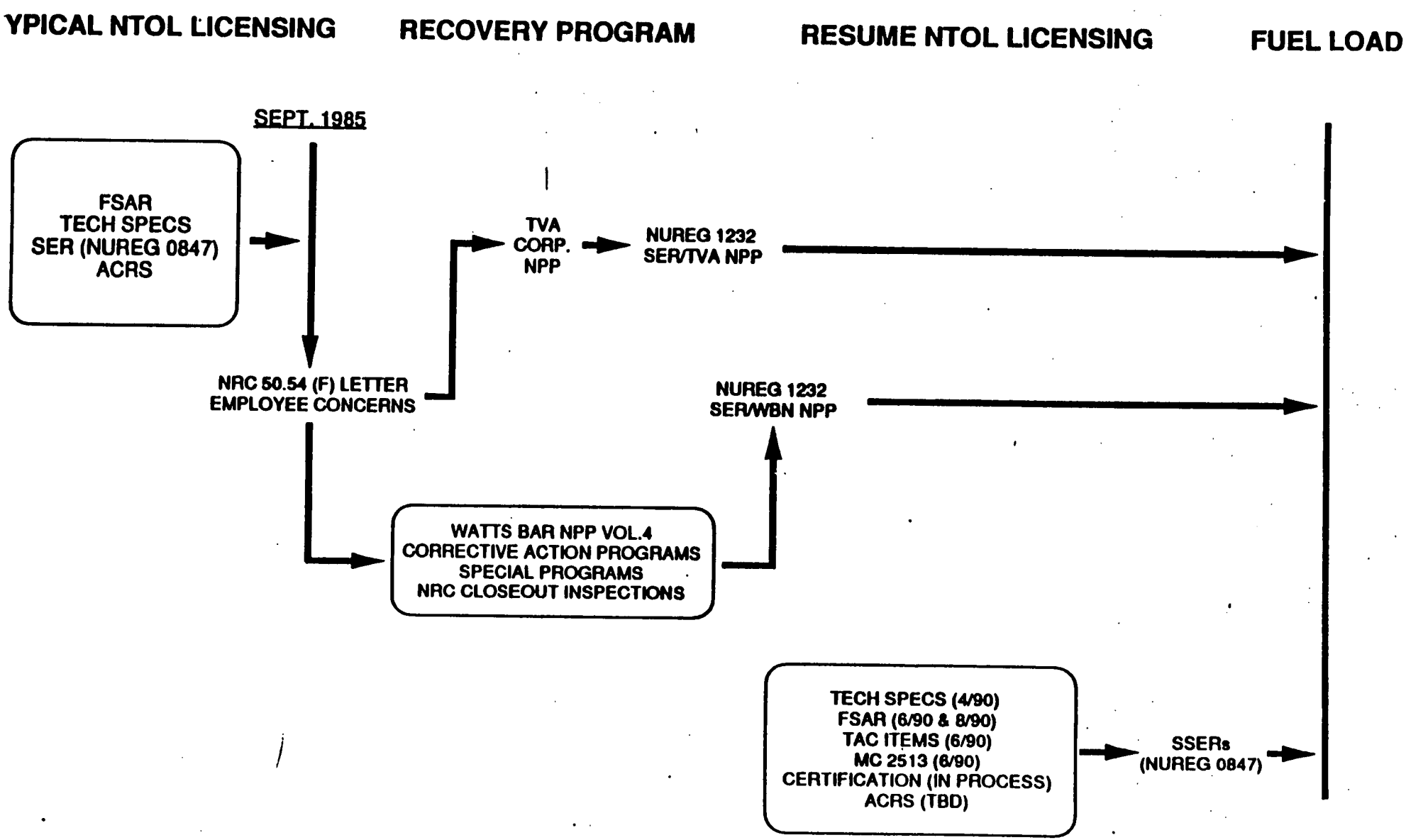
OCTOBER 1990

WATTS BAR SITE ORGANIZATION CHART



OCTOBER 1990

WBN LICENSING



WBN HARDWARE

1985 | 1991

ORIGINAL CONSTRUCTION

DESIGN
BULK CONSTRUCTION
PRETURNOVER TEST
TURNOVER
PREOP TEST
OPS

RECOVERY PROGRAM

CAPs/SPs
DISCOVERY
WALKDOWNS
ANALYSIS
MODS/REPAIRS
DOC/RECORDS

SYSTEM RECOMPLETION

PRESTART TESTING
SYSTEM TURNOVER
TS OPERABILITY
MAINTENANCE/PM
INTEGRATED TESTING

FUEL LOAD

SYSTEMS

OPERATIONAL

SYSTEMS

OPERATING
SHUTDOWN
LAYUP

SYSTEMS

OPERATIONAL

WBN SCHEDULE

CURRENT SITUATION

10/01/91 FUEL LOAD TARGET
DISCOVERED WORK 1990
NOW SEVERAL MONTHS OFF TARGET

INTEGRATED SCHEDULE

SYSTEMS FOCUS
ALL KNOWN WORK
LOGIC TIES
PERMIT RESOURCE LOADING AND SMOOTHING
EXPECT REVISED SCHEDULE IN NOVEMBER

RISKS

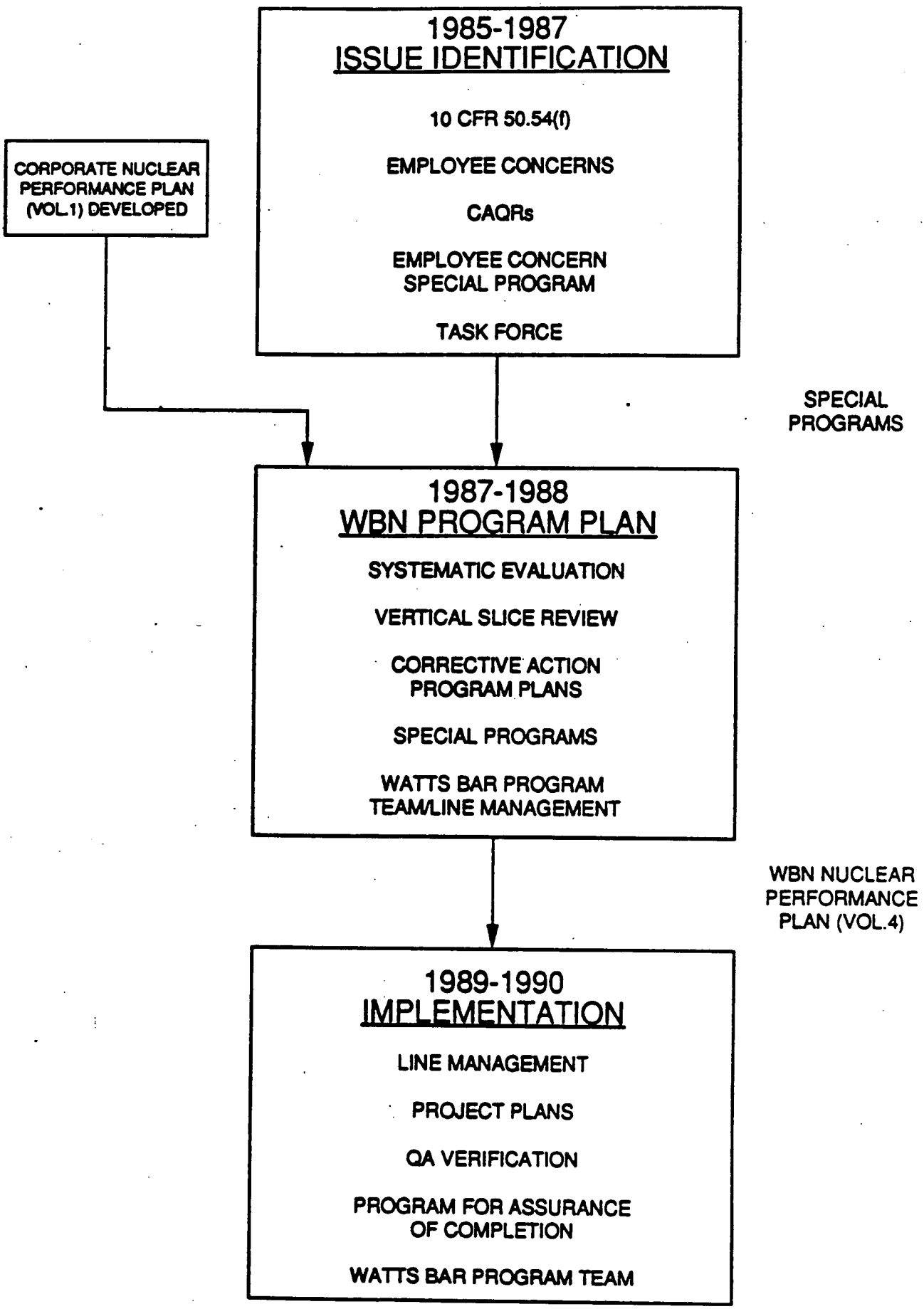
ISSUES
- ELECTRICAL
- CIVIL
- QA RECORDS
- CALCULATIONS

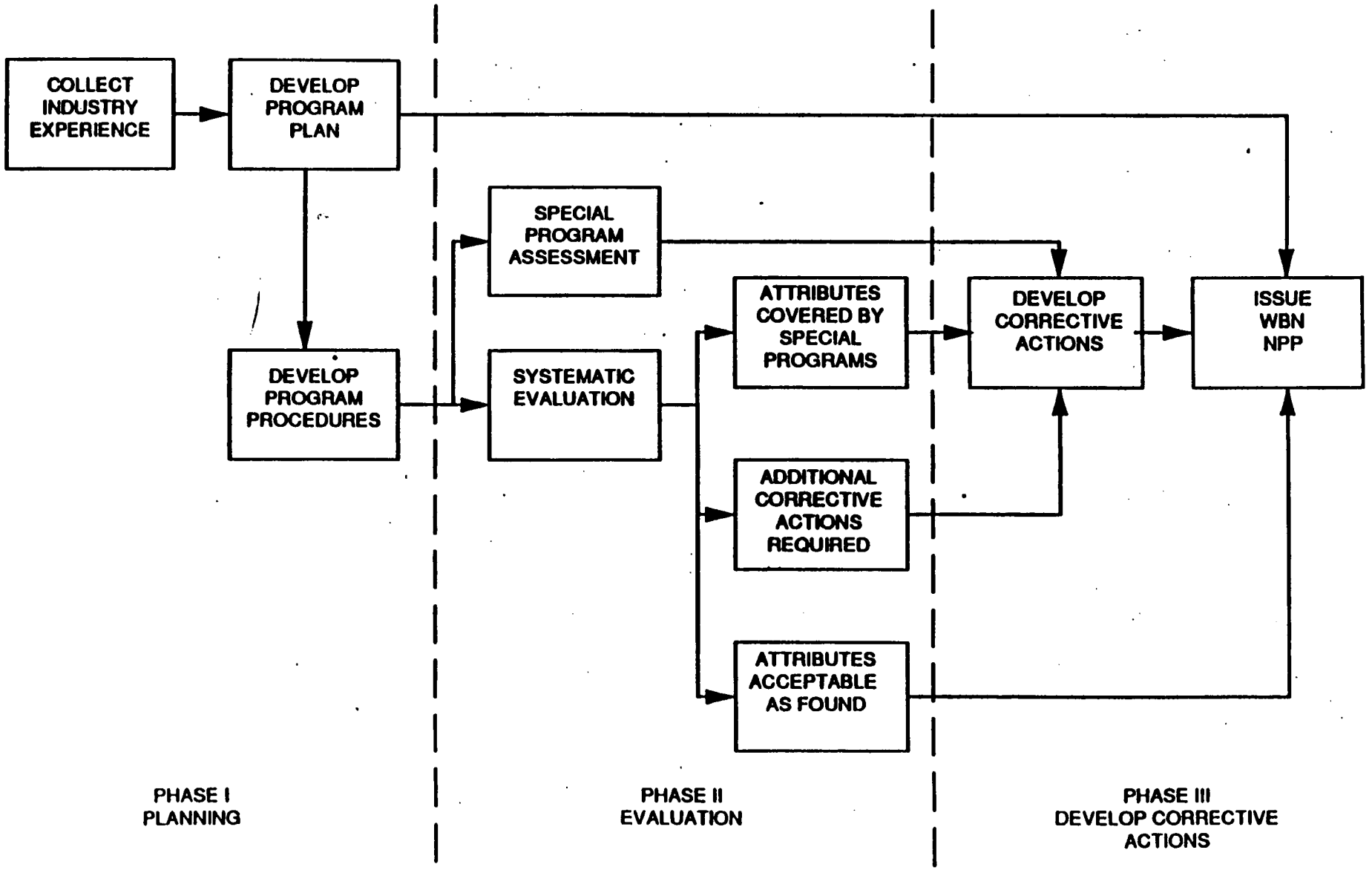
RESOURCES
- DESIGN AND FIELD ENGINEERING
- LABOR FORCE

CLOSURE OF ISSUES

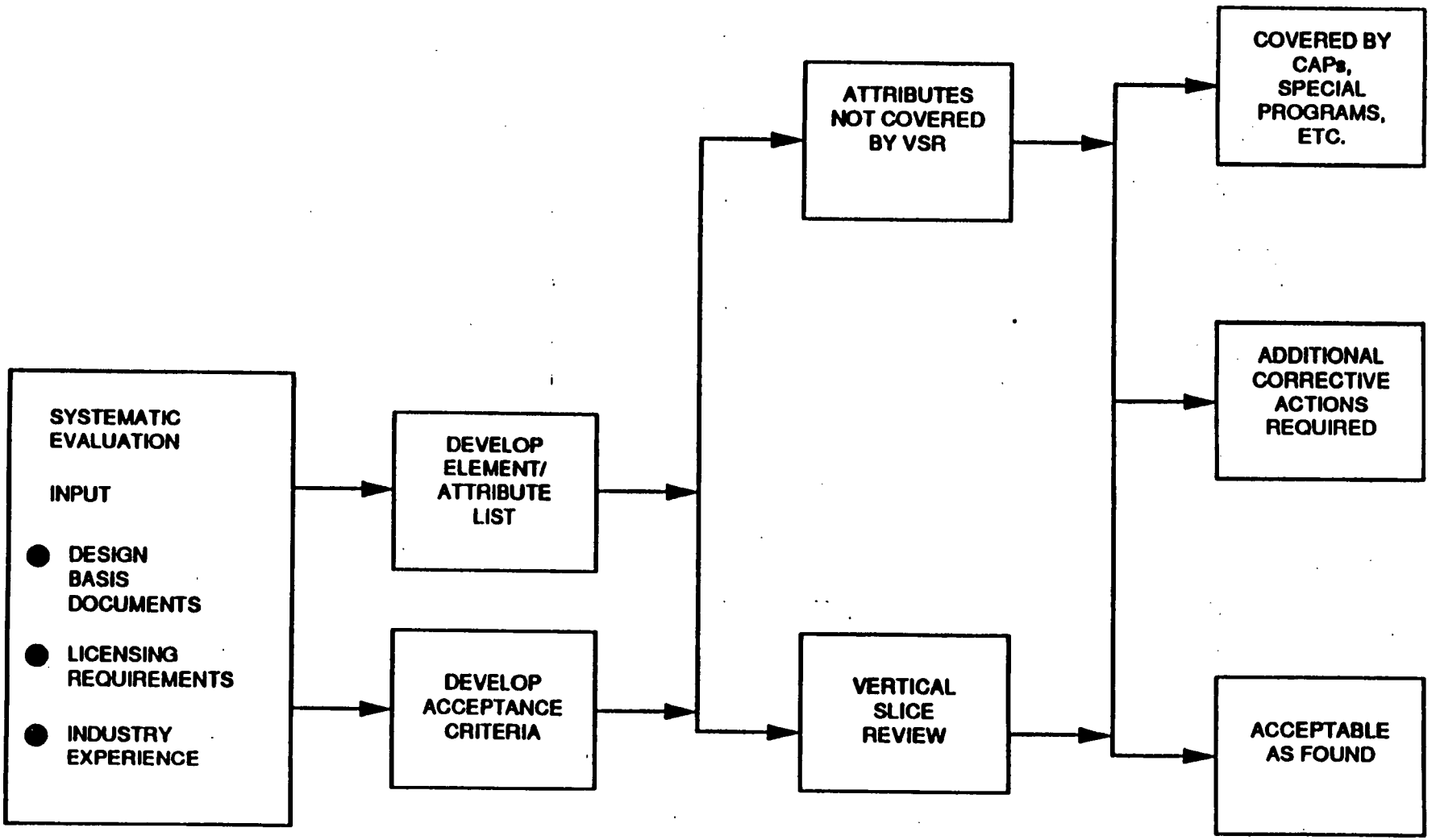
NRC TURNAROUND AND FLEXIBILITY

WBN RECOVERY PROGRAM

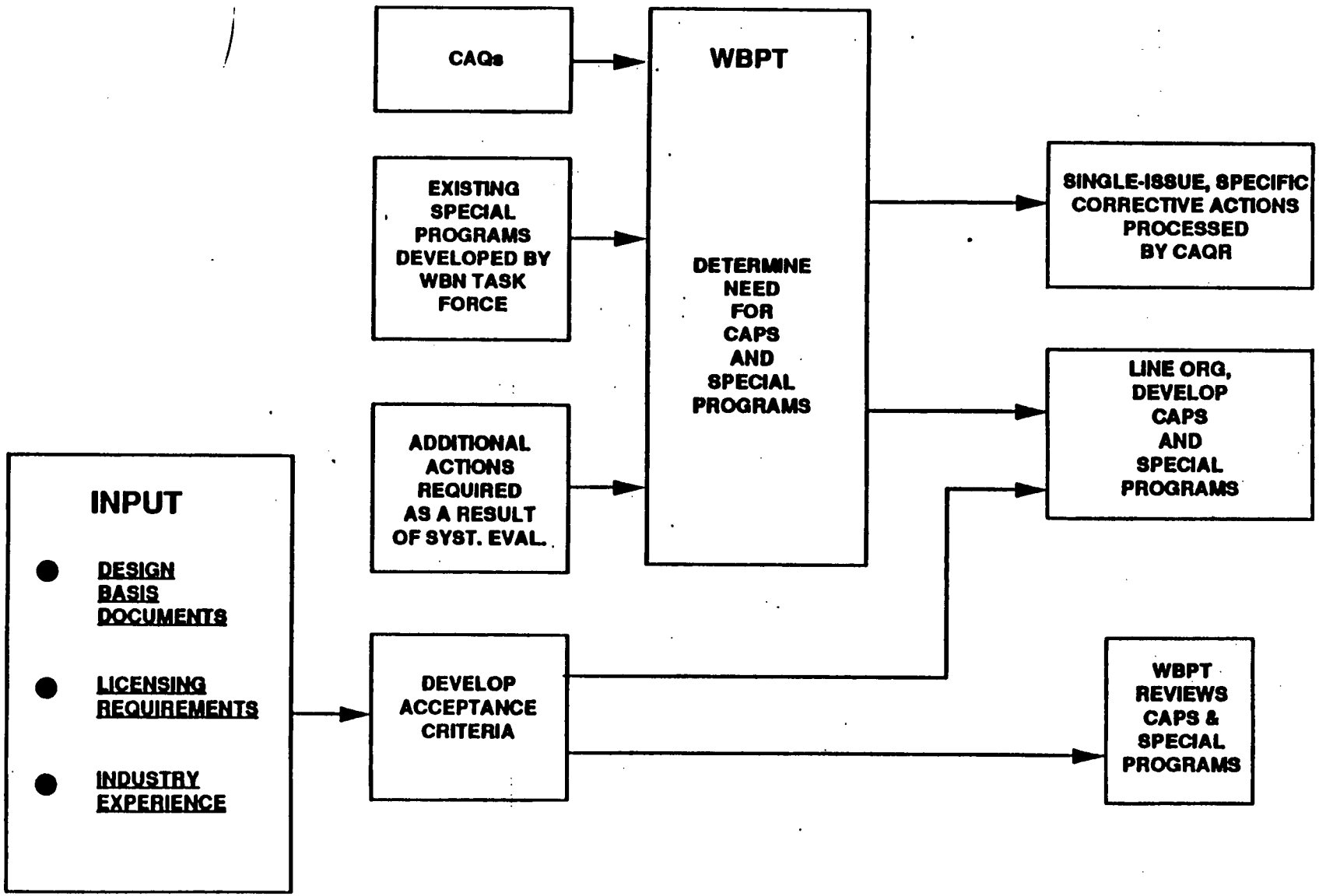




WATTS BAR PROGRAM PLAN



SYSTEMATIC EVALUATION PROCESS



EVALUATION OF CORRECTIVE ACTIONS AND DEVELOPMENT OF CAPS AND SPECIAL PROGRAMS

CAPS AND SPECIAL PROGRAMS (JUNE 1989)

	PROGRAM APPROVED	CRITERIA SUBMITTED	DISCOVERY ESSENTIALLY COMPLETE	ENGINEERING PROGRESSING	CONSTRUCTION PROGRESSING	PROGRAM COMPLETE
CORRECTIVE ACTION PROGRAMS						
- CABLE ISSUES						
- CABLE TRAY AND CABLE TRAY SUPPORTS						
- DESIGN BASELINE AND VERIFICATION PROGRAM				X	X	
- ELECTRICAL CONDUIT AND CONDUIT SUPPORT				X	X	
- ELECTRICAL ISSUES						
- EQUIPMENT SEISMIC QUALIFICATION						
- FIRE PROTECTION						
- HANGER AND ANALYSIS UPDATE PROGRAM						
- HEAT CODE TRACEABILITY			X	X		
- HVAC DUCT AND DUCT SUPPORTS						
- INSTRUMENT LINES			X	X		
- PRESTART TEST PROGRAM			X	X		
- QA RECORDS				X	X	
- Q-LIST			X			
- REPLACEMENT ITEMS PROGRAM (PIECE PARTS)			X		X	
- SEISMIC ANALYSIS			X	X	X	
- VENDOR INFORMATION					X	
- WELDING				X		
SPECIAL PROGRAMS						
- CONCRETE QUALITY PROGRAM			X	X	X	
- CONTAINMENT COOLING			X			
- DETAILED CONTROL ROOM DESIGN REVIEW			X	X		
- ENVIRONMENTAL QUALIFICATION PROGRAM			X			
- MASTER FUSE LIST			X			
- MECHANICAL EQUIPMENT QUALIFICATION					X	
- MICROBIOLOGICALLY INDUCED CORROSION					X	
- MODERATE ENERGY LINE BREAK FLOODING						
- RADIATION MONITORING SYSTEM						
- SOIL LIQUIFACTION			X	X	X	
- USE-AS-IS CAQS				X	X	

CAPS AND SPECIAL PROGRAMS (SEPTEMBER 30, 1990)

	PROGRAM APPROVED	CRITERIA SUBMITTED	DISCOVERY ESSENTIALLY COMPLETE	ENGINEERING PROGRESSING	CONSTRUCTION PROGRESSING	PROGRAM COMPLETE
CORRECTIVE ACTION PROGRAMS						
- CABLE ISSUES		X		X	X	
- CABLE TRAY AND CABLE TRAY SUPPORTS	X	X	X	X		
- DESIGN BASELINE AND VERIFICATION PROGRAM	X	X		X	N/A	
- ELECTRICAL CONDUIT AND CONDUIT SUPPORT	X	X	X	X	X	
- ELECTRICAL ISSUES	X	X	X	X	X	
- EQUIPMENT SEISMIC QUALIFICATION	X	X	X	X	X	
- FIRE PROTECTION	X	X	X	X	X	
- HANGER AND ANALYSIS UPDATE PROGRAM	X	X	X	X	X	
- HEAT CODE TRACEABILITY	X	X	X	X	X	X
- HVAC DUCT AND DUCT SUPPORTS	X	X	X	X	X	
- INSTRUMENT LINES	X	X	X	X	X	
- PRESTART TEST PROGRAM	X	X	N/A	N/A	N/A	
- QA RECORDS	X	X		N/A	N/A	
- Q-LIST	X	X	N/A	X	X	
- REPLACEMENT ITEMS PROGRAM (PIECE PARTS)	X	X	N/A	X	N/A	
- SEISMIC ANALYSIS	X	X	X	X	N/A	
- VENDOR INFORMATION	X	N/A		X	N/A	
- WELDING	X	X	X	X	X	
SPECIAL PROGRAMS						
- CONCRETE QUALITY PROGRAM	X	X	X	X	N/A	X
- CONTAINMENT COOLING	X	X	X	X	X	
- DETAILED CONTROL ROOM DESIGN REVIEW	X	N/A	X	X	X	
- ENVIRONMENTAL QUALIFICATION PROGRAM	X	X	X	X	X	
- MASTER FUSE LIST	X	X	X	X	X	
- MECHANICAL EQUIPMENT QUALIFICATION	X	X		X	N/A	
- MICROBIOLOGICALLY INDUCED CORROSION	X	X		X	X	
- MODERATE ENERGY LINE BREAK FLOODING	X	N/A	X	X	X	
- RADIATION MONITORING SYSTEM	X	N/A	X	X		
- SOIL LIQUIFACTION	X	X	X	X	N/A	X
- USE-AS-IS CAQS	N/A	X	X	X	N/A	X

COMMODITY INSTALLATION
(Quantities Are Rounded)

COMMODITY	FY 89	OCT–JULY	INSTALLATION RATE AUGUST	REMAINING	TOTAL
Cable (LF) (87,600)*	14,000	876,000	141,000	815,000	1,850,000
Splices (EA) (1,270)*	850	12,700	980	12,000	26,000
Terminations (EA) (4,400)*	1,950	47,300	4,460	46,700	100,000
Conduit (LF) (5,000)*	3,950	50,000	6,260	68,900	129,000
Conduit Supports (EA) (440)*	500	4,410	570	5,460	10,900
Large Bore Hangers (EA) (110)*	350	1,100	170	2,370	4,000
Small Bore Hangers (EA)	0	0	0	1,000	1,000
Tubing (LF) (780)*	3,600	7,780	2,060	10,200	38,000
Tubing Supports (EA) (700)*	2,700	7,040	1,190	7,870	23,800
Cable Tray Supports (1)*	0	10	0	165	175
HVAC Supports (10)*	0	80	15	415	510

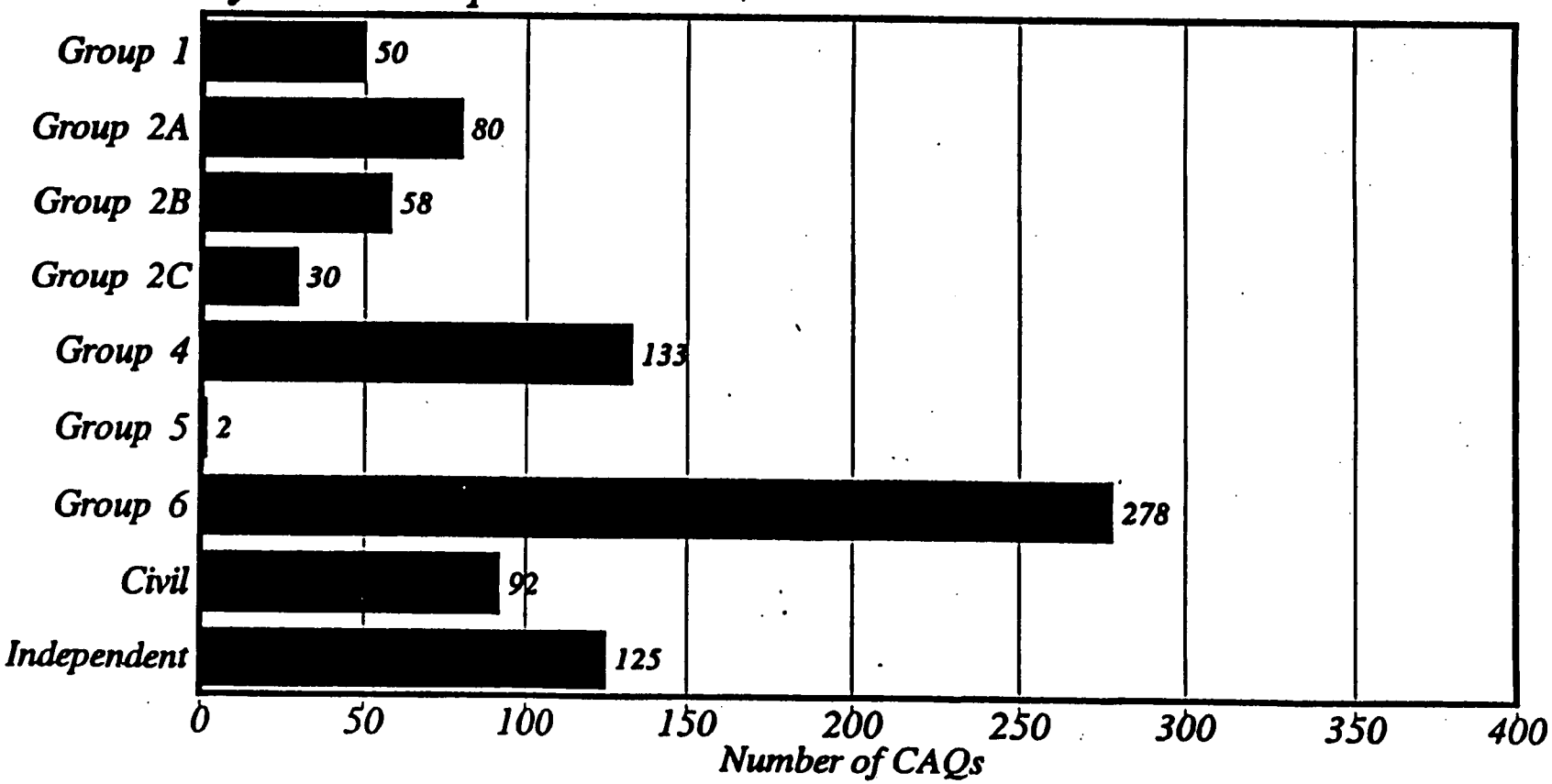
*Average Monthly Installation Rate for FY 90 through August

CORRECTIVE ACTION PROGRAMS / SPECIAL PROGRAMS STATUS

CAP	PROJECT		DESIGN COMPLETE (%)	CONSTRUCTION COMPLETE (QUANTITY)	CONSTRUCTION TO GO (QUANTITY)
ELECTRICAL ISSUES	ELECTRICAL ISSUES				
	- FLEX CONDUIT DEFICIENCY		95%	6,000 LF CONDUIT	18,000 LF CONDUIT
	- EXISTING 1E RACEWAY SEPARATION		95%	INCLUDED IN FLEX CONDUIT	INCLUDED IN FLEX CONDUIT
	- SEPARATION INTERNAL TO PANEL		95%	MAIN CONTROL ROOM PANELS	MAIN CONTROL ROOM PANELS
	- ISOLATION (COIL-CONTACT AND CONTACT-CONTACT)		90%	NO REWORK	NO REWORK
	- CONTACT AND COIL RATING		90%	NO REWORK	NO REWORK
	- TORQUE SWITCH BYPASS		90%	COMPLETE	0
	- ABCSM		95%	INCLUDED IN PANEL SEPARATION	INCLUDED IN PANEL SEPARATION
INSTRUMENT LINES	INSTRUMENT PROJECT	HB	100%	15,348 LF PIPE/TUBING 12,671 SUPPORTS	3,045 LF PIPE/TUBING 4,566 SUPPORTS
WELDING	WELD PROGRAM	WT	90%	NO REWORK	NO REWORK
	WELD PROJECT	WP	100%	1,350 WELDS 20 HYDROS	150 WELDS 83 HYDROS
FIRE PROTECTION PROGRAM	FIRE PROTECTION	BJ	50%	INITIATED NONE	4,000 LF CABLE REROUTE 4,000 SF CABLE REWRAP
DVBP	DBVP	DV	80%	NO REWORK	NO REWORK
	CALCULATIONS	CW	MECH/NUC 80%	(IMPLEMENT ON OTHER PROJECTS)	
		CW	ELECTRICAL 70%	(IMPLEMENT ON OTHER PROJECTS)	
		CA	CIVIL 5%	(IMPLEMENT ON OTHER PROJECTS)	
VENDOR INFORMATION	DVBP	DV	50%	NO REWORK	NO REWORK
REPLACEMENT ITEMS PROGRAM	PIECE PARTS	PP	50%	NO REWORK	NO REWORK

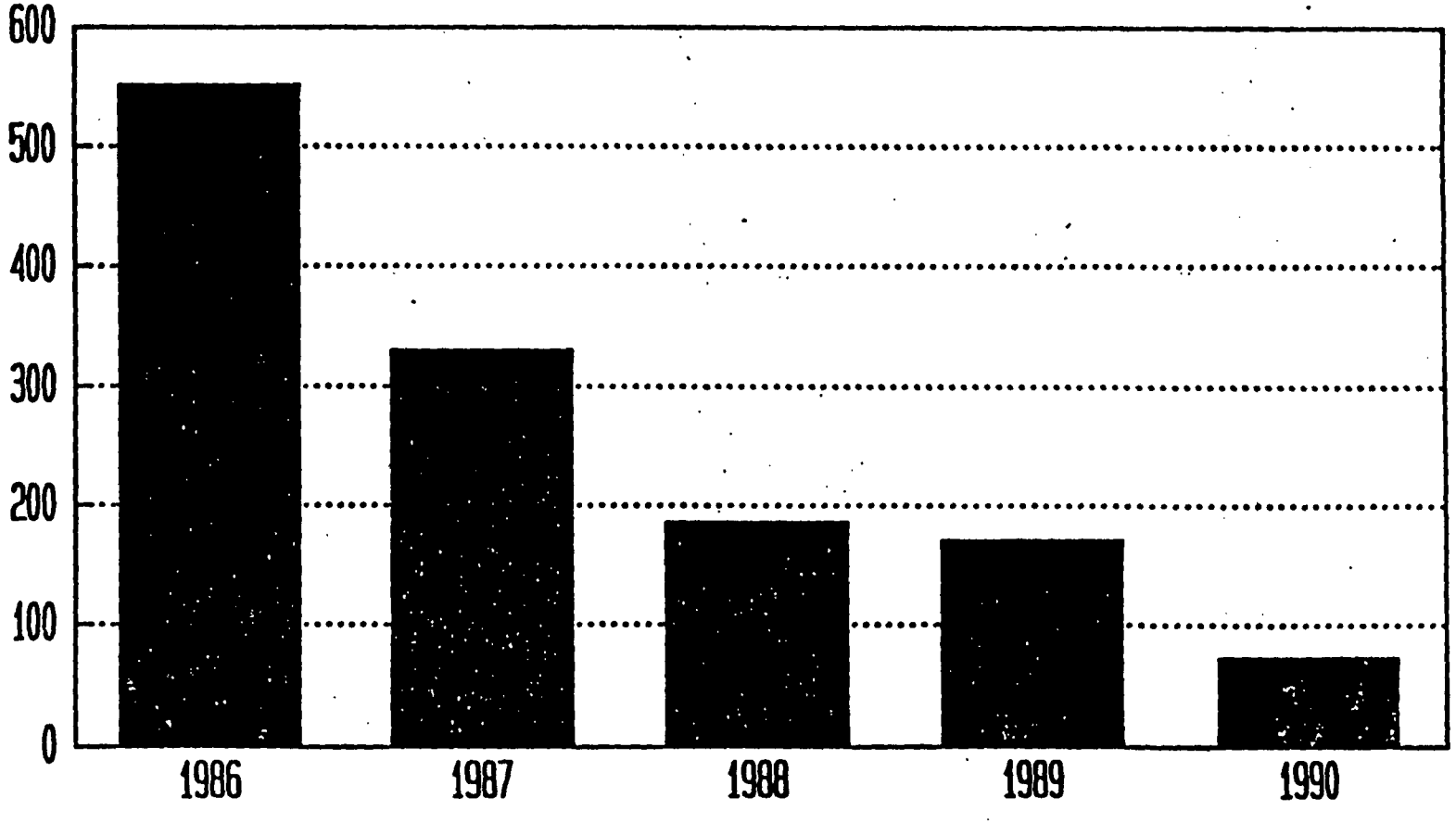
Watts Bar Open CAQs

System Groups

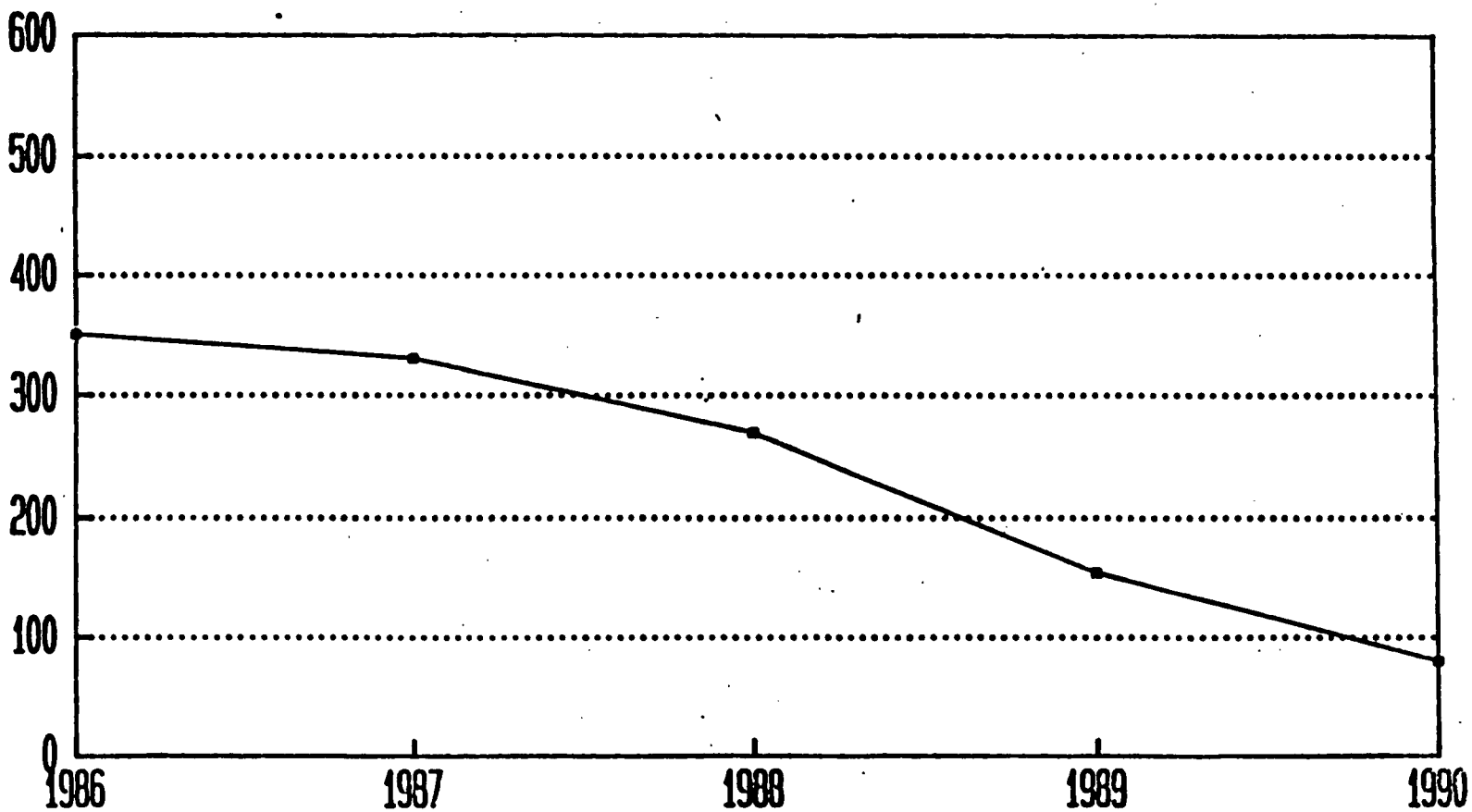


September 24,1990

WATTS BAR EMPLOYEE CONCERN PROGRAM (ECP)
ISSUED RECEIVED



WATTS BAR EMPLOYEE CONCERN PROGRAM (ECP)
BACKLOG

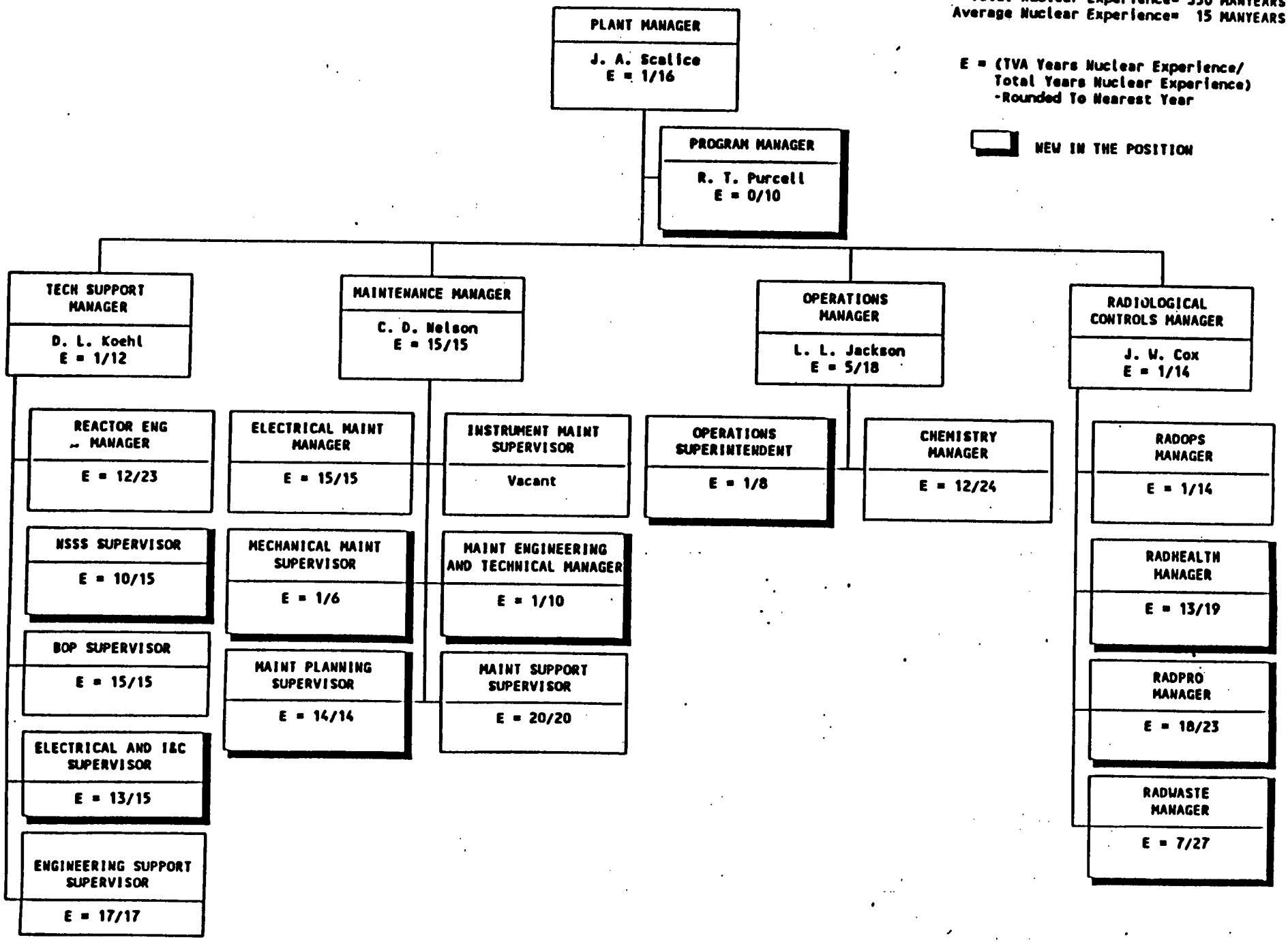


WATTS BAR NUCLEAR PLANT
PLANT MANAGER

Total TVA Nuclear Experience= 193 MANYEARS
Total Nuclear Experience= 350 MANYEARS
Average Nuclear Experience= 15 MANYEARS

E = (TVA Years Nuclear Experience/
Total Years Nuclear Experience)
-Rounded To Nearest Year

NEW IN THE POSITION



PLANT KEY ISSUES

I. OPERATOR LICENSING

OPERATOR TRAINING

- REQUAL PROGRAM MAINTAINED SINCE 1983
- OCT 1989 - NRC AGREES TO REQUAL PROGRAM EVALUATION
- APR 1990 - SPECIAL 10-WEEK REQUAL PROGRAM INITIATED
- JUN 1990 - 15 OF 43 OPERATORS COMPLETE REQUAL
- AUG 1990 - NRC REQUEST INITIAL EXAM FORMAT - TVA AGREES
- OCT 1990 - 16 OPERATORS BEGIN PRELICENSE TRAINING
- JAN 1991 - FIRST OF 4 INITIAL TYPE EXAMS FOR 1991

LICENSES

	CURRENT	PLANNED (BY 10/91)	PLANNED (BY 4/92)
SRO	29	36	55
RO	14	14	27

PLANT KEY ISSUES

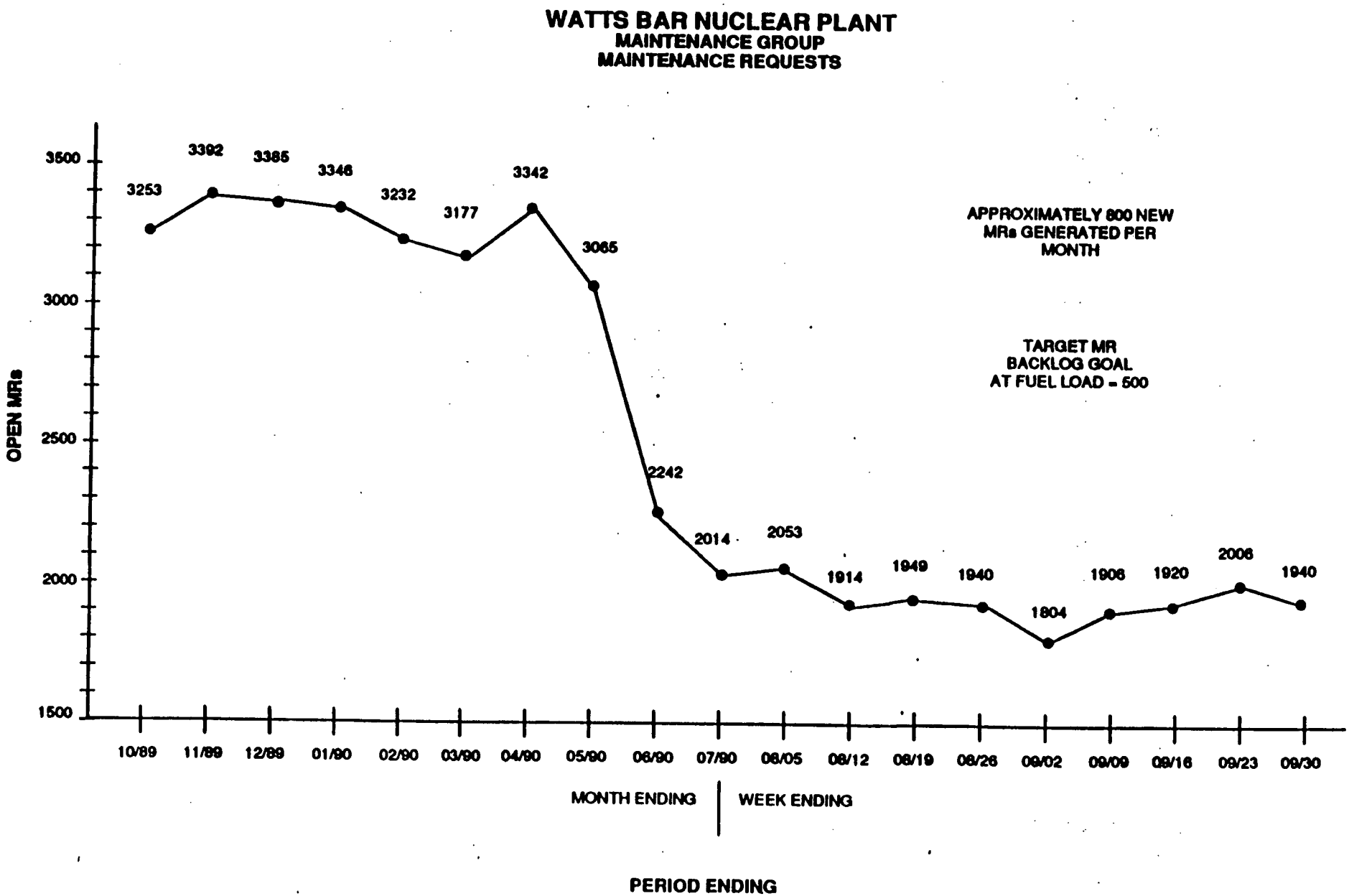
II. MR WORK LOAD

PRESENT MR BACKLOG < 2000

WORKOFF SCHEDULE

IMPROVEMENTS TO THE PROCESS WHICH ENABLE WBN TO OBTAIN RESULTS
- MANAGEMENT ATTENTION
- TEAMWORK
- REALIGNING OF RESOURCES INTO THE PLANNING AND SCHEDULING GROUP
- DEVELOPMENT OF BOP PROJECT WITH ADDITIONAL CRAFT TO PERFORM FIELD WORK
- CONSOLIDATION OF WORK TASKS

LONG-TERM FIX DEVELOPMENT OF WORK CONTROL GROUP


WATTS BAR NUCLEAR PLANT
MAINTENANCE GROUP
MAINTENANCE REQUESTS
OPEN MRs
3500
3000
2500
2000
1500
3253
3392
3385
3346
3232
3177
3342
3065
2242
2014
2053
1914
1949
1940
1804
1906
1920
2006
1940
APPROXIMATELY 800 NEW MRs GENERATED PER MONTH
TARGET MR BACKLOG GOAL AT FUEL LOAD = 500
10/89
11/89
12/89
01/90
02/90
03/90
04/90
05/90
06/90
07/90
08/05
08/12
08/19
08/26
09/02
09/09
09/16
09/23
09/30
MONTH ENDING
WEEK ENDING
PERIOD ENDING

PLANT KEY ISSUES

III. TEMPORARY ALTERATIONS (TACF) BACKLOG REDUCTION

TACFs INTEGRATED INTO BOTH PRESTART AND BOP PROJECT SCHEDULES

549 TACFs STARTED FY 90

316 TACFs PRESENT

56 OF 316 TACFs GENERATED DURING THE YEAR

PROCESS IMPROVEMENTS
- MANAGEMENT ATTENTION
- SYSTEM ENGINEERS PUSHING TACFs TO CLOSURE
- INTEGRATION OF BOP PROJECT

FURTHER IMPROVEMENTS NEEDED
- FUEL LOAD TARGET - 20 TACFs

PLANT KEY ISSUES

MAJOR WORK AREAS

IV. PLANT GROOMING PROJECT

PLANT CLEANUP AND PAINT
- SCHEDULED THROUGH FY 91

PCB REMOVAL FROM TRANSFORMERS
- INITIAL FILL AND DRAIN COMPLETED ON 33/41 TRANSFORMERS
- REMAINDER TO BE COMPLETED THIS MONTH

MAIN STEAM TRAP MODIFICATION

COMPONENT COOLING WATER PUMP MECHANICAL SEALS

LIVE LOAD/ENHANCED PACKING
- APPROXIMATELY 2600 VALVES WALKED DOWN/250 VALVES REPACKED

1708 VALVES - CONTAINMENT
91 VALVES - OTHER LOCATIONS
776 VALVES - ALARA

PLANT KEY ISSUES

V. MAJOR PROGRAMS UNDER DEVELOPMENT

INPO ASSIST/REVIEW OF PLANT AREAS
- ASSIST VISITS COMPLETED IN AREA OF TECHNICAL SUPPORT, MAINTENANCE, AND WORK CONTROL

SELF-ASSESSMENTS OF ALL AREAS OF PLANT
- RADCON AND CHEMISTRY IN PROCESS
- DEVELOPING SCHEDULE FOR OTHER AREAS
- MIT CONDUCTED - CORRECTIVE ACTIONS DEVELOPED AND TRACKED
- DRAFT OPERATIONAL READINESS SELF-ASSESSMENT

SYSTEM ENGINEERING TRAINING PROGRAM AND QUALIFICATION PROGRAM

ALARA ENHANCEMENT
- ALARA COMMITTEE
- ALARA ENHANCEMENT DCN REVIEW

PLANT KEY ISSUES

V. MAJOR PROGRAMS UNDER DEVELOPMENT (CONTINUED)

WORK CONTROL GROUP

- IMPLEMENT PROGRAM THAT WILL INTEGRATE ALL REQUIRED STATION WORK
- MINIMIZE ADMINISTRATIVE BURDEN ON THE MAINTENANCE FOREMAN
- MINIMIZE ADMINISTRATIVE BURDEN ON THE CONTROL ROOM PERSONNEL
- LESSONS LEARNED FROM SEQUOYAH NUCLEAR PLANT'S WORK CONTROLS AND MAINTENANCE PLANNING
- DIRECT OPERATIONS INVOLVEMENT

PLANT KEY ISSUES

VI. PROCEDURES UPGRADE PROJECT

PROJECT SCOPE
- 1172 SURVEILLANCE AND INSTRUMENT MAINTENANCE INSTRUCTIONS
- 370 OPERATIONAL INSTRUCTIONS

SCOPE CHANGE FY 91
- INCORPORATE THE NEW TS (MERITS) INTO ISSUED SIs
- EMERGENCY OPERATING PROCEDURES (EOPs) VALIDATION AND UPGRADE WITH WESTINGHOUSE

CURRENT STATUS

- TECHNICAL SUPPORT SIs AND IMIs	TOTAL - 1172	NO.
APPROVED TOTAL		463
IN REVIEW CYCLE		181
INSTRUCTIONS WRITTEN		644
- OPERATIONS PROCEDURES	TOTAL - 370	
APPROVED TOTAL		202
IN REVIEW CYCLE		70
INSTRUCTIONS WRITTEN		272

PLANT KEY ISSUES

VII. BALANCE OF PLANT PROJECT

PURPOSE

- MAKE READY 83 SYSTEMS NOT COVERED IN PRESTART TEST PROGRAM

SCOPE

- CONDUCT WALKDOWN
- REVIEW CORRECTIVE ACTION PLANS AND SPECIAL PROJECTS FOR APPLICABILITY TO THE BOP SYSTEMS
- WORK OFF 1649 IDENTIFIED MRs / 1107 MRs COMPLETE TO DATE
- IMPLEMENT 112 MODIFICATIONS / 40 DCNs ISSUED WITH 23 WORKPLANS IN WORK
- CORRECT DEFICIENCIES IDENTIFIED THROUGH WALKDOWNS
- TEST SYSTEMS USING OPERATIONS SYSTEM OPERATING INSTRUCTIONS
- VERIFY AND VALIDATE SYSTEM
  - SYSTEM PREOPERATIONAL CHECKLIST
  - PORC REVIEW
  - PLANT MANAGER APPROVAL
  - DECLARATION OF OPERABILITY / FUNCTIONALITY

PLANT KEY ISSUES

VIII. SUMMARY

PLANT STAFFED AND TRAINED

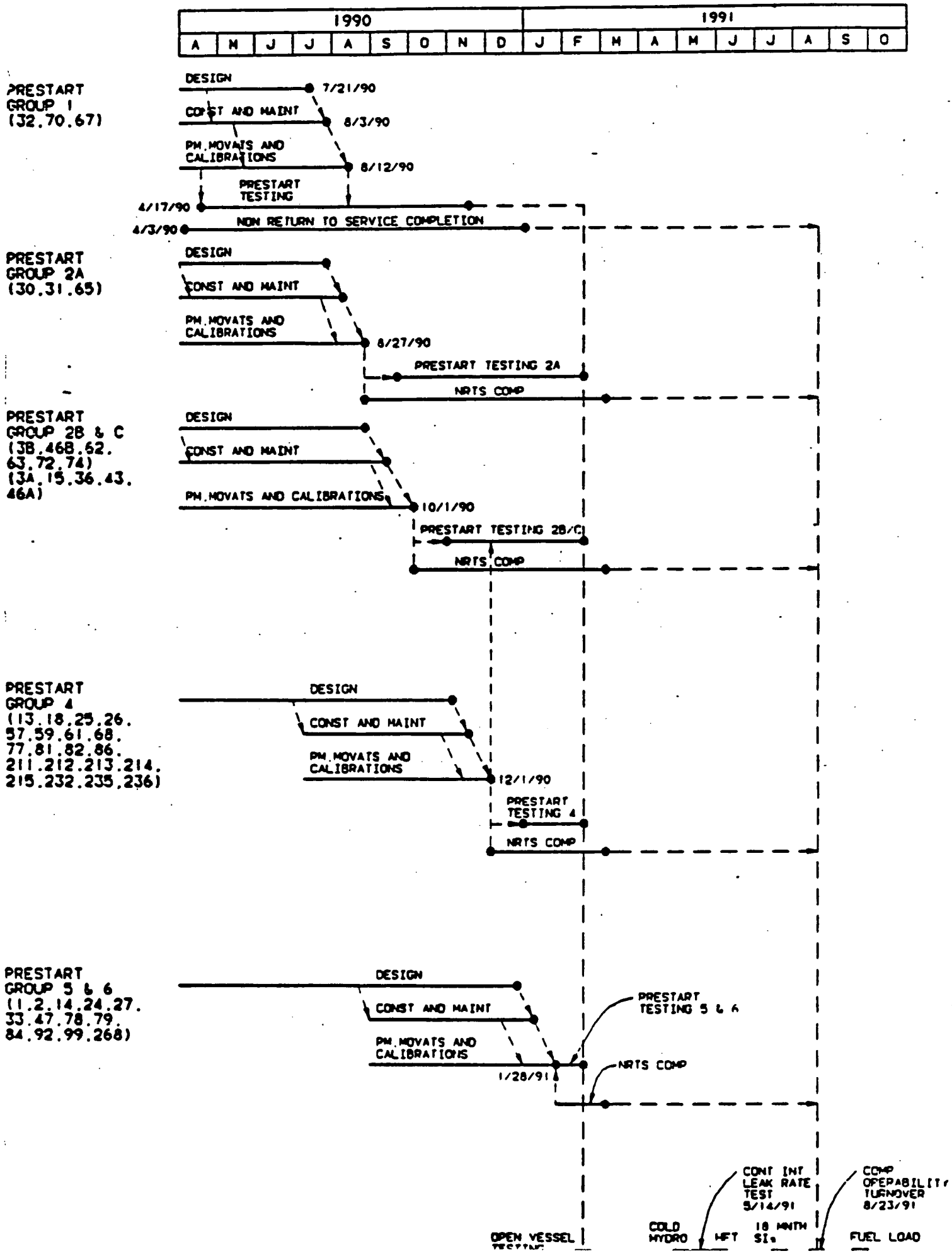
GROOMING PLANT EQUIPMENT AND SPACES

DEVELOPING OPERATIONAL PHILOSOPHY

ESTABLISHING EXPECTATIONS FOR OPERATIONAL TRANSITION

PLACING SYSTEMS IN SERVICE

WATTS BAR SYSTEMS SUMMARY SCHEDULE



GROUP 1 TEST STATUS

SYSTEM 32 (CONTROL AIR)

TEST CONDUCT IS COMPLETE. ALL TEST DEFICIENCIES HAVE BEEN CORRECTED AND CLOSED.

SYSTEM 70 (COMPONENT COOLING)

TEST CONDUCT IS COMPLETE. FINAL TESTING TO RESOLVE A FLOW DEFICIENCY TO THE REACTOR COOLANT PUMP LOWER OIL COOLERS WILL FOLLOW A REFLUSH OF THE SYSTEM. RETESTING WILL ALSO BE REQUIRED FOLLOWING CABLE HIGH POT TESTING AND CABLE BEND RADIUS REPAIRS.

SYSTEM 67 (ESSENTIAL RAW COOLING WATER)

SYSTEM COMPLETION ON SEPTEMBER 14, 1990.

TEST CONDUCT TO BEGIN ON OCTOBER 4, 1990.

SYSTEM 70
(COMPONENT COOLING)
DEFICIENCIES

NUMBER OF DEFICIENCIES	PROBLEM
4	VIBRATION
3	LOW FLOW
1	PUMP TRIP
1	SURGE TANK LEVEL INCREASING/DECREASING
1	DEGRADATION OF FLOW TO LOWER OIL COOLERS
TOTAL 10	

SYSTEM COMPLETION LESSONS LEARNED

- DIFFICULTY TRACKING PROMPT DOCUMENT CLOSURE FOLLOWING SYSTEM COMPLETION
- INCREASED RISK FOR RETEST DUE TO DOCUMENT CLOSURE VERIFICATIONS.
- TO CORRECT THESE PROBLEMS, STARTING WITH GROUP 2A, REQUIRE DOCUMENTATION CLOSURE PRIOR TO SYSTEM COMPLETION AND TESTING.

WATTS BAR CABLE
SUMMARY

TOTAL CLASS 1E CABLE
(UNIT 1 AND COMMON)
APPROXIMATELY 8200 CABLES
APPROXIMATELY 3,000,000 FEET

ISSUE	ESTIMATED PROGRAM FOOTAGE	% OF TOTAL CLASS 1E FOOTAGE	TO DATE % OF TOTAL FOOTAGE
CABLE TEST PROGRAM -	170,000	6 %	6 %
CABLE DAMAGE AND OTHER REPLACEMENT PROGRAMS -	1,400,000	46 %	15 %
TOTAL -	1,570,000	52 %	21 %

CABLE ISSUES

◊ CABLE ISSUES IDENTIFIED THRU EMPLOYEE CONCERN AND CONDITION ADVERSE TO QUALITY PROGRAMS

◊ DISCUSSED WITH NRC TECHNICAL STAFF

- MAY 22, 1990
- AUGUST 2 AND 3, 1990
- SUBSEQUENT TELECONS
- SUBMITTAL DOCUMENTING TECHNICAL AGREEMENTS - OCTOBER 5, 1990

◊ ISSUES FOR FURTHER DISCUSSION

- CABLE TESTING RESULTS AND CORRECTIVE ACTIONS
- CABLE TRENDING RESULTS AND CORRECTIVE ACTIONS

CABLE TESTING AND TRENDING BACKGROUND

CABLE TESTING

- ◊ CABLE PULLBY DAMAGE DISCOVERED THROUGH EMPLOYEE CONCERN INVESTIGATION
- ◊ 1E CONDUITS CATEGORIZED AS HIGH RISK OR LOW RISK BASED ON CABLE SIDEWALL BEARING PRESSURE
- ◊ APPROXIMATELY 660,000 FEET OF CABLE TO BE REPLACED IN HIGH RISK CONDUITS (345,000 FEET OF CABLE REPLACED TO DATE)
- ◊ 40 CONDUITS IN LOW RISK CATEGORY HAVE BEEN TESTED OR INSPECTED TO VALIDATE THRESHOLD BETWEEN LOW AND HIGH RISK CATEGORY
- ◊ 40 CONDUITS INCLUDE 20 SIGNAL LEVEL CONDUITS AND 20 POWER/ CONTROL LEVEL CONDUITS

CABLE TRENDING

- ◊ TVA INSPECTING CABLES DURING THE REMOVAL, REPLACEMENT, OR TESTING PROCESS TO AQUIRE DATA

CABLE TEST RESULTS

- ◊ 38 CONDUITS COMPLETED HI-POT TEST
- ◊ 2 CONDUITS VISUALLY INSPECTED
- ◊ APPROXIMATELY 410 CABLES AND 170,000 FEET OF CABLE TESTED
- ◊ NO FAILURES ATTRIBUTED TO PULLBY DAMAGE
- ◊ 13 CABLES IDENTIFIED WITH ANOMALIES DURING TESTING

TEST ANOMALY SUMMARY

(ALL CABLES ARE 120V SIGNAL/CONTROL POWER)

- ANOMALY -	- DISCRIPTION -
◊ BRAND REX POTENTIAL MANUFACTURING DEFECT (5) CABLES FAILED AT 2.5 TO 4.8 KV	CABLES HAD MINOR JACKET DAMAGE ONLY CABLES BEING ANALYIZED AT U. CONN AND TEST REPORT EXPECTED OCTOBER 5 , 1990
◊ CUTS AT RAYCHEM SPLICES (2) . TESTED APPROX. 300 TOTAL SPLICES . CABLES FAILED AT 3.8 AND 4.6 KV	FAILED SPLICES WORKED BY SAME CREW. INSPECT/ REPAIR ALL OF APPROXIMATELY 370 SPLICES WORKED BY SUBJECT CREW
◊ CABLE CUTS, GOUGES, OR PUNCTURES (5) CABLES FAILED 2.5 TO 4.8 KV	TWO CABLES DAMAGED DUE TO POTENTIAL BREACHING PROCESS. REVIEW BREACHING PERMIT RECORDS TO BOUND. THREE CABLES DAMAGED DUE TO UNKNOWN CAUSE. CABLES BEING ANALYZED AT U. CONN. RESULTS EXPECTED OCTOBER 15, 1990.
◊ CABLE FAILED IN SITU. HI-POT BUT FAILURE CANNOT BE RECREATED AFTER REMOVAL (1) CABLE FAILED AT 1.5 KV	CABLES BEING ANALYZED AT U. CONN.RESULTS EXPECTED OCTOBER 15, 1990.

CABLE DATA
TRENDING

◊ DATA AQUIRED VIA REMOVAL, REPLACEMENT, AND TESTING

◊ DATA INFORMALLY RECORDED PRIOR TO MAY 1990; FORMALLY DOCUMENTED AND TRENDED AFTER MAY 1990

◊ TRENDING PROGRAM EVALUATES:

- CABLE ROUTING
- SPLICE DOCUMENTATION
- CABLE DAMAGE

◊ DATA AQUIRED TO DATE ON APPROX. 2,250 CABLES AND APPROX. 630,000 FEET OF CABLE TESTED OR REMOVED

CABLE DATA TREND RESULTS

AREAS OF SIGNIFICANT INTEREST IDENTIFIED VIA TRENDING ARE:

- RESULTS -	- DISCRIPTION -
◊ ACTIVE CABLES ROUTED IN PARALLEL CONDUITS (7)	NO SEPARATION CRITERIA VOILATED. PARALLEL CONDUIT TO SAME END DEVICE.
◊ CABLE PULLBY (PARACHUTE CORD) DAMAGE FOUND IN LOW RISK CONDUITS/PULL POINTS (3 CASES)	DAMAGE WAS JACKET AND MINOR DAMAGE ONLY. NO CABLE FAILED HI-POT TEST AS A RESULT OF PULLBY DAMAGE.
◊ CABLE DAMAGE AT TERMINATIONS (60 INSULATION DAMAGE)	EVALUATE, INSPECT AND REPAIR TERMINATION DAMAGE.

CONCLUSIONS

- ◊ REVIEWED APPROXIMATELY 2,250 CABLES (~ 630,000 FEET) VIA THE HI-POT TEST AND REMOVAL PROGRAM

- ◊ OVERALL ASSESSMENT OF TEST AND TRENDING RESULTS COUPLED WITH OTHER CABLE "CAP " PROGRAMS AND CORRECTIVE ACTION PROVIDES ASSURANCE THAT THE WATTS BAR CABLE WILL PERFORM ITS DESIGN FUNCTION

EXTERNAL CORROSION (RUBATEX) EXAMINATION RESULTS

CHILLED WATER SYSTEM:

420 THICKNESS MEASUREMENTS AT 35 SAMPLE LOCATIONS
360 COMPLETED TO DATE

WORST CASE CONDITIONS FOUND:

SAMPLE NUMBER	ACTUAL	NOMINAL	ALLOWED	DESIGN
•	0.240 & 0.247	0.280	0.245	0.1075
21	0.250	0.280	0.245	0.1075
7	0.270	0.280	0.245	0.1075
9	0.270	0.280	0.245	0.1075

GLYCOL SYSTEM:

64 THICKNESS MEASUREMENTS AT 16 SAMPLE LOCATIONS
64 COMPLETED TO DATE

WORST CASE CONDITIONS FOUND:

SAMPLE NUMBER	ACTUAL	NOMINAL	ALLOWED
2B	0.210	0.216	0.189
• 4A	0.275	0.280	0.245

INTAKE STRUCTURE PIPING:

(TO BE DETERMINED)

EXTERNAL PIPING CORROSION (RUBATEX)

ISSUE:

EXTERNAL CORROSION OF UNCOATED PIPING, FASTENERS, AND SUPPORTS ENCASED IN RUBATEX INSULATION.

SCOPE OF PROBLEM:

CHILLED WATER SYSTEM, GLYCOL SYSTEM, AND RIVER INTAKE PIPING

ACTIONS TAKEN/IN PROGRESS:

- FIELD ACTIVITIES TO REMOVE INSULATION, CLEAN AND COAT PIPE, AND REAPPLY INSULATION ARE APPROXIMATELY 25 % COMPLETE ON CHILLED WATER.
- ACTIVITIES TO REPLACE FASTENERS ARE APPROXIMATELY 10 % COMPLETE.
- ULTRASONIC TESTING OF SAMPLE LOCATIONS ON CHILLED WATER PIPING HAS BEGUN.
- ULTRASONIC TESTING OF SAMPLE LOCATIONS ON GLYCOL PIPING IS COMPLETE.
- COATING APPROVED FOR INSERVICE APPLICATION ON GLYCOL SYSTEM.

ACTIONS PLANNED:

- REVISE COATING SPECIFICATION AND INSTALLATION PROCEDURES.
- EVALUATE UNIT 2 CHILLED WATER PIPING CORROSION.
- DEVELOP PREVENTIVE MAINTENANCE PROCEDURE ON RUBATEX INSULATION.

SUMMARY AND CONCLUSIONS:

CORRECTION OF SPECIFICATION AND PROCEDURES TO UPGRADE COATING REQUIREMENTS ON UNPROTECTED, CHILLED WATER, AND GLYCOL PIPING PRIOR TO INSULATION SHOULD PREVENT RECURRENCE.

INITIAL DATA ANALYSIS INDICATES THAT CLEANING AND COATING CORRECTIVE ACTIONS WILL RETURN AFFECTED PIPING TO ACCEPTABLE CONDITIONS FOR THE LIFE OF THE PLANT.

AREAS NOT FOUND ACCEPTABLE WILL BE REPLACED OR REPAIRED. EVALUATION AND ADDITIONAL CORRECTIVE ACTION PLANS WILL BE COMPLETED BY DECEMBER 1, 1990.

MICROBIOLOGICALLY INDUCED CORROSION

ISSUE:

INTERNAL PIPING CORROSION DUE TO SIGNIFICANT BACTERIAL ACTIVITY

SCOPE OF PROBLEM:

WBN WETTED SYSTEMS. RAW WATER SYSTEMS ARE MORE SUSCEPTIBLE

ACTIONS COMPLETED:

- ALL KNOWN MIC LEAKS HAVE BEEN REPAIRED
- SIGNIFICANT AMOUNT OF ERCW PIPING REPLACED (~ 20,000 FT.)
- BIOCIDE INJECTION SYSTEM INSTALLED OCTOBER 1990
- WBN SPECIFIC PROCEDURE APPROVED 8/24/90
- BASELINE UT DATA COLLECTED ON ERCW CARBON STEEL

ACTIONS IN PROGRESS:

- BIOLOGICAL MONITORING OF MICROORGANISMS
- HPFP FLOW MONITORING
- IDENTIFICATION OF MIC SUSCEPTIBLE AREAS
- BASELINE CORROSION MONITORING ON RCW SYSTEM

ACTIONS PLANNED:

- IDENTIFICATION AND RESOLUTION OF DEAD LEG AREAS
- HEAT EXCHANGER PERFORMANCE MONITORING (GL 89-13)
- RAW COOLING WATER FLOW BALANCE
- MIC LEAK SURVEILLANCE PROGRAM

SUMMARY AND CONCLUSIONS:

BIOCIDE INJECTION, BIOLOGICAL MONITORING, AND DEAD LEG RESOLUTIONS WILL MITIGATE ADDITIONAL FORMATIONS OF MIC.

PERFORMANCE MONITORING, LEAK SURVEILLANCE, AND FLOW BALANCING ACTIVITIES ON SUSCEPTIBLE AREAS WILL PROVIDE DATA FOR EARLY IDENTIFICATION OF POTENTIAL OPERABILITY PROBLEMS.

CURRENT MIC CONDITIONS, AND CORRECTIVE ACTIONS TO MEET DESIGN PARAMETERS WILL BE DETERMINED BY DECEMBER 1, 1990.

CLASS 3 WELDS LACK OF PENETRATION

ISSUE:

LACK OF PENETRATION IN CLASS 3 WELDS DISCOVERED DURING NRC RADIOGRAPHY. THIS ISSUE WAS PREVIOUSLY IDENTIFIED AND INCORRECTLY DISPOSITIONED DURING THE WELD PROGRAM.

SCOPE OF PROBLEM:

7120 UNIT ONE AND COMMON CLASS 3 WELDS IN VARIOUS SYSTEMS

ACTIONS COMPLETED:

- SAMPLING TECHNIQUE HAS BEEN DETERMINED AND SAMPLE WELDS IDENTIFIED TO QC
- ANALYTICAL TECHNIQUE HAS BEEN PROPOSED
- EXAMPLE ANALYSIS USING 26 PREVIOUSLY IDENTIFIED WELDS HAS BEEN COMPLETED

ACTIONS IN PROGRESS:

- RADIOGRAPHY AND ULTRASONIC TESTING OF SAMPLE WELDS
- DEVELOPMENT OF SUBPOPULATIONS IF REQUIRED
- ANALYSIS OF STRESS DATA TO DETERMINE WELD INTEGRITY

ACTIONS PLANNED:

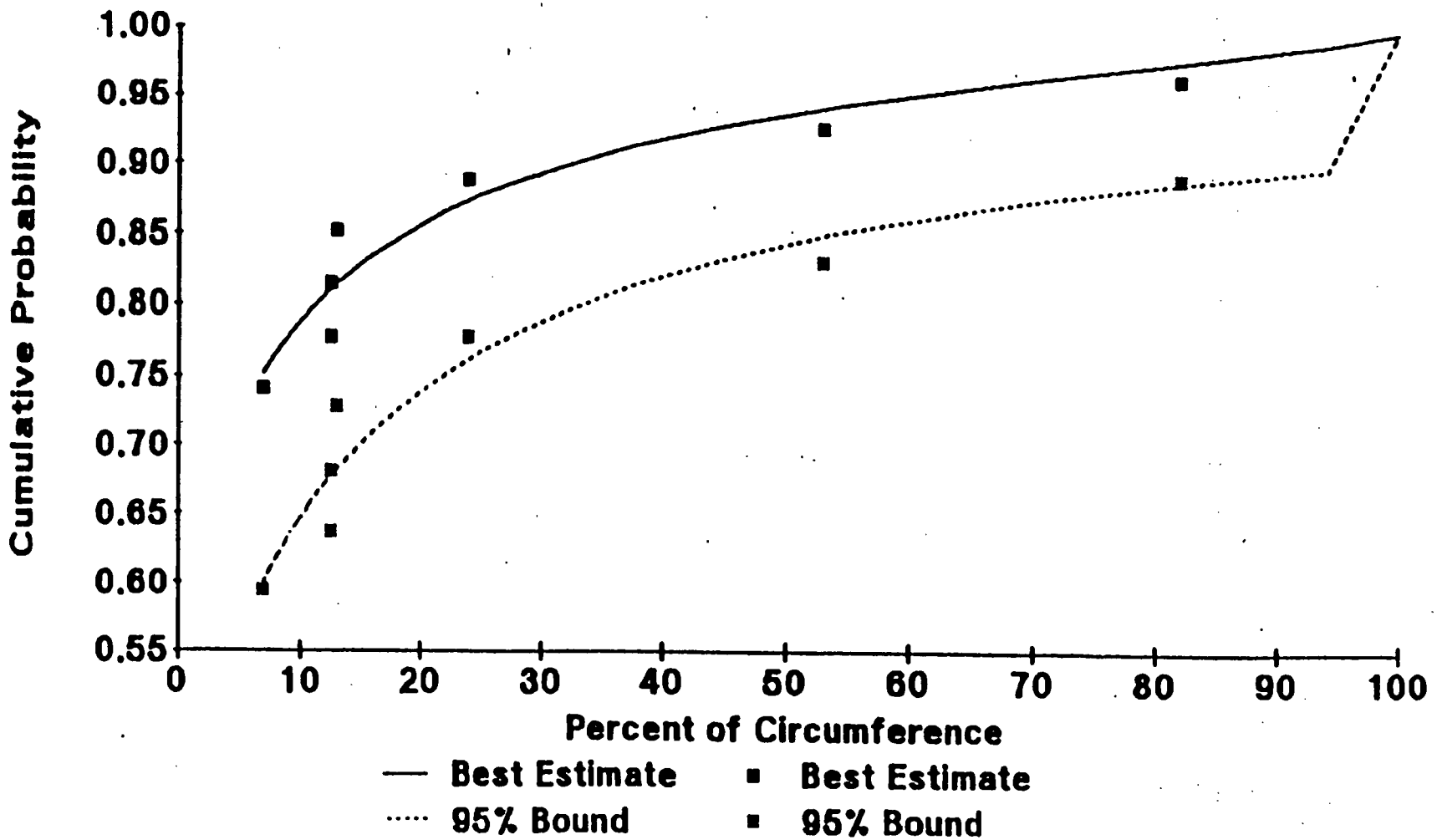
- EVALUATE EG & G STUDY TO DETERMINE REASON FOR DISPOSITION
- DETERMINE CORRECTIVE ACTIONS FROM STRESS CALCULATIONS USING WELD DATA
- TEST A "WORST CASE" WELD TO VERIFY FLAW DEPTH MEASUREMENTS

SUMMARY AND CONCLUSIONS:

DATA FROM WELD EXAMINATIONS WILL BE EVALUATED, AND STRESS CALCULATIONS PERFORMED TO ENSURE THAT WELDS MEET SECTION III STRESS CRITERIA. EVALUATION AND DETERMINATION OF CORRECTIVE ACTIONS WILL BE COMPLETED BY DECEMBER 31, 1990.

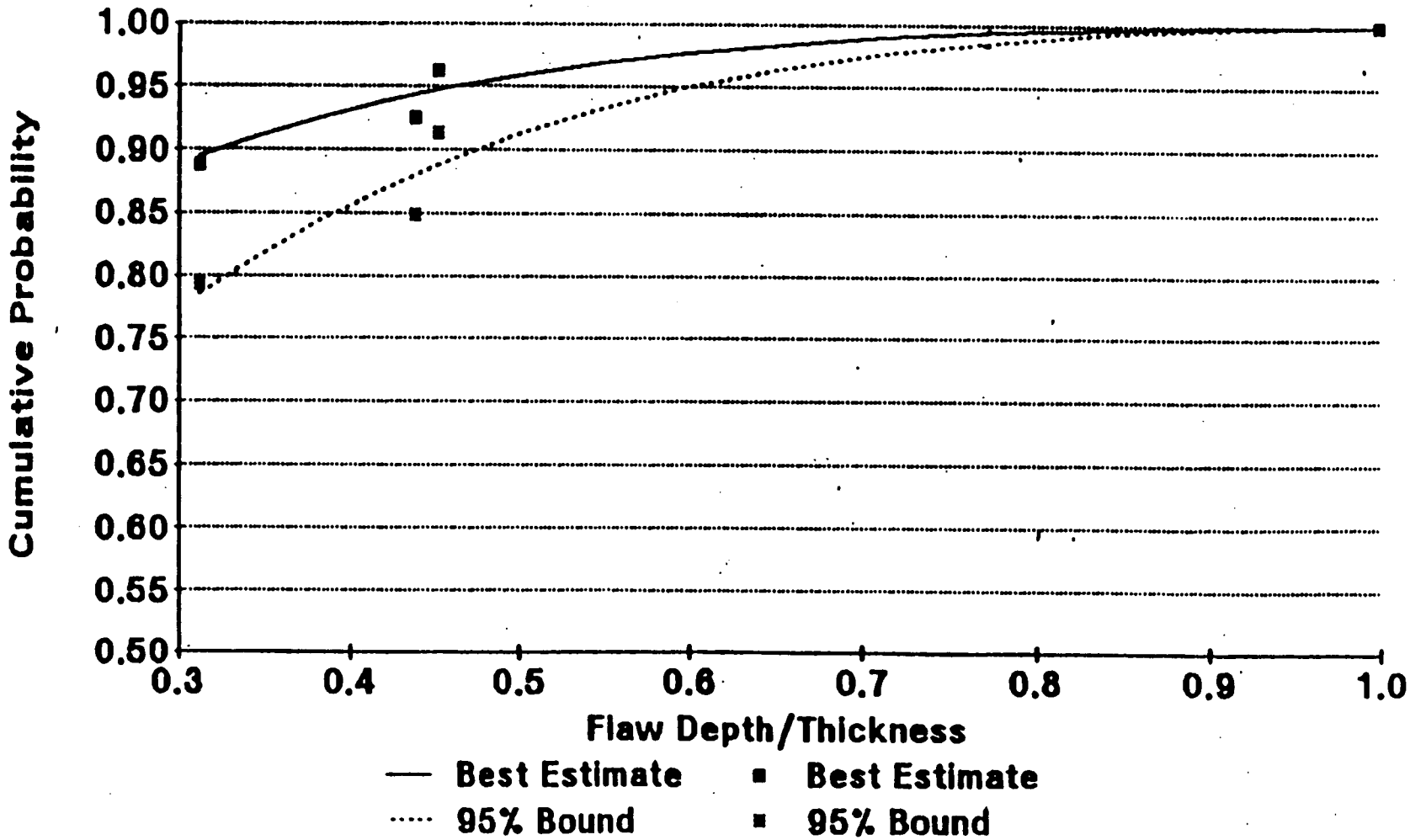
Flaw Length Distribution for First 26 Tested Welds

APTECH ENGINEERING SERVICES, INC.
© 1990 APTECH



Flaw Depth Distribution from 26 Tests If One Population with 0/7120 Leaks

APTECH ENGINEERING SERVICES, INC.
© 1990 APTECH



FLAW EVALUATION OF ERCW STAINLESS STEEL PIPING

Pipe Size	Material	Assumed Worst LOF/LOP (a/t)	IWB-3640 Allowable a/t
2½-Inch Sch 40	TP316L	0.67	0.75
3-Inch Sch 40	--	0.63	0.73
4-Inch Sch 40	TP316	0.57	0.75
	TP316L	0.57	0.75
6-Inch Sch 40	TP316L	0.49	0.75
6-Inch Sch 80	TP316L	0.31	0.75
8-Inch Sch 40	TP316	0.42	0.73
	TP316L	0.42	0.69
12-Inch Sch 40s	TP316L	0.36	0.70
14-Inch Std	TP316L	0.36	0.75
18-Inch Std	TP316L	0.36	0.74

APTECH®
ENGINEERING SERVICES, INC

© 1990 APTECH

INHERENT MARGINS IN THE ANALYSIS

1) AXISYMMETRIC ANALYSIS ASSUMES FLAW CONTINUOUS FOR 360 °

2) MOST CONSERVATIVE A/T USED FOR ALL WELDS

3) HIGHEST SYSTEM STRESSES USED IN EXAMPLE

GENERAL PLANT DEGRADATION ISSUES

A COMPREHENSIVE IDENTIFICATION AND EVALUATION OF PLANT WIDE CORROSION-RELATED DEGRADATION ISSUES WILL BE COMPLETED BY DECEMBER 31, 1990.

CORRECTIVE ACTIONS WILL BE COORDINATED WITH THE PLANT GROOMING PROGRAM TO ENSURE THAT UPGRADES ARE SPECIFIED AND COMPLETED IN A TIMELY MANNER.

PROGRAM TO ASSURE COMPLETION (PAC)

PAC: MASTER CONTROL FOR ASSEMBLING
ASSURANCE OF COMPLETION BUILDING BLOCKS

CONTAINS: OBJECTIVE
BUILDING BLOCK PYRAMID ILLUSTRATION
PROCESS AND BASES FOR MANAGEMENT
AFFIRMATION OF COMPLETION

ORGANIZES TYPICAL PROCESSES AND REVIEWS

PROVIDES SUPPLEMENTAL SPECIAL PROCESSES,
REVIEWS, INSPECTIONS

WILL WANT TO MEET TO DISCUSS WITH NRC IN
APPROXIMATELY ONE MONTH

PROGRAM TO ASSURE COMPLETION (PAC)

OBJECTIVES

PRODUCE MANAGEMENT AFFIRMATION THAT

1) PLANT DESIGN IS KNOWN
2) PLANT CONSTRUCTED AS DESIGNED
3) MATERIAL CONDITION IS READY FOR OPERATION
4) OPERATIONAL READINESS HAS BEEN ACHIEVED

ESTABLISH MANAGEMENT RESPONSIBILITIES AND INVOLVEMENT (LINE MANAGEMENT FOCUS)

DELINEATE ELEMENTS OF INDEPENDENCE FOR INSPECTIONS, REVIEWS, CONCURRENCES

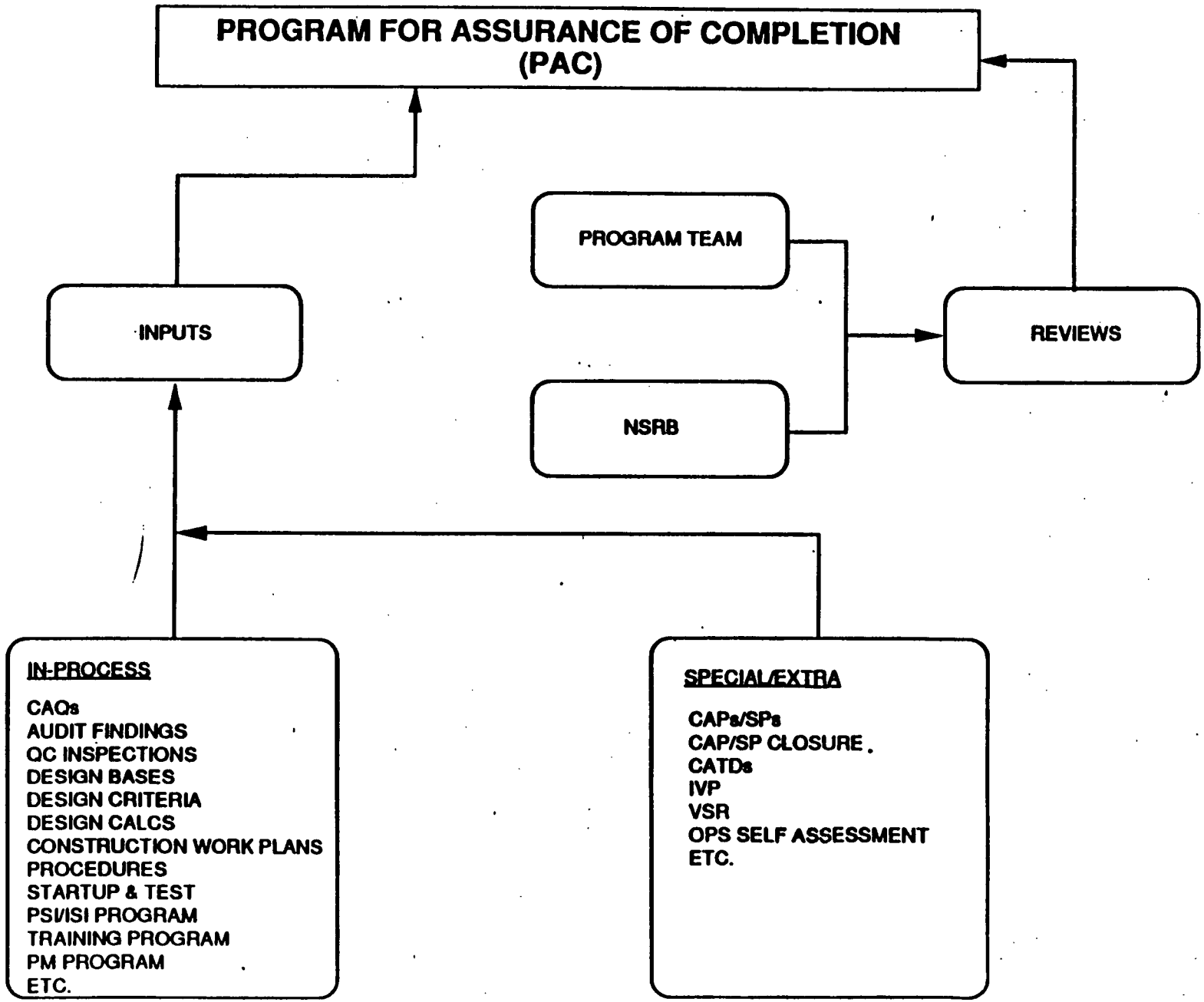
PROVIDE FOR AUDITABILITY BY NRC OF PROGRAM AND RESULTS

PAC INPUTS

IN-PROCESS RESULTS

SPECIAL/EXTRA RESULTS

INDEPENDENT REVIEW
(PROGRAM TEAM)


PROGRAM FOR ASSURANCE OF COMPLETION (PAC)
PROGRAM TEAM
INPUTS
REVIEWS
NSRB
IN-PROCESS
CAQs
AUDIT FINDINGS
QC INSPECTIONS
DESIGN BASES
DESIGN CRITERIA
DESIGN CALCS
CONSTRUCTION WORK PLANS
PROCEDURES
STARTUP & TEST
PSI/ISI PROGRAM
TRAINING PROGRAM
PM PROGRAM
ETC.
SPECIAL/EXTRA
CAPs/SPs
CAP/SP CLOSURE
CATDs
IVP
VSR
OPS SELF ASSESSMENT
ETC.

QUALITY ASSURANCE VERIFICATION PROGRAM

- CORRECTIVE ACTION PROGRAMS (CAPs) AND SPECIAL PROGRAMS (SPs)
- PROJECT PLANS
  - DESIGN PHASE VERIFICATION (AS APPROPRIATE)
  - 75% PROJECT VERIFICATION
    - LINE NOTIFICATION
    - QA ASSESSMENT
- PROJECT CLOSURE VERIFICATION
  - LINE CERTIFICATION
  - QA ASSESSMENT

QA VERIFICATION PROGRAM
CAPs & SPs
APPROACH/TECHNIQUE

- VERIFICATION PLANS (CAPs/SPs)
- SMART SAMPLING
- WBN SITE QA - LEAD
  - MONITORING
  - AUDITS
  - QUALITY CONTROL
  - PROJECT SPECIALISTS
- INTEGRATED VERIFICATION PLANNING
- TECHNICAL EXPERTS

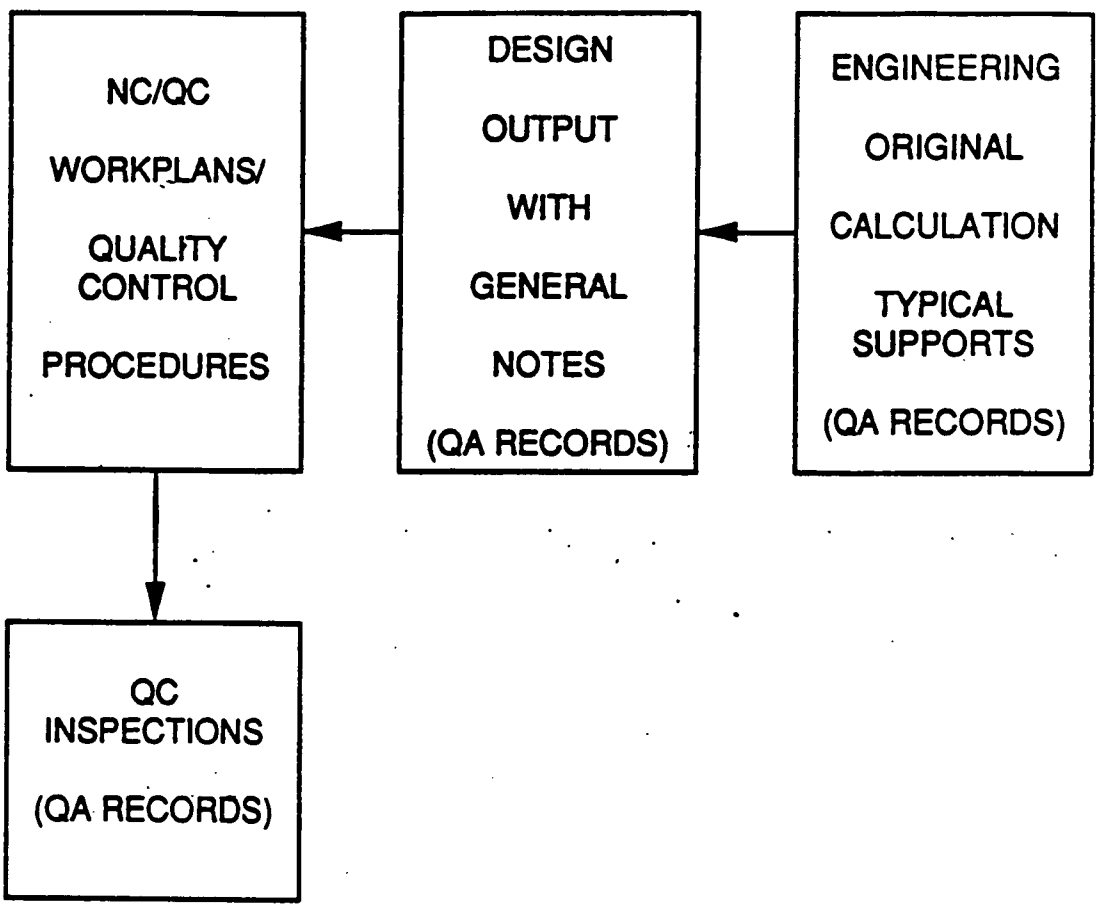
QUALITY ASSURANCE VERIFICATIONS OF CAPs & SPs THROUGH SEPT. 1990

TITLE	TYPE REVIEW	DATE COMPLETED
Q-LIST	75%	7-23-90
INSTRUMENT LINES	75%	7-23-90
HAAUP	75%	7-23-90
HEAT CODE TRACEABILITY	CLOSURE	8-08-90
CONCRETE QUALITY	CLOSURE	8-31-90
USE-AS-IS-CAQ's	CLOSURE	9-26-90

IMPROVED WORK CONTROLS

- CAQR's WRITTEN
- STOP WORK EXAMPLES
  - WEDGE BOLTS
  - SEALS/VENDOR PROCESSES
  - WORK PLAN PROCESSES
- DISCIPLINARY ACTIONS FOR VIOLATIONS
- QUALITY CONTROL TRENDING
  - TREND BY T&L CREWS
  - WEEKLY MEETINGS WITH QC TO REVIEW INSPECTION RESULTS
- FDCN PROCESS CHANGES
- LOOSE, MISSING, DAMAGED SIGNOFF
- QUALITY IMPROVEMENT PROGRAM
- RETRAIN AS NECESSARY FOR PROCESS IMPROVEMENTS
- CRAFT COMMUNICATION MEETINGS/ FIELD MEMOS

ORIGINAL QUALIFICATION
(CONDUIT SUPPORTS)



DESIGN AND INSTALLATION PROBLEMS
CORRECTIVE ACTION PROGRAM

VALIDATION PROGRAM

ENGINEERING

- NEW CALCULATIONS FOR TYPICAL SUPPORTS

(QA RECORDS)

↓

CRITICAL CASE PROGRAM OBJECTIVES

ENSURE STRUCTURAL ADEQUACY TO CURRENT DESIGN BASIS

NOT ONE FOR ONE RECORD GENERATION

↓

CRITICAL CASE PROCESS

WALKTHROUGH PROCEDURES/DATA (QA RECORDS)

20 PERCENT (6,000 SUPPORTS) EVALUATION AGAINST NEW TYPICALS (QA RECORDS)

CRITICAL CONFIGURATION REVIEW (e.g., CONDUIT SPAN CANTILEVER LENGTH, etc.)

RELIES ON CERTAIN PREVIOUSLY INSPECTED FEATURES (e.g. WELDS)

↓

CRITICAL CASE RESULTS

DEVIATIONS COLLECTED/GROUPED/EVALUATED

CALCULATIONS (QA RECORDS)

↓

REMAINDER OF POPULATION

WALKTHROUGH OF REMAINDER (80 PERCENT) USING RESULTANT CRITICAL ATTRIBUTES (e.g. UNIQUE CONFIGURATION, CANTILEVER LENGTH, etc.) (QA RECORDS)

HANGER QUALIFICATION/ MAINTENANCE/RETRIEVAL OF RECORDS

RECORD

ORIGINAL TYPICAL DESIGN AND INSTALLATION NOTES

ORIGINAL QA INSPECITON

UPDATED DESIGN DOCUMENTS*

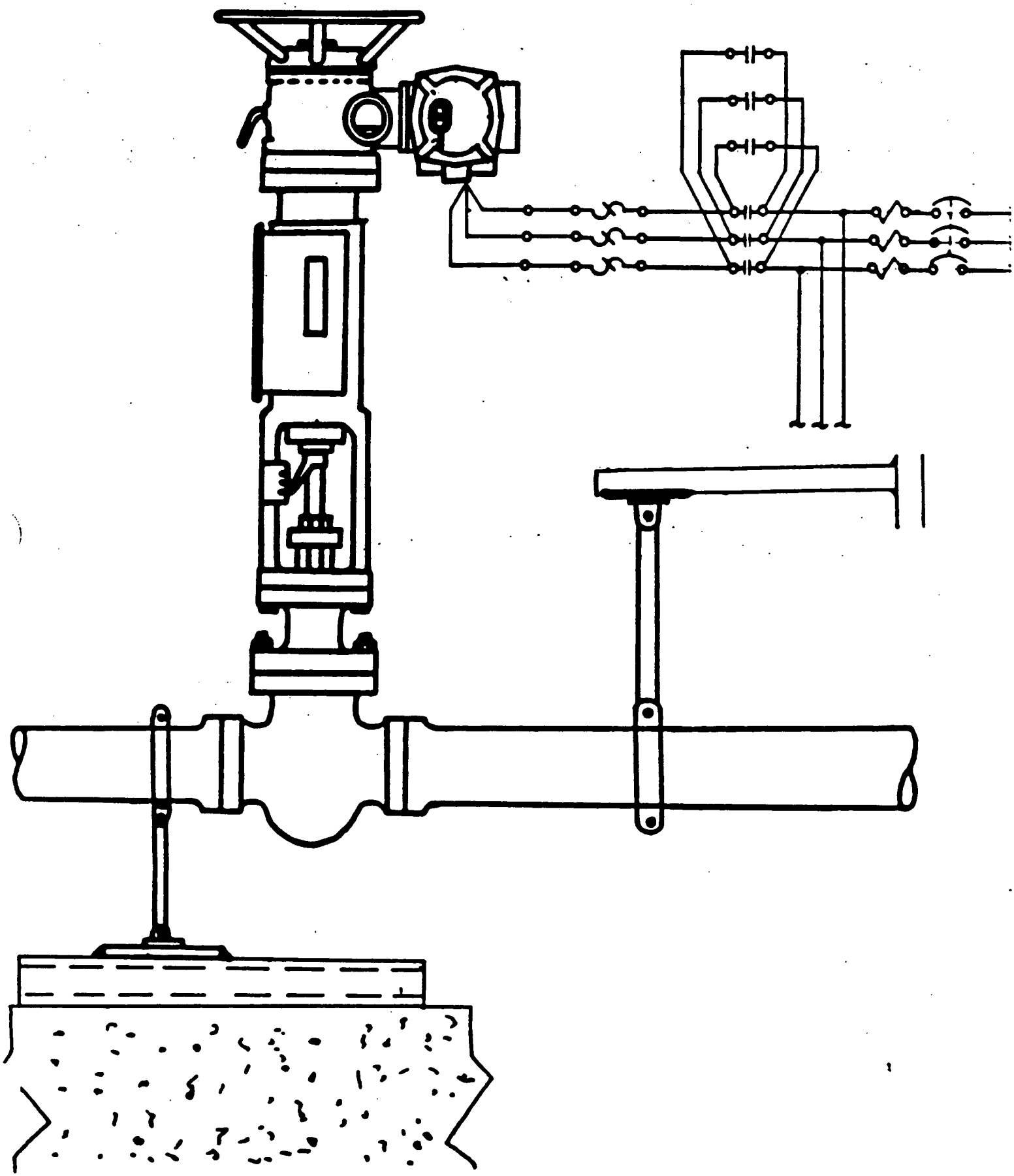
WALKTHROUGH DATA*

NEW/REVISED CALCULATION*

MAINTENANCE

MODIFICATION DOCUMENTATION, IF APPLICABLE*

* QA RECORDS CROSS REFERENCED TO ORIGINAL DOCUMENTS



CERTIFICATION OF CALCULATIONS

MECHANICAL CALCS

• DESIGN PRESSURE, TEMPERATURE, FLOW	SYS
• MINIMUM WALL THICKNESS	SYS
• THERMAL MOVEMENT	SYS
• VALVE TORQUE REQUIREMENTS	SYS
• REQUIRED ACCURACY/SAFETY LIMIT	SYS

NUCLEAR CALCS

• EQ REQUIREMENTS CATEGORY AND OPERATING TIMES HIGH ENERGY LINE BREAK	SYS
• FLUID TRANSIENTS	SYS
• ACTIVE VALVES	SYS
• FIRE PROTECTION/SAFE SHUTDOWN	SYS

ELECTRICAL/I&C CALCS

• CABLE SIZING	SYS
• POWER SYSTEM LOADING/PROTECTION/ COORDINATION	GROUP 4
• DEMONSTRATED ACCURACY	SYS
• SETPOINTS AND SCALING	SYS

CIVIL CALCS

• SEISMIC	PROJ MILESTONE
• CONCRETE	PROJ MILESTONE
• STRUCTURAL STEEL	PROJ MILESTONE
• STEEL CONTAINMENT VESSEL	PROJ MILESTONE

SYSTEM COMPLETION CERTIFICATION

ENSURE CALCS AND OPEN ITEMS FOR EACH SYSTEM ARE COMPLETE:

- REQUIRED CALCULATION LIST
- MINI-CALCS
- OPEN ITEMS LIST
- UNVERIFIED ASSUMPTIONS RESOLVED OR JUSTIFIED. JUSTIFICATION EXAMPLES:
  - FIELD IMPLEMENTATION VERIFICATION
  - TESTING CONFIRMATION
- STRUCTURAL ITEMS REVIEWED BY FUNCTIONAL AREAS

CERTIFICATION BY AI 6.15 SIGNOFF BEGINNING WITH GROUP 2A

CERTIFICATION BACKFIT

- SYSTEM GROUP 1
- ALL OPEN ITEMS REVIEWED FOR SYSTEM IMPACT
- PUNCHLIST WORK-OFF SCHEDULE
- SMALL RETEST POTENTIAL

ENCLOSURE

WATTS BAR NUCLEAR PLANT

DESIGN BASELINE AND VERIFICATION PROGRAM (DBVP)

CORRECTIVE ACTION PROGRAM PLAN

REVISION 3

9608030122 31 pp.