Docket Nos.: 50-528, 50-529
and 50-530

LICENSEE: Arizona Public Service Company

FACILITY: Palo Verde, Units 1, 2 and 3

SUBJECT: SUMMARY OF MEETING HELD IN PHOENIX, ARIZONA, AUGUST 11 - 13, 1987

1. Management Meeting

A management meeting was held on August 12, 1987, in the licensee's office in Phoenix, Arizona, with representatives of the licensee and NRC representatives from the Offices of NRR and Region V. The purpose of the meeting was to discuss NRC concerns generated during assessment of the operating performance of Palo Verde Units 1 and 2 in consideration of the pending licensing decision for Unit 3, and to identify needed licensee actions for improvement prior to the licensing decision.

The list of attendees and slides used in the licensee's presentation are enclosed as Enclosures 1 and 2 respectively.

The licensee presented responses to the concerns identified by the NRC in the proposed agenda provided by letter dated July 22, 1987.

In the area of Compliance Trend Data, the licensee feels that downward trends have been established in the number of Licensee Event Reports, personnel errors, unplanned reactor trips, and ESF actuations. The staff commented that improvement in these areas had been noted, but in recent months a slight trend upward in several areas is occurring. Additional management emphasis is needed to ensure that a significant upward trend does not occur with the startup of Unit 3.

The licensee reviewed Fuel Performance figures for Units 1 and 2 and discussed actions taken over the past five years by the licensee and the fuel manufacturer to reduce fuel pin failures. The licensee has visited other utilities that have experienced fuel failures to discuss their problems and corrective actions. The licensee stated that with the actions taken Unit 3 will not be as susceptible to fuel failures, and fuel performance should improve.

The Unit 1 Circulatory Water (CW) system water hammer event was discussed. The root cause of the condenser waterbox damage was the failure of the quadrant gear bolts on the '2C' waterbox outlet valve. The bolts failed due to improper setting of the electrical limit switches and

mechanical stops caused by incorrect interpretation of the valve technical manual. The valve manufacturer provided training of licensee personnel and the electrical limit switches and mechanical stops were reset in Unit 1. The licensee stated that the use of locktite and hardened washers to distribute torque loading and an increase in preloading on the bolts should reduce the vibration induced fatigue loading on the bolts. Similar actions will be taken on Unit 2 CW valves at the next outage and on Unit 3 CW valves prior to power ascension.

In the area of Secondary Water Chemistry Control the licensee discussed activities in progress to reduce radwaste generation and to enhance radwaste processing capability when primary to secondary leakage occurs.

The Unit 1 LPSI pump seal failures of early July 1987 were discussed. When the Unit remained at approximately 325°F for steam generator cleanup following the condenser water hammer event, the continued operation at high temperature caused degradation of the seals. The swelling of the 'O' rings was apparently due to the application of a solvent to the 'O' ring surface. On the 'A' LPSI pump the increased seal leakage up the pump shaft displaced bearing lubricating oil and resulted in bearing failure and motor damage. As corrective actions slingers are being installed on all LPSI and CS pumps, no solvent or petroleum lubricants are to be used on ' rings, operating time above 210°F is being restricted on LPSI pumps, and a seal life monitoring program by the system engineer has been established. The licensee is looking at different seal designs and/or materials. The staff commented that a common theme in several recent events has been that technical manuals were not specific. Increased interaction and information feedback between vendors and the licensee, and vendor involvement in maintenance activities might preclude similar problems in the future. The staff also recommended that information about seal degradation at high temperature should be shared with the rest of the industry.

Other topics of discussion included Conduct of Radiation Protection Surveillances, System Engineer Involvement in Maintenance and Modification activities, Status of Unit 3B Emergency Diesel Generator, Operator Confidence in Control Room Indications, Unit 3 Schedule, Maintenance Backlog, Annunicator Status, Simulator Time Goals for Operator Retraining, and the licensee's proposed Organizational Changes.

The staff briefly discussed the issuance of Commission Paper 87-188 on New Plant Operating experience that addresses a number of initiatives to improve new plant performance. The staff will formally transmit a copy of this document to the licensee to obtain their response.

The NRC staff appreciated the presentation and will watch for evidence of success of corrective actions in improving performance trends.

2. Unit 3 Plant Tour

On August 11, 1987, the staff members toured Unit 3 and talked with plant personnel to assess Unit readiness for initial criticality. The licensee expects to be ready for startup in early October, and this appears to the staff to be reasonable.

/S/

Michael J. Davis, Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:
As stated

cc: See next page

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Mr. E. E. Van Brunt, Jr.
Arizona Nuclear Power Project

Palo Verde

cc:
Arthur C. Gehr, Esq.
Snell & Wilmer
3100 Valley Center
Phoenix, Arizona 85073

Mr. James M. Flenner, Chief Counsel
Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007

Charles R. Kocher, Esq. Assistant
Council
James A. Boeletto, Esq.
Southern California Edison Company
P. O. Box 800
Rosemead, California 91770

Mr. Mark Ginsberg
Energy Director
Office of Economic Planning
and Development
1700 West Washington - 5th Floor
Phoenix, Arizona 85007

Mr. Wayne Shirley
Assistant Attorney General
Bataan Memorial Building
Santa Fe, New Mexico 87503

Mr. Roy Zimmerman
U.S. Nuclear Regulatory Commission
P. O. Box 239
Arlington, Arizona 85322

Regional Administrator, Region V
U. S. Nuclear Regulatory Commission
1450 Maria Lane
Suite 210
Walnut Creek, California 94596

Kenneth Berlin, Esq.
Winston & Strawn
Suite 500
2550 M Street, NW
Washington, DC 20037

Ms. Lynne Bernabei
Government Accountability Project
of the Institute for Policy Studies
1901 Que Street, NW
Washington, DC 20009

Mr. Ron Rayner
P. O. Box 1509
Goodyear, AZ 85338

Mr. Charles B. Brinkman, Manager
Washington Nuclear Operations
Combustion Engineering, Inc.
7910 Woodmont Avenue Suite 1310
Bethesda, Maryland 20814

ENCLOSURE

NAME	AFFILIATION
Mike Davis	NRC/NRR/PDV
G. W. Knighton	NRC/NRR/PDV
Bill Quinn	MGR Licensing/ANPP
Richard Bernier	ANPP Lead Licensing Eng
Ike Zeringue	ANPP Tech Support
Joe Bynum	ANPP Plant Mgr
J. Martin	Region V Administrator
Robert J. Pate	Chief, Reactor Safety Br., Reg. V
Jay R. Ball	NRC Acting Senior Resident Inspector
J. G. Haynes	VP Nuclear Production
E. E. Van Brunt	Exec. V. P. - ANPP
J. D. Driscoll	Asst. V. P. Nuclear Prod.
F. J. Miraglia	NRC/NRR/ADP
Ross A. Scarano	DRSS/RegV/NRC
Ken Rotta	Az. Corp. Comm
Duke Railsback	Az. Corp. Comm
Allan Mitchell	Az. Corp. Comm
Kristin L. M^{c}Candless Clark	APS/PAD(Audit)
Larry Perea	ANPP Lead Mech Engr
Timothy Hall	ANPP Lead Mech Eng - NSSS
R. M. Butler	ANPP Director Tech Serv.
W. E. Ide	ANPP Director, Corp QA/QC

NAME	AFFILIATION
T. R. Bradish	ANPP Compliance Supervisor
T. D. Shriver	ANPP Compliance Mgr
A. C. Gehr	Snell & Wilmer
Bill Simko	ANPP Ops Engr
John Vorees	ANPP Manager, Nuc Safety
W. F. Fernow	ANPP Training Manager
Dan Canady	ANPP Communications Mgr
Brad Albert	ANPP Licensing
Kent Chavet	Corporate Health Physics/Chemistry
John Mann	Corporate Health Physics/Chemistry
Frank Turco	Arizona Republic
Victor Dricks	Phoenix Gazette

ANPP - NRC MANAGEMENT MEETING
PHOENIX, ARIZONA
AUGUST 12, 1987

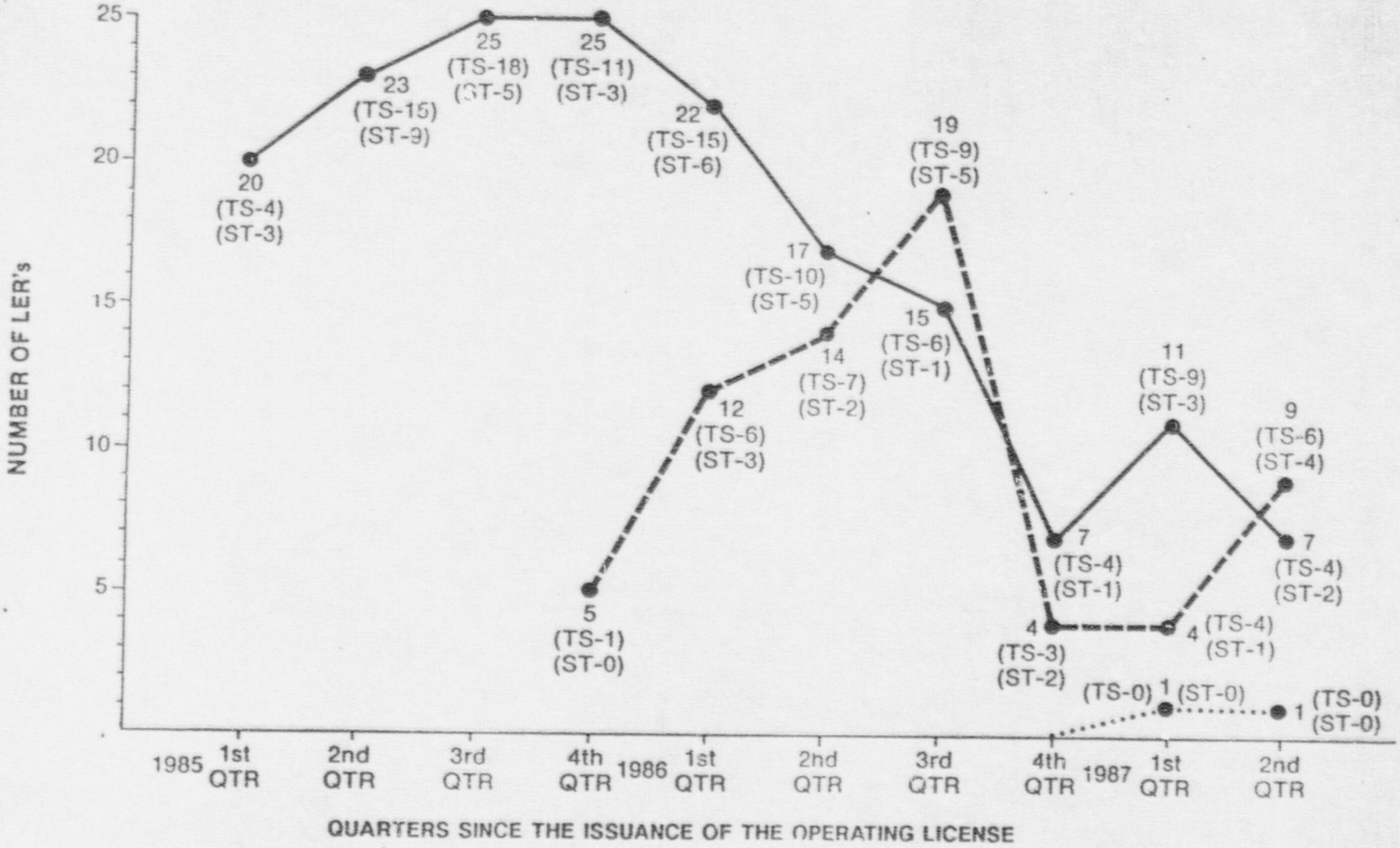
AGENDA

ANPP - NRC MANAGEMENT MEETING

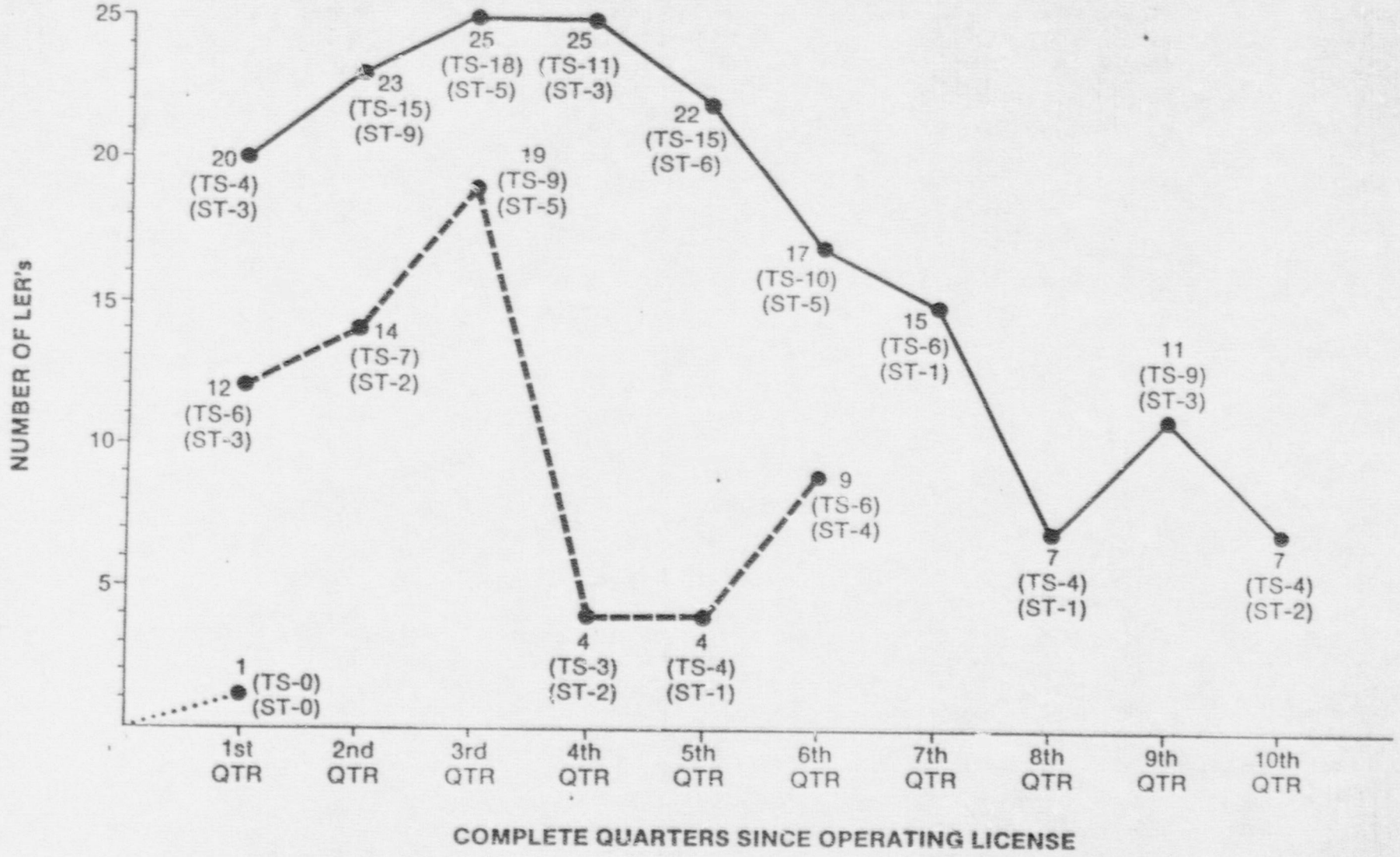
AUGUST 12, 1987

	PRESENTER
I. OPENING REMARKS	
- ANPP	E. E. VAN BRUNT
- NRC	NRC
II. OVERALL PLANT PERFORMANCE	
- COMPLIANCE TREND DATA	J. R. BYNUM
- FUEL INTEGRITY	P. F. CRAWLEY
III. UPDATE ON RECENT EVENTS	
- CONDENSER WATER HAMMER	W. M. SIMKO
- SECONDARY WATER CHEMISTRY CONTROL	J. R. MANN
- UNIT 1 LPSI PUMPS	W. M. SIMKO
IV. UPDATE ON PREVIOUS ISSUES	
- CONDUCT OF RP SURVEILLANCES	J. R. BYNUM
- SYSTEM ENGINEER INVOLVEMENT IN MAINTENANCE AND MODIFICATIONS	O. J. ZERINGUE
- OPERATOR CONFIDENCE IN CONTROL ROOM INDICATIONS	O. J. ZERINGUE
V. PRINCIPLE PROBLEMS ENCOUNTERED DURING UNIT 3 TESTING	
- EMERGENCY DIESEL GENERATOR B	O. J. ZERINGUE
VI. UNIT 3 LOW POWER TESTING PROGRAM	J. R. BYNUM
VII. ADDITIONAL ITEMS	
- MAINTENANCE BACKLOG	J. R. BYNUM
- ANNUNCIATOR IMPROVEMENT PROGRAM	J. R. BYNUM
- SIMULATOR TIME	W. F. FERNOW
VIII. ANPP ORGANIZATION	E. E. VAN BRUNT/ J. G. HAYNES

LER's PER UNIT PER QUARTER

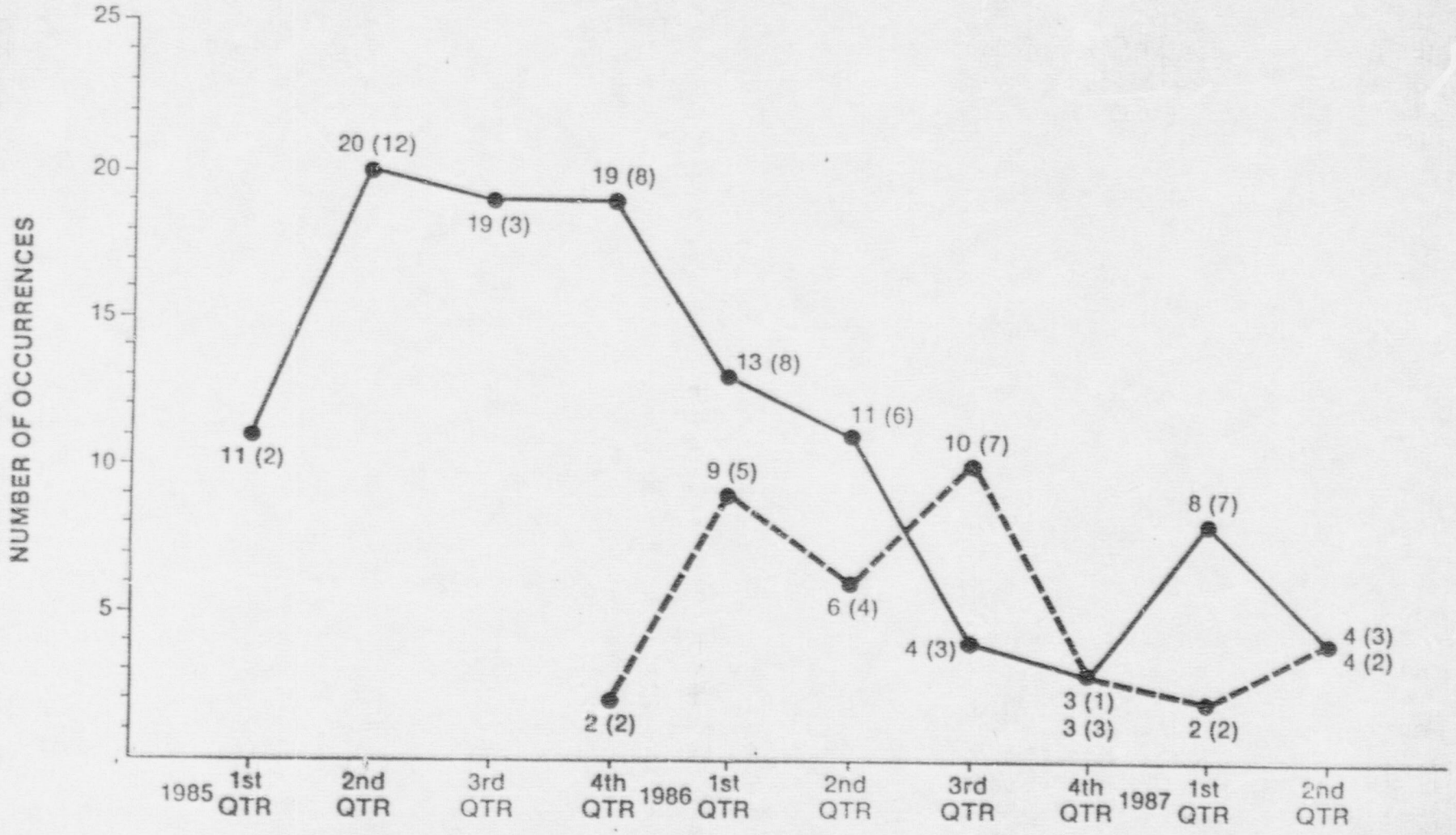


UNIT COMPARISON
LER's PER COMPLETE QUARTER
SINCE ISSUANCE OF OPERATING LICENSE



TS - Technical Specification Violations
ST - Surveillance Test Deficiencies

OCCURRENCES INVOLVING PERSONNEL PER UNIT

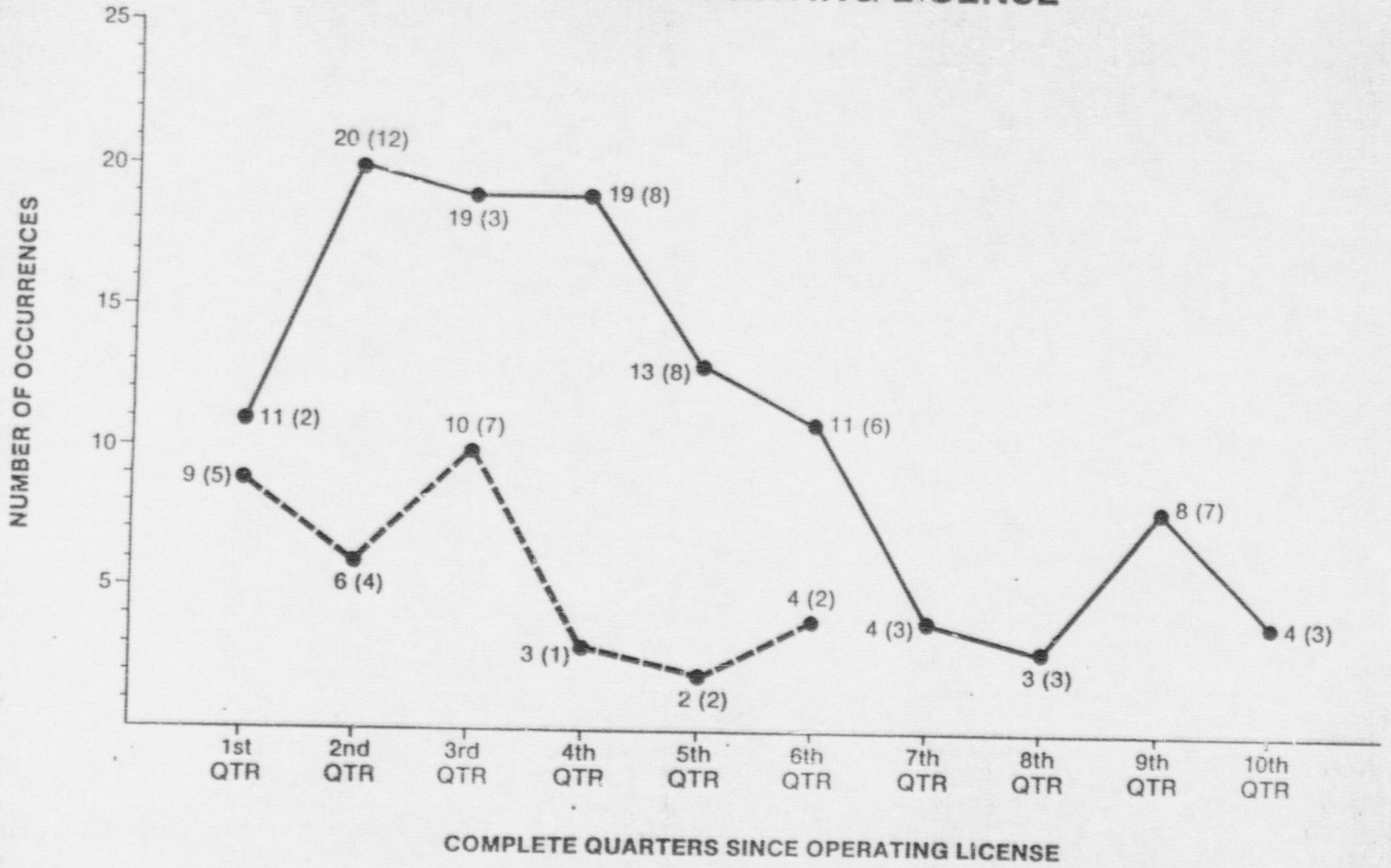


UNIT 1 ——

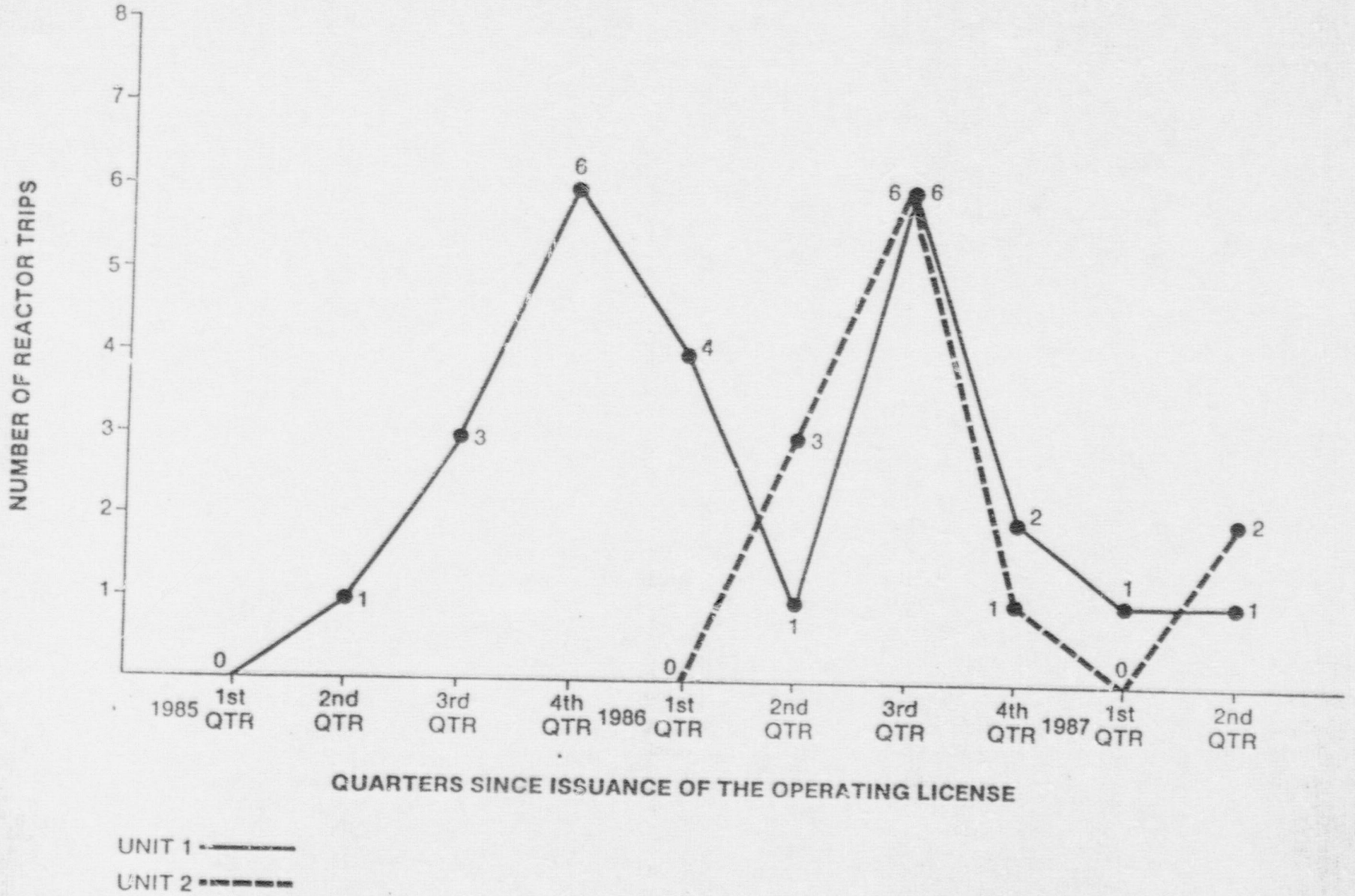
UNIT 2 - - - -

( ) Procedure Violations

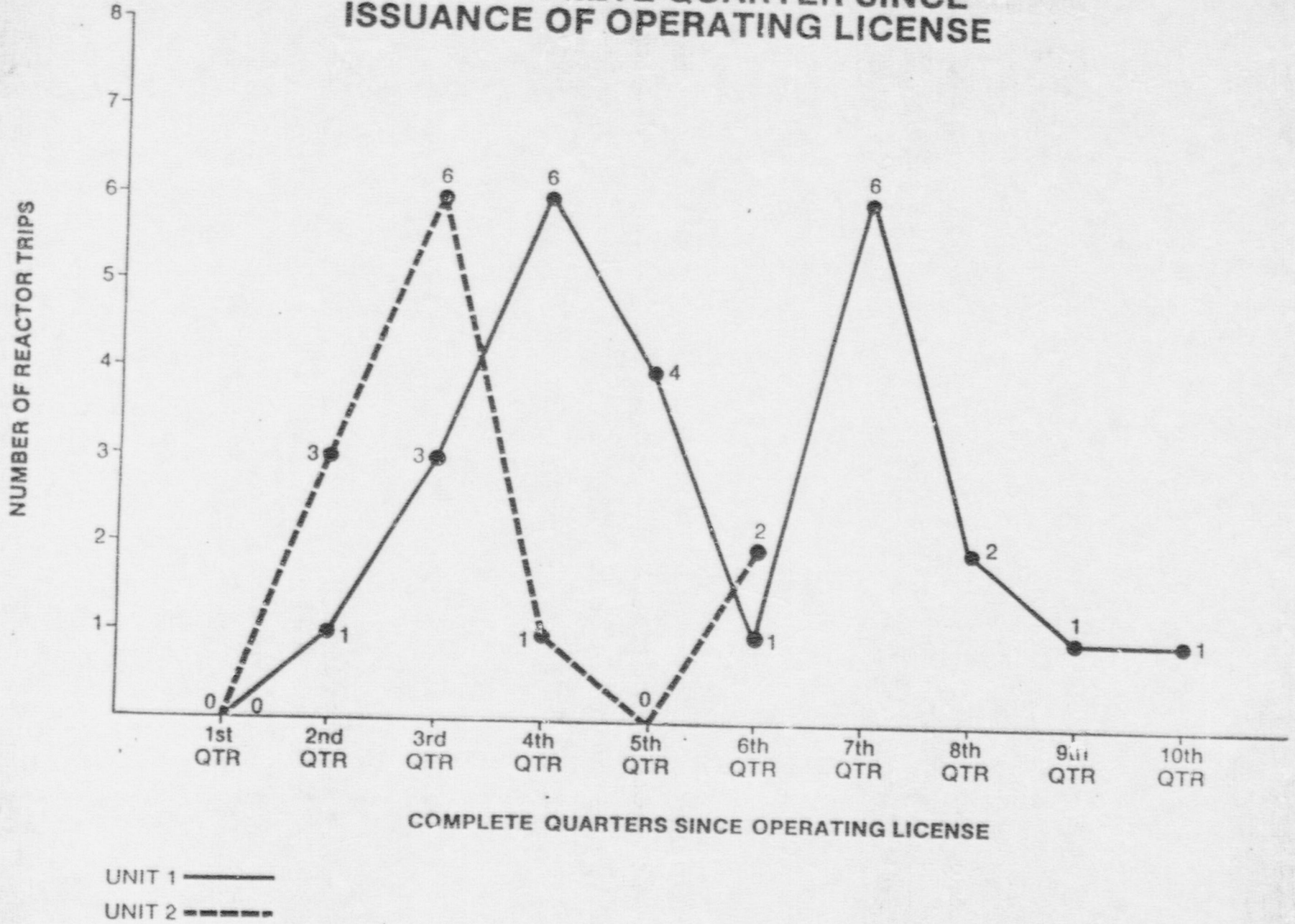
UNIT 1/UNIT 2 COMPARISON
OCCURRENCES INVOLVING PERSONNEL
PER COMPLETE QUARTER SINCE
ISSUANCE OF OPERATING LICENSE



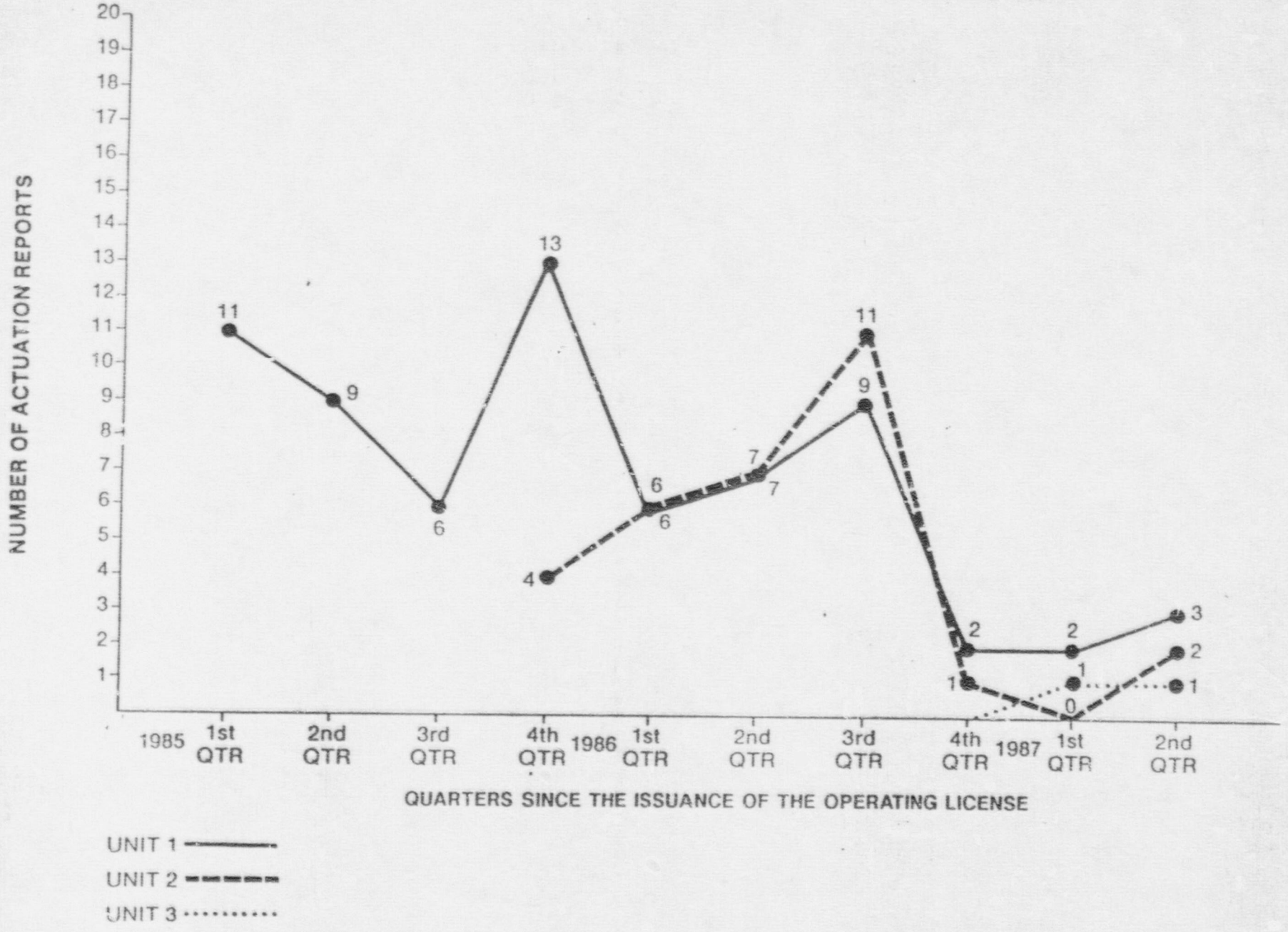
UNPLANNED REACTOR TRIPS PER UNIT



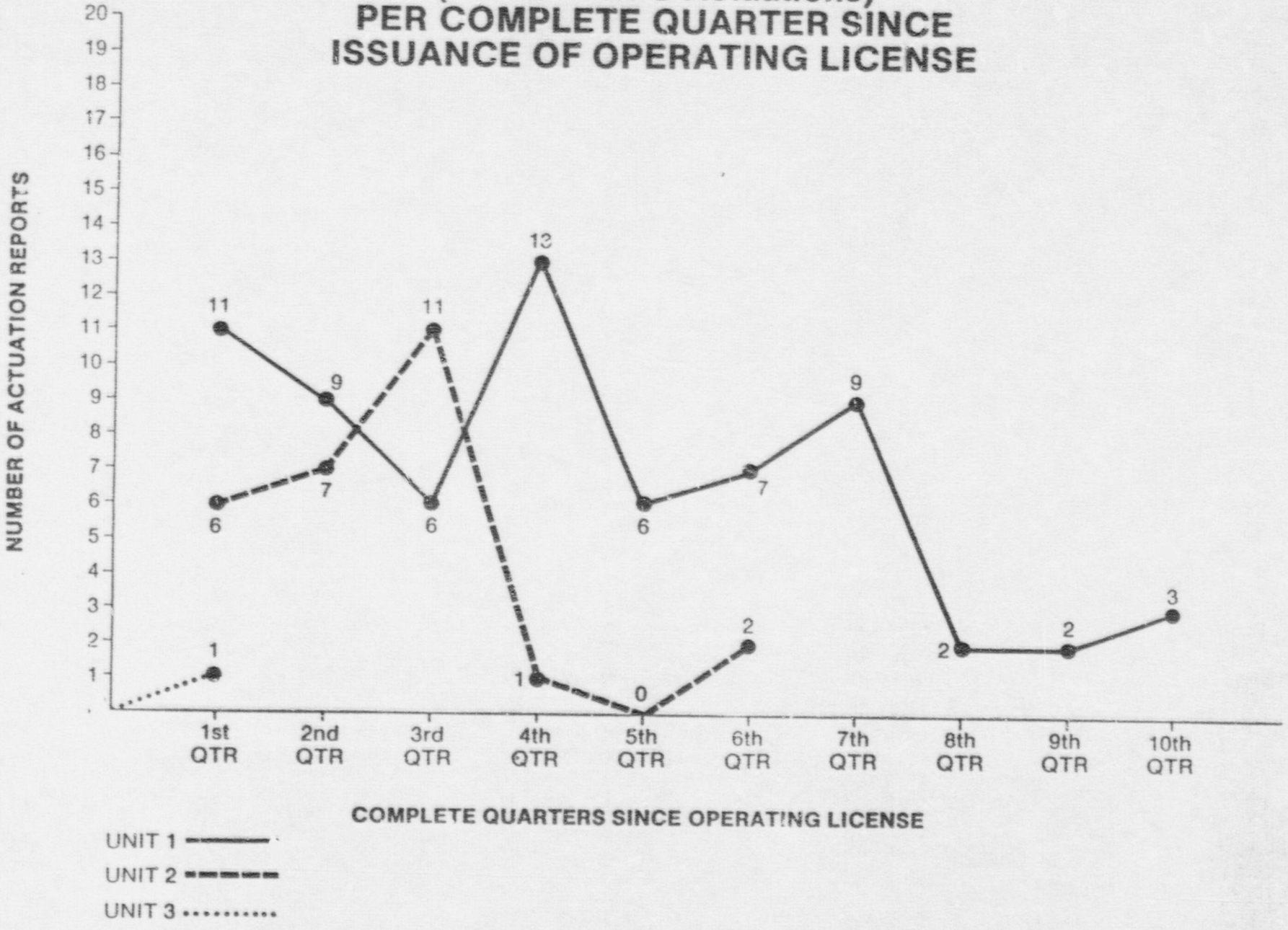
UNIT 1/UNIT 2 COMPARISON
UNPLANNED REACTOR TRIPS
PER COMPLETE QUARTER SINCE
ISSUANCE OF OPERATING LICENSE



ESF EVENT REPORTS PER UNIT
(Includes RPS Actuations)



UNIT COMPARISON
TOTAL ESF EVENT REPORTS
(Includes RPS Actuations)
PER COMPLETE QUARTER SINCE
ISSUANCE OF OPERATING LICENSE



UNIT 1 FUEL PERFORMANCE

° FUEL STATUS

- ESTIMATED NUMBER OF FAILED FUEL PINS	5-10
- COOLANT ACTIVITY - IODINE-131	0.025 uCi/ML
- IODINE-131 DOSE EQUIVALENT	0.050 uCi/ML

° FUEL INSPECTION AT REFUELING

- VISUAL INSPECTION
- GUIDE TUBE EDDY CURRENT EXAMINATION
- SHOULDER GAP MEASUREMENT
- CLAD OXIDE LAYER THICKNESS MEASUREMENT

° ADDITIONAL FUEL OPERATIONAL PRACTICES

- GUIDELINES HAVE BEEN ISSUED TO PLANT OPERATIONS LIMITING THE RATE OF PLANT POWER INCREASE TO 10% PER HOUR COMPARED TO THE CE CORE OPERATING GUIDELINES LIMIT OF 30% PER HOUR.
- DAILY MONITORING OF REACTOR COOLANT SYSTEM ACTIVITY WITH REPORTS TO ANPP MANAGEMENT WEEKLY.

8/12/87 - PFC

UNIT 2 FUEL PERFORMANCE

° FUEL STATUS

- ESTIMATED NUMBER OF FAILED FUEL PINS	25 - 35
- COOLANT ACTIVITY - IODINE-131	0.15 uCi/ml
- IODINE-131 DOSE EQUIVALENT	0.22 uCi/ml

° FUEL INSPECTION AT REFUELING

- VISUAL INSPECTION
- GUIDE TUBE EDDY CURRENT EXAMINATION
- SHOULDER GAP MEASUREMENT

° ADDITIONAL FUEL OPERATIONAL PRACTICES

- GUIDELINES HAVE BEEN ISSUED TO PLANT OPERATIONS LIMITING THE RATE OF PLANT POWER INCREASE TO 10% PER HOUR COMPARED TO THE CE CORE OPERATING GUIDELINES LIMIT OF 30% PER HOUR
- DAILY MONITORING OF REACTOR COOLANT SYSTEM ACTIVITY WITH REPORTS TO ANPP MANAGEMENT WEEKLY

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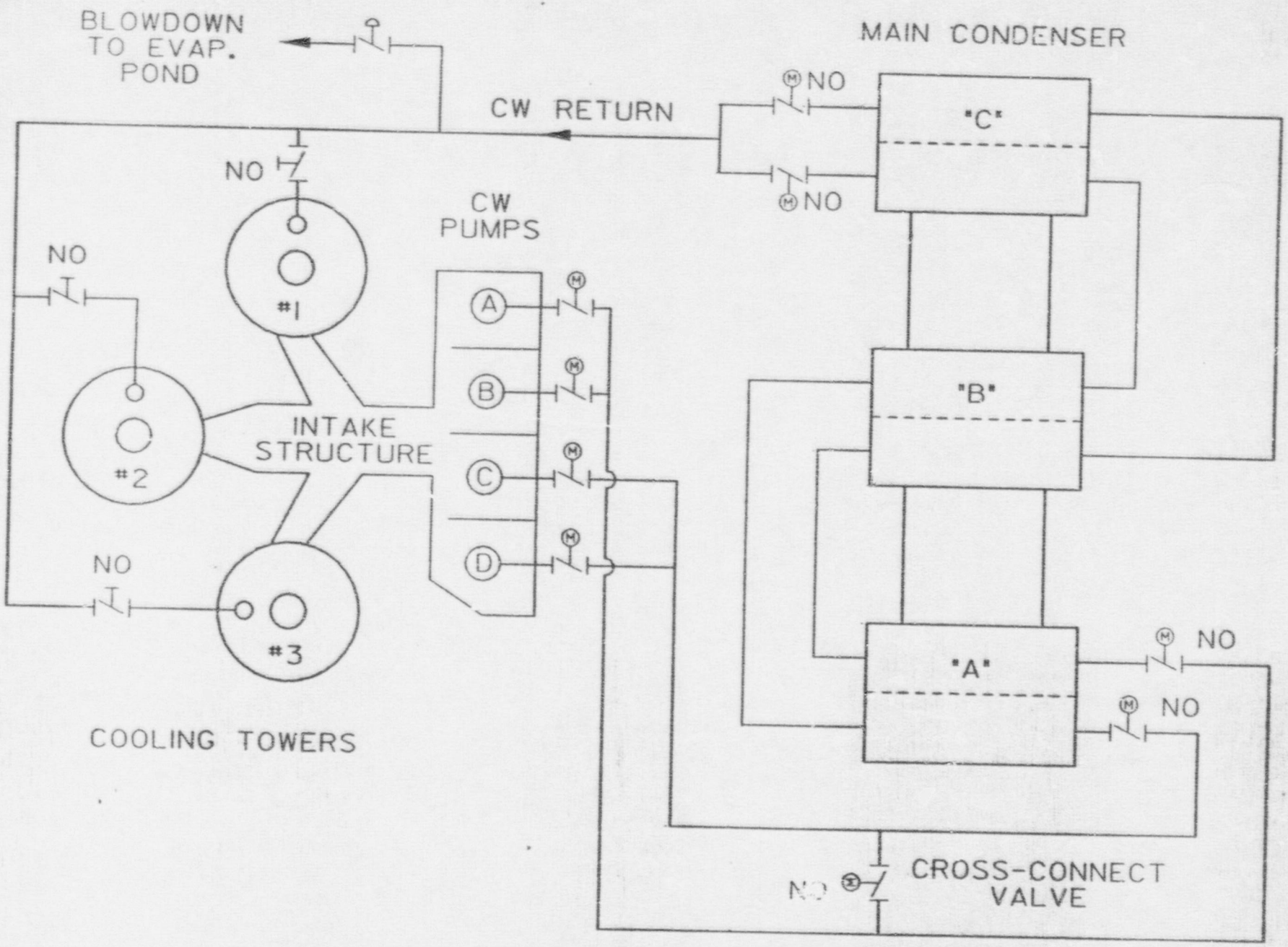
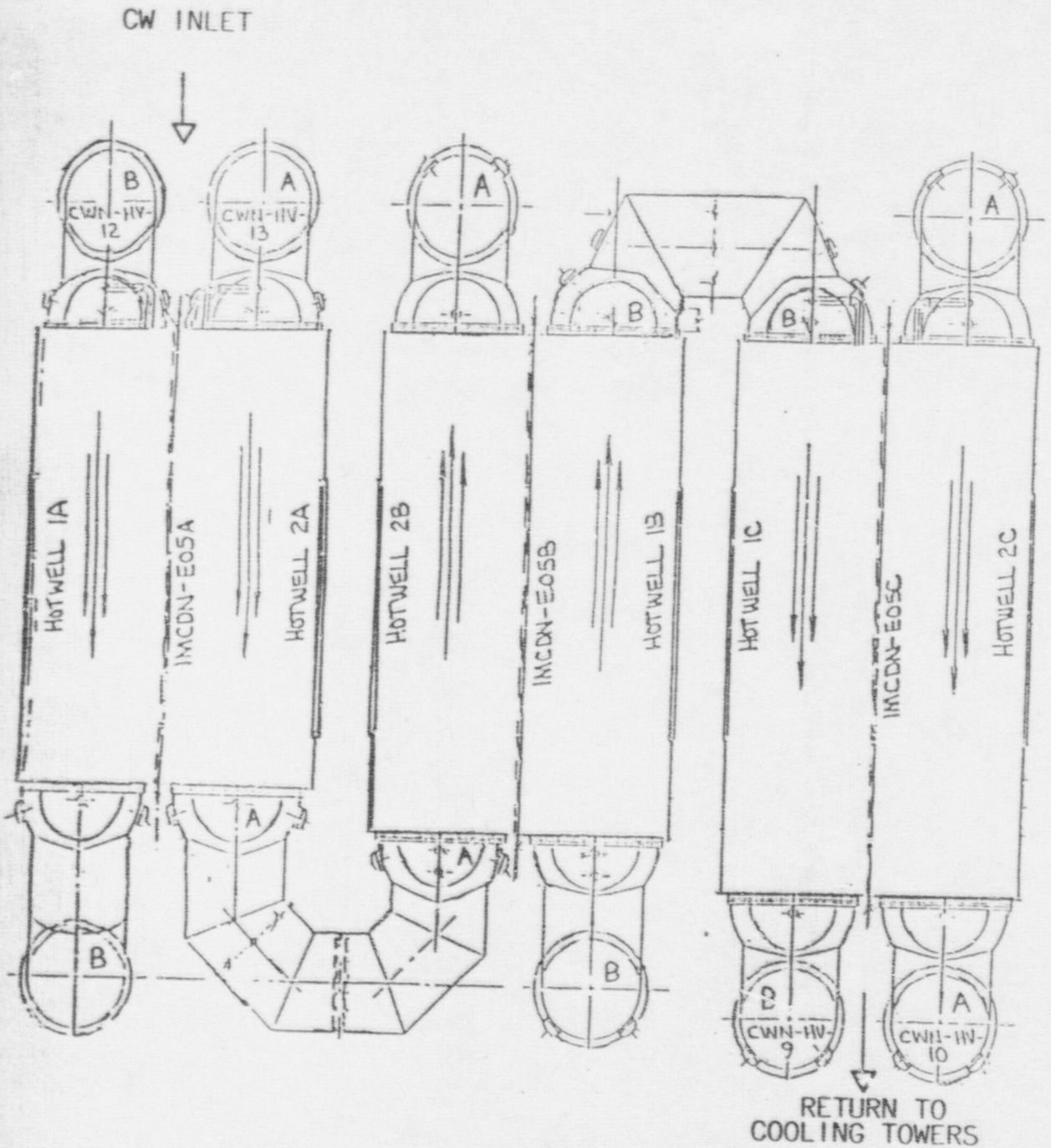


CIRCULATING WATER SYSTEM



CW TRAIN A: - CONSISTS OF CW PUMPS A & B
- PASSES THROUGH HOTWELLS 2A, 2B, 2C

CW TRAIN B: - CONSISTS OF CW PUMPS C & D
- PASSES THROUGH HOTWELLS 1A, 1B, 1C

8/12/87 - UMS

UNIT 1 CIRCULATING
WATER SYSTEM EVENT

DESCRIPTION OF EVENT:

- TRAIN 'A' OF CW SYSTEM EXPERIENCES PIPE WELD FAILURES PLANT IS SHUTDOWN.

- EVENT IS CAUSED BY HOTWELL '2C' OUTLET VALVE CLOSING.

- WELDS ON WATERBOX '2C' INLET AND OUTLET FAILED - WATERBOX '2B' OUTLET AND '2A' INLET CRACKED.

- EXPANSION JOINT STUDS BENT, STRETCHED AND DAMAGED ON BOTH LOOPS.

8/12/87 - WMS

UNIT 1 CIRCULATING WATER SYSTEM EVENT (CONT)

- ROOT CAUSE (MULTIPLE):

  - ROOT CAUSE OF THE WATERBOX DAMAGE WAS FAILURE OF THE QUADRANT GEAR BOLTS

  - ROOT CAUSE OF THE BOLT FAILURE WAS IMPROPER SETTING OF THE ELECTRICAL AND MECHANICAL STOPS

  - ROOT CAUSE OF THE IMPROPERLY SET STOPS WAS INADEQUATE/INCORRECT INTERPRETATION OF THE TECHNICAL MANUAL.

- CORRECTIVE ACTIONS:

  - ELECTRICAL LIMIT SWITCHES AND MECHANICAL STOPS WERE RESET IN UNIT 1
  - '2C' OUTLET VALVE REPAIRED. BOLTING MATERIAL REPLACED. LOCKTITE AND HARDENED WASHERS ADDED TO DISTRIBUTE TORQUE LOADING AND ASSIST IN MAINTAINING TORQUE LOADING.

  - ALL OTHER SIMILAR VALVES IN UNIT 1 CHECKED FOR WEAR, TORQUE, AND WASHERS AND LOCKTITE USED AS DESCRIBED ABOVE.

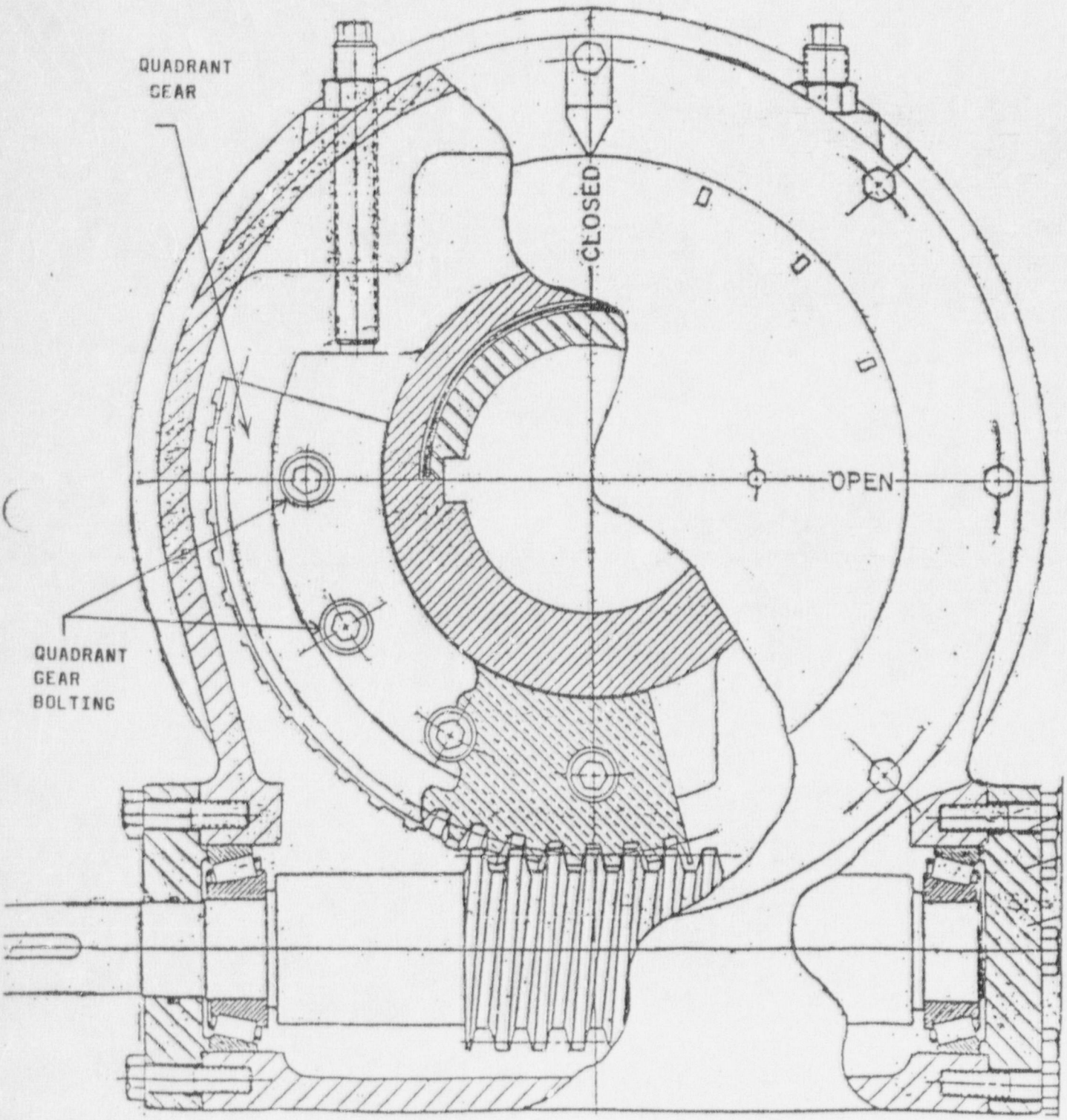
  - BOLTS IN UNITS 2 AND 3 CHECKED TO VERIFY TIGHTNESS

  - WATERBOX REPAIRS COMPLETED

  - ONE TUBE LEAK IDENTIFIED AND PLUGGED

  - NO INDICATIONS OF TUBE SHEET LEAKS OBSERVED

"2C" OUTLET VALVE QUADRANT GEAR



SECONDARY WATER CHEMISTRY CONTROL

° BACKGROUND

- TECHNICAL SPECIFICATION LIMITS AND BASIS FOR RADIOACTIVITY DISCHARGES TO EVAPORATION PONDS
- OPERATION OF SECONDARY AND CIRCULATING WATER SYSTEMS

° RECENT OPERATING HISTORY

- HIGH ANTIMONY ACTIVITY LEVELS IN RCS (UNITS 1 AND 2)
- THE PRIMARY SOURCE OF ANTIMONY IS THE RCP JOURNAL BEARINGS
- ANTIMONY ACTIVITY TRANSFERRED TO SECONDARY SIDE DUE TO UNIT 1 STEAM GENERATOR TUBE LEAK IN JANUARY, 1987

° ACTIVITIES IN PROGRESS

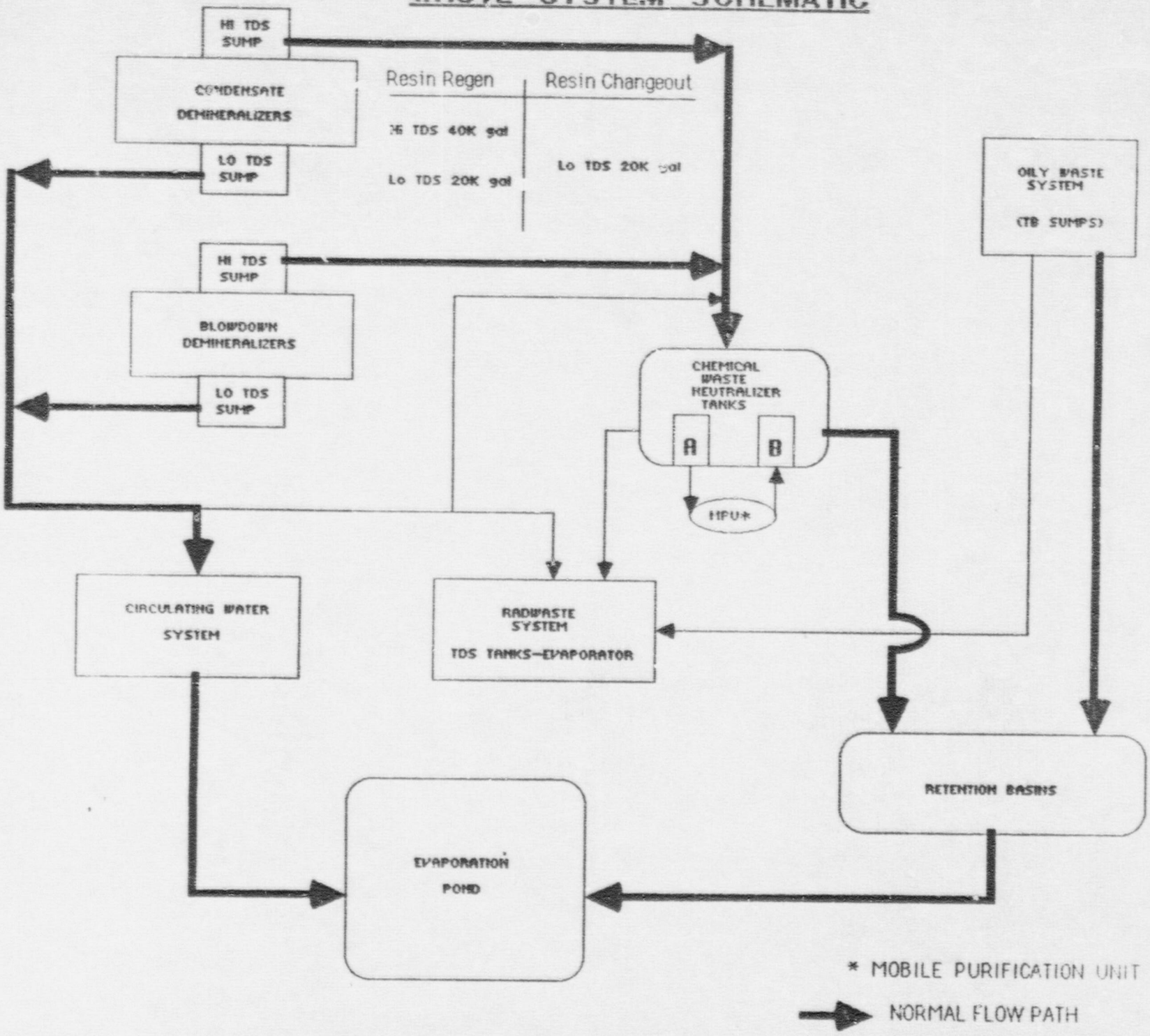
- CONTINUE INVESTIGATING MEANS TO INCREASE RADWASTE PROCESSING CAPABILITY
- CONTINUE INVESTIGATING MEANS TO OPERATE WITH MINUTE PRIMARY TO SECONDARY LEAK RATES

8/12/87 - JRM

	PVNGS LICENSE DISCHARGE LIMIT	LIMIT FOR DISCHARGES BY NRC REGULATIONS
MOST ISOTOPES	$5X10^{-7}$ uCi/ML	$1x10^{-7}$ TO $1x10^{-4}$
ANTIMONY	$2x10^{-5}$ uCi/ML	$2x10^{-5}$

8/12/87 - JRM

WASTE SYSTEM SCHEMATIC



UNIT 1 LPSI SEAL FAILURE

- JUNE 29, 1987 - ENTERED MODE 4 TO REPAIR CIRCULATING WATER SYSTEM

- JUNE 30, 1987 - PLACED SHUTDOWN COOLING (SDC) IN SERVICE ON 'B' LPSI PUMP - RX. COOLANT 325°F-MAINTAIN TEMPERATURE/PRESSURE FOR SG CHEMISTRY CLEANUP

- JULY 1, 1987 - RCS LEAKAGE INCREASED TO 2.5 GPM (ESTIMATED 1.6 GPM FROM 'B' LPSI) - PLACED 'A' TRAIN SDC IN SERVICE PER NORMAL OPERATING PROCEDURE. STOPPED 'B' LPSI

- JULY 3, 1987 - TOTAL RCS LEAKAGE AT 4.7 GPM - 4.0 GPM LEAKAGE FROM 'A' AND 'B' LPSI PUMPS-CONTINUED OPERATION ON 'A' LPSI PUMP BASED ON:

  1) LEAKAGE . TE CONSTANT
  2) EXPECTED MODE 3 ENTRY WITHIN 24 HOURS
  3) MOTORS QUALIFIED FOR 100% HUMIDITY

- JULY 4, 1987 - LOSS OF 'A' LPSI MOTOR DUE TO GROUND FAULT - RESTARTED 'B' LPSI - COMMENCED COOLDOWN OF RCS TO LESS THAN 210° TO ENTER MODE 5 AND PLACED CONTAINMENT SPRAY PUMP IN SERVICE

- JULY 5, 1987 - CONCLUDED LOWER MOTOR BEARING FAILURE CAUSED BY WATER SPRAY UP THE SHAFT FROM THE MECHANICAL SEAL. NEED TO PLACE SLINGER RING ON PUMP SHAFTS TO STOP WATER LEAK PATH

8/12/87 - WMS

LPSI A - ROOT CAUSE ANALYSIS

- SEAL FAILURE
  - VENDOR INVOLVEMENT (PUMP VENDOR AND SEAL VENDOR)
  - SWOLLEN 'O' RINGS APPARENTLY DUE TO SOLVENT APPLICATION
  - LOWER (ROTATING) SEAL SEIZES AXIALLY ON SHAFT PREVENTING WEAR COMPENSATION
  - HIGH TEMPERATURE ACCELERATES WEAR RATE
- MOTOR FAILURE
  - VENDOR INVOLVEMENT
  - SEAL LEAKAGE UP PUMP SHAFT TO LOWER MOTOR BEARING
  - BEARING OIL DISPLACED BY SEAL LEAKAGE WATER
  - BEARING FAILURE
  - MOTOR UPLIFT & DAMAGE

8/12/87 - WMS

LPSI B - ROOT CAUSE ANALYSIS

- VENDOR INVOLVEMENT (PUMP VENDOR AND SEAL VENDOR)
- DEBRIS IN ROTATING SEAL CAUSES MISALIGNMENT OF SEAL FACES
- "BEVELED" WEAR PATTERN ON STATIONARY CARBON SEAL FACE - SEALING SURFACE REDUCED
- HIGH TEMPERATURE ACCELERATES WEAR RATE
- CHIPPING ON CARBON SEALING FACE
- SEAL LEAKAGE UP PUMP SHAFT TO LOWER MOTOR BEARING

8/12/87 - WMS

CORRECTIVE ACTIONS

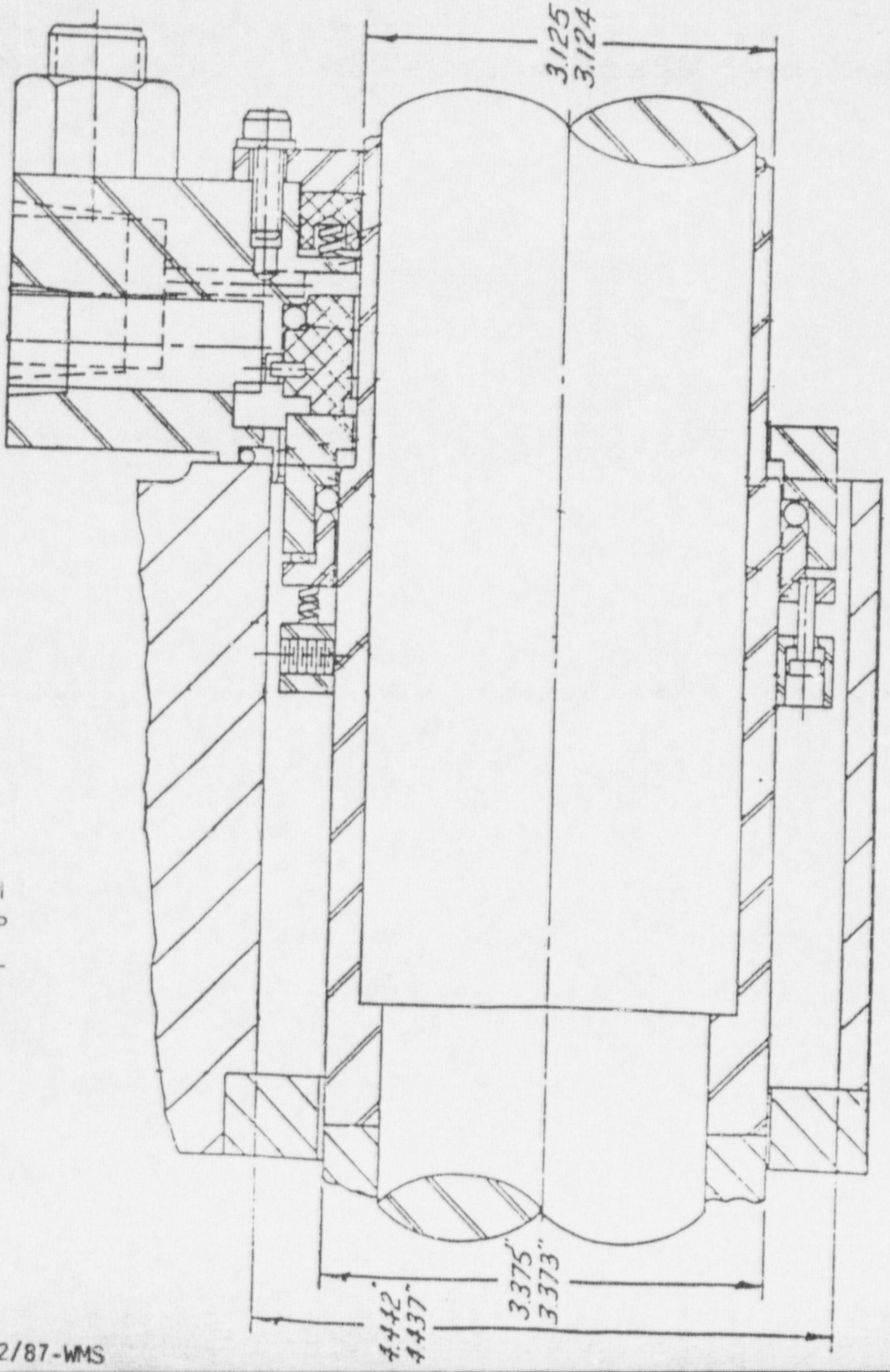
1. SLINGERS ON ALL LPSI AND CONTAINMENT SPRAY PUMPS

2. NO SOLVENT OR PETROLEUM LUBRICANTS ON O-RING/RUBBER MATERIAL

3. LIMIT OPERATION TIME ON LPSI PUMPS WHEN ABOVE 210°F

4. SEAL LIFE MONITORING BY SYSTEM ENGINEER

8/12/87 - WMS



LPSI
PUMP
SEAL

08/12/87-WMS

CONDUCT OF RP SURVEILLANCES

- APRIL 1982 - FALSIFICATION OF ELECTRICAL TERMINATION CARDS BY BECHTEL CONSTRUCTION PERSONNEL

  - TURLEY TAPE I - ATTENTION TO DETAIL INDIVIDUAL RESPONSIBILITY FOR COMPLETE AND PROPER DOCUMENTATION

- NOVEMBER 1984 - TURLEY TAPE II - FITNESS FOR DUTY - VERBATIM COMPLIANCE WITH PROCEDURES

- APRIL 1985 - VAN BRUNT TAPE I - SAFETY AND QUALITY - ATTENTION TO DETAIL - KNOW AND FOLLOW PROCEDURES

- JANUARY 1986 - PUBLISHED ARTICLE IN 'REACTOR' DEALING WITH SEABROOK EVENT

- FEBRUARY 1986 - QUALITY TALKS - FRAUD AND FALSIFICATION - INDIVIDUAL RESPONSIBILITIES

- MARCH 1986 - QUALITY TALKS - NRC PERSPECTIVE OF FALSIFICATION - DISCUSSED SEABROOK EVENT

- DECEMBER 1986 - RADIATION PROTECTION TECHNICIANS FALSIFICATION OF SURVEILLANCE DATA

  - SAMPLED RP, FIRE PROTECTION, OPERATOR LOGS AND COMPARED AGAINST ACAD TRANSACTIONS
  - PUBLISHED ARTICLE IN 'REACTOR' - THIS EVENT AND SEABROOK EVENT
  - QUALITY TALKS ISSUED ON SEABROOK EVENT EMPHASIZING INDIVIDUAL RESPONSIBILITY
  - PERSONNEL DEPARTMENT EVALUATION CONDUCTED TO DETERMINE IF HUMAN FACTORS SUCH AS MORALE, WORKING CONDITIONS COULD BE CONTRIBUTORY CAUSE

8/12/87 - JRB

CONDUCT OF RP SURVEILLANCES

- MAY 1987 - SECURITY GUARD FALSIFICATION OF ROUNDS
  - REVIEWED SIGNIFICANT SAMPLE OF SECURITY LOGS AND ACAD TRANSACTIONS
- MAY 1987 - RADIATION PROTECTION TECHNICIAN FALSIFIED SAMPLE FLOW VERIFICATION
  - VAN BRUNT LETTER REITERATING FALSIFICATION SERIOUSNESS
  - REVIEWED SAMPLE OF RP LOGS AND ACAD TRANSACTIONS
  - EVALUATION BY COMPLIANCE OF OTHER ACTIONS TO MINIMIZE FALSIFICATIONS
- CORRECTIVE ACTIONS TAKEN FOR SPECIFIC EVENTS WERE APPROPRIATE
  - ALL PERSONNEL RECOGNIZE SERIOUSNESS OF FALSIFICATION

8/12/87 - JRB

SYSTEM ENGINEER INVOLVEMENT IN MAINTENANCE AND MODIFICATION ACTIVITIES

- DESCRIPTION OF EVENT:

  - ASME SECTION XI TESTING WAS CONDUCTED ON THREE VALVES IN NOVEMBER, 1986.

  - THE VALVES MET THE ACCEPTANCE CRITERIA HOWEVER THE STROKE TIMES HAD INCREASED BY MORE THAN 50% FROM THE PREVIOUS TESTS.

  - WHEN STROKE TIMES INCREASE BY 50% OR MORE RELATIVE TO PREVIOUS TESTS, SECTION XI REQUIRES TESTING FREQUENCY TO BE INCREASED TO A MONTHLY INTERVAL.

  - IN JANUARY, 1987, THE MODIFIED SURVEILLANCE INTERVAL WAS EXCEEDED.

  - THE VALVES WERE SATISFACTORILY TESTED ON MARCH 6, 1987 AS PART OF THE REGULARLY SCHEDULED SURVEILLANCE TEST.

  - ON MARCH 31, 1987 THE ERROR WAS DISCOVERED AND THE VALVES WERE ADDED TO THE MONTHLY TESTING SCHEDULE AND SATISFACTORILY TESTED ON APRIL 2, 1987.

8/12/87 - OJZ

SYSTEM ENGINEER INVOLVEMENT IN MAINTENANCE AND MODIFICATION ACTIVITIES (CONT)

EVALUATION OF EVENT:

- THE CAUSE OF THE EVENT WAS A PERSONNEL ERROR ON THE PART OF THE ENGINEER RESPONSIBLE FOR THE SECTION XI TESTS. THE ENGINEER DID NOT EVALUATE THE STROKE TIMES WITHIN SUFFICIENT TIME TO MODIFY THE TESTING INTERVAL.

- A REVIEW OF PREVIOUS TEST DATA WAS CONDUCTED WHICH VERIFIED THAT THESE THREE VALVES WERE THE ONLY VALVES TESTED LATE.

- ANPP IS CURRENTLY EVALUATING PROPOSED CHANGES TO THE ROLE OF THE SYSTEM ENGINEER IN THE PREPARATION AND CONDUCT OF SURVEILLANCE TESTING.

- REVIEW OF SURVEILLANCE TEST PROCEDURES.
- REVIEW OF SURVEILLANCE TEST RESULTS TO EVALUATE SYSTEM PERFORMANCE.
- REVIEW OF PREVENTATIVE MAINTENANCE PROCEDURES AND PERFORMANCE FREQUENCY.
- REVIEW OF PREVENTATIVE MAINTENANCE RESULTS.

8/12/87 - OJZ

OPERATOR CONFIDENCE

IN CONTROL ROOM INDICATIONS

DESCRIPTION OF EVENT:

- ON JUNE 10, 1987, A S/G COLD LEG BLOWDOWN SAMPLE ISOLATION VALVE WAS STROKED CLOSED TO PERFORM A STROKE TIME SURVEILLANCE TEST

- THE "OPEN" INDICATION LIGHT EXTINGUISHED BUT NO "CLOSED" INDICATION WAS RECEIVED

- THE TEST WAS DISCONTINUED AND A WORK REQUEST WAS GENERATED TO TROUBLESHOOT THE INDICATION PROBLEM. HOWEVER, BASED ON PREVIOUS PROBLEMS EXPERIENCED WITH THIS TYPE OF VALVE'S POSITION INDICATION SWITCHES, THE VALVE WAS NOT DECLARED INOPERABLE

- ON JUNE 15, 1987, THE VALVE WAS STROKED TESTED AGAIN. HOWEVER, DURING THIS TEST THE "OPEN" INDICATION LIGHT DID NOT EXTINGUISH

- THE OPERATING CREW CHECKED THAT THE VALVE DID NOT MOVE, DECLARED THE VALVE INOPERABLE, AND CLOSED AND REMOVED POWER FROM A SECOND ISOLATION VALVE IN THE SAMPLE LINE IN ACCORDANCE WITH THE APPLICABLE ACTION STATEMENT

- SUBSEQUENT INVESTIGATION REVEALED THAT A SPRING, WHICH ACTS ON THE VALVE STEM TO CLOSE THE VALVE WHEN POWER IS REMOVED, WAS BROKEN

8/12/87 - OJZ

OPERATOR CONFIDENCE
IN CONTROL ROOM INDICATIONS
(CONTINUED)

- EVALUATION OF EVENT:

  - THE VALVE SHOULD HAVE BEEN DECLARED INOPERABLE ON JUNE 10, SINCE THE VALVE WAS NOT VERIFIED FULLY CLOSED

  - SUBSEQUENT INVESTIGATION OF THE EVENT SHOWED COMPLIANCE WITH THE ACTION STATEMENT SINCE A MANUAL ISOLATION VALVE IN THE BLOWDOWN LINE WAS CLOSED AT ALL TIMES DURING THE "INOPERABILITY" OF THE VALVE. HOWEVER, THIS WAS NOT CONSIDERED AT THE TIME OF THE EVENT.

  - MAINTAINING THE VALVE OPERABLE, WITHOUT POSITIVE VERIFICATION OF VALVE POSITION, AFTER CONTROL ROOM INDICATION SHOWED THE VALVE DID NOT CLOSE IS CONTRARY TO ANPP OPERATING PHILOSOPHY

- CORRECTIVE ACTION

  - LETTER WAS ISSUED TO UNIT 2 LICENSED PERSONNEL (COPIES TO UNIT 1 AND 3) BY THE UNIT 2 OPERATIONS SUPERINTENDENT TO REINFORCE THE RESPONSIBILITIES WITH REGARD TO DETERMINATION OF OPERABILITY OF TECHNICAL SPECIFICATION EQUIPMENT

  - THE RESPONSIBLE OPERATOR AND THE UNIT SUPERINTENDENTS WERE COUNSELED

8/12/87 - OJZ

DIESEL GENERATOR "B" - CURRENT STATUS

- NRC APPROVED SPECIAL TEST PROGRAM COMPLETED JULY 5

- INSPECTION OF #2 MAIN BEARING AND #9 ROD BEARING BY NRC, COOPER, CLEVITE (BEARING MANUFACTURER), AND ANPP COMPLETED JULY 10. BEARINGS WERE DETERMINED TO BE ACCEPTABLE

- DURING INSPECTION OF THE GENERATOR ON JULY 15, A LOOSE POLE WINDING WAS DISCOVERED

- PREVIOUS FAILURE: IN NOVEMBER, 1986, PRIOR TO INITIAL ENERGIZATION, SEPARATED WINDING WAS DISCOVERED ON THE #12 POLE PIECE. POLE PIECE WAS SHIPPED TO THE GENERATOR MANUFACTURER (PARSON-PEEBLES) TO DETERMINE THE ROOT CAUSE OF THE FAILURE. ROOT CAUSE WAS EVALUATED TO BE LOCAL CONTAMINATION OF THE RESIN FROM CLEANING SOLVENT ON THE BRUSH USED TO APPLY THE RESIN.

  DEDUCTIVE EVALUATION:

  - AMOUNT OF RESIN - OK
  - QUALITY OF RESIN - OK
  - RESIN CURE - OK

- INSPECTION OF UNIT 1, UNIT 2 AND UNIT 3 'A' DIESEL GENERATOR POLES WAS CONDUCTED - NO FAILURES

- FOLLOWING THE JULY 15TH FAILURE:

  - DAMAGED POLE REMOVED

  - NATIONAL ELECTRIC COIL WAS CONTACTED TO PERFORM ROOT CAUSE ANALYSIS (IN PROGRESS) INCLUDING DESIGN EVALUATION OF FORCES ON POLE PIECE

8/12/87 - OJZ

DIESEL GENERATOR 'B' - CURRENT STATUS (CONT)

- 'B' GENERATOR ROTOR SHIPPED TO WESTINGHOUSE FOR REQUALIFICATION TESTING

  X AUG 1 - 125% OVERSPEED TEST (COLD)
  X AUG 2 - 112% OVERSPEED TEST AT 130°C

- TESTING SUCCESSFULLY COMPLETED

- FINAL ROOT CAUSE NOT COMPLETE: PRELIMINARY RESULTS INDICATE THAT NOT ENOUGH RESIN, WHICH PROVIDES THE BONDING THAT HOLDS WINDING TO POLE, WAS APPLIED. QUALITY OF RESIN APPEARED GOOD. RESIN SUITABLE FOR THIS APPLICATION

- CONSULTANT IS BEING SOUGHT TO EVALUATE THE CORRELATION, IF ANY, OF THE ENGINE FAILURE OF 12/23 TO THE POLE WINDING FAILURE OF JULY 15

- WORKING WITH THE VENDOR TO DETERMINE AN APPROPRIATE INSPECTION FREQUENCY OF THE POLES

8/12/87 - OJZ

STATUS OF UNIT 3 LOW POWER TESTING PROGRAM

- MAJOR TEST PHASES

  1. POST-CORE HOT FUNCTIONAL TESTING (HFT)

     - PERFORM R.G. 1.68 TESTING AT SPECIFIED TEMPERATURE/ PRESSURE CONDITIONS BETWEEN MODE 5 (COLD SHUTDOWN-210°F) AND HOT ZERO POWER (565°F/2250 PSIA)

  2. INITIAL CRITICALITY/LOW POWER PHYSICS TESTING (IC/LPPT)

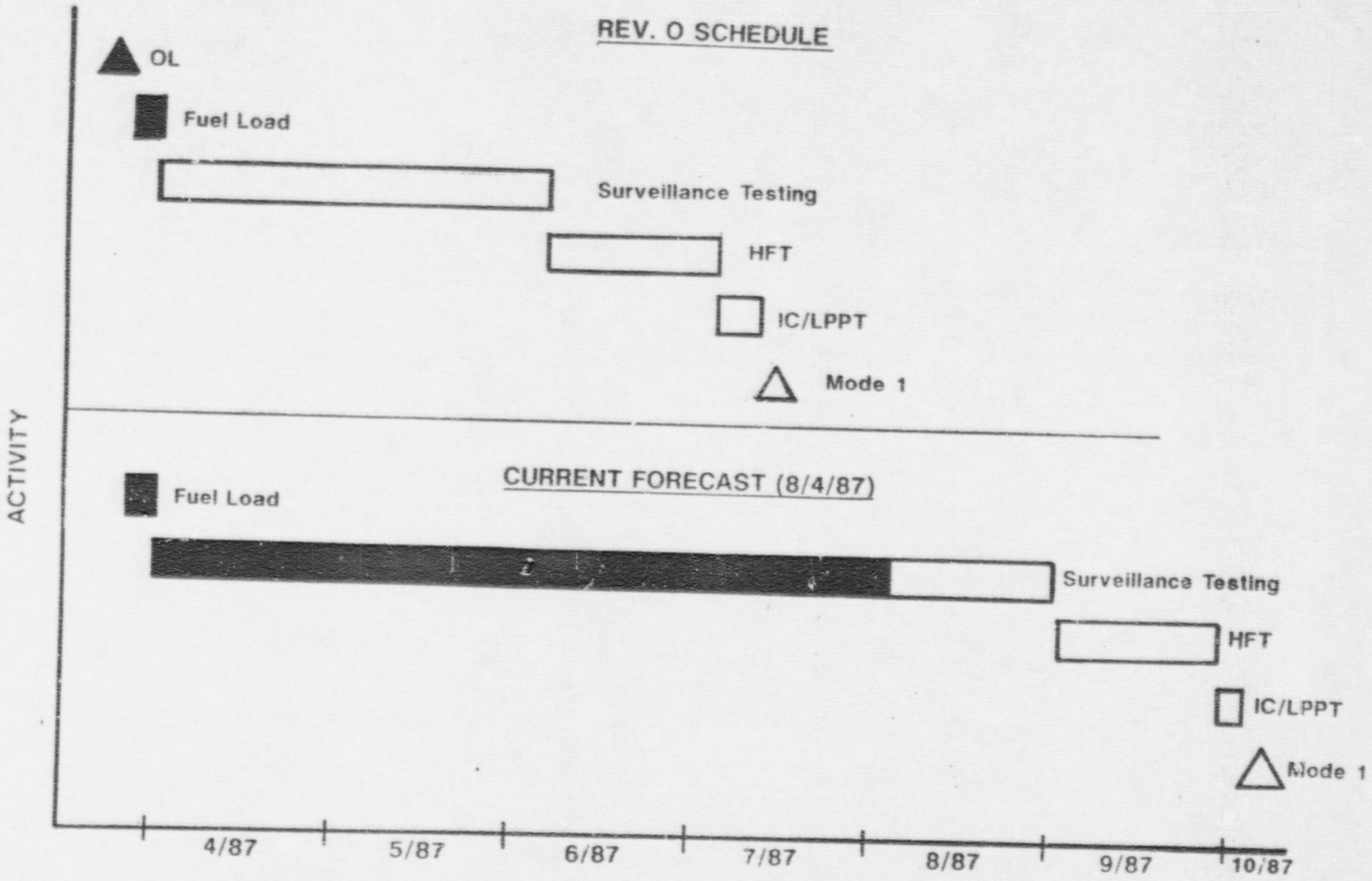
     - PERFORM R.G. 1.68 TESTING BY TAKING THE REACTOR CRITICAL AND VERIFYING LOW POWER REACTOR PHYSICS PREDICTIONS.

- STATUS

  1. SCHEDULE
  2. PERSONNEL

8/12/87 - JRB

PVNGS UNIT 3 MODE 1 (5% SCHEDULE)

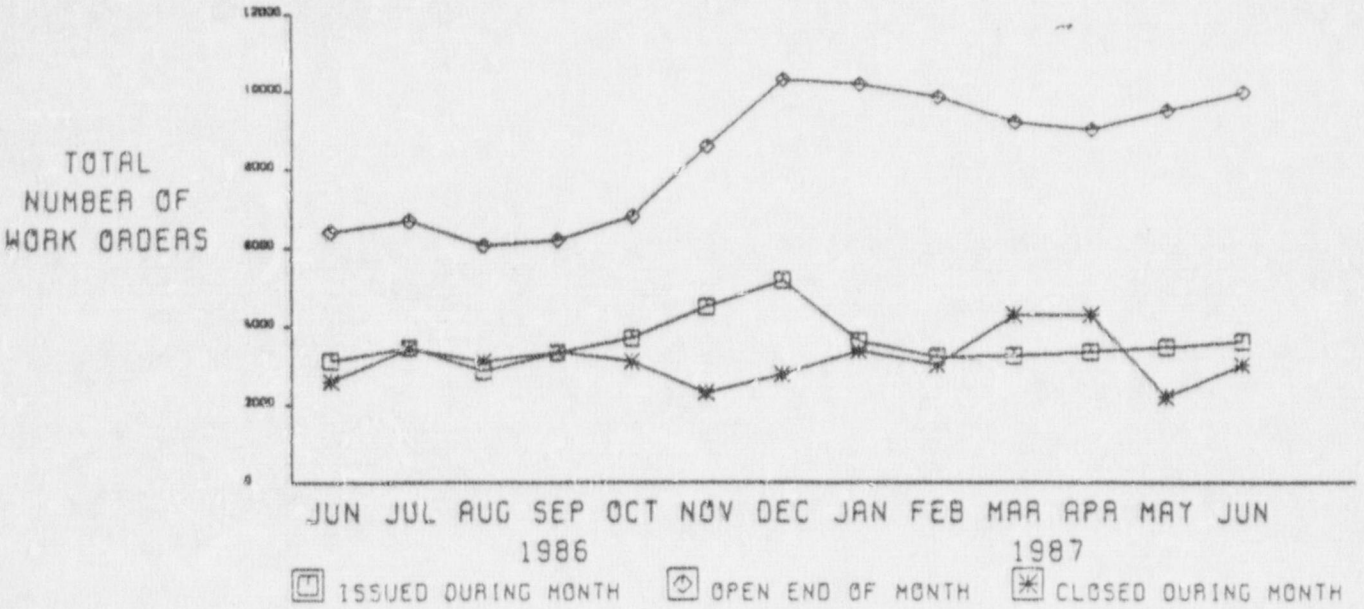


PERSONNEL STATUS

- BASICALLY SAME PERSONNEL INVOLVED WITH UNIT 1 AND 2 HFT/IC/LPPT THEREFORE STRONG EXPERIENCE LEVEL EXISTS

8/12/87 - JRB

MAINTENANCE BACKLOG



WORK ORDERS JUN 1987

NUMBER OF WORK ORDERS FOR MAINTENANCE WORK			PREVENTIVE MAINTENANCE	CORRECTIVE MAINTENANCE	PREVENTIVE + CORRECTIVE MAINTENANCE
1)	UNIT 1	ISSUED -	1198	317	1515
		OPEN -	1694	2407	4101
		CLOSED -	781	257	1038
2)	UNIT 2	ISSUED -	546	291	837
		OPEN -	1181	1426	2607
		CLOSED -	792	245	1037
3)	UNIT 3	ISSUED -	496	375	871
		OPEN -	865	1103	1968
		CLOSED -	389	157	546
4)	ANC BUILDING	ISSUED -	197	54	251
		OPEN -	269	93	362
		CLOSED -	261	70	331
5)	WATER REC	ISSUED -	23	1	24
		OPEN -	30	42	72
		CLOSED -	57	5	62
6)	OTHER	ISSUED -	0	0	0
		OPEN -	0	0	0
		CLOSED -	0	0	0
7)	TOTAL	ISSUED -	2597	1032	3629
		OPEN -	4153	5778	9931
		CLOSED -	2289	725	3014

EXPLANATION

TOTALS INCLUDE WORKTYPE OTHER THAN PM AND CM WORKORDERS TO MAINTENANCE ENGINEERING.

DATA PROVIDED BY MAINTENANCE.

8/12/87 - JRB

ANNUNCIATOR STATUS

- DESCRIPTION OF PROBLEM:
  - CONCERNS IDENTIFIED REGARDING NUMEROUS INVALID (BOGUS) CONTROL ROOM ANNUNCIATORS
- CORRECTIVE ACTIONS:
  - COMPUTERIZED LISTING TO TRACK ACTIONS TO RESOLVE ANNUNCIATOR PROBLEMS
  - DEDICATED OPERATIONS ENGINEER TO CENTRALIZE ENGINEERING RESOLUTIONS TO ANNUNCIATOR PROBLEMS
  - DEDICATED WORK CONTROL FOR EACH UNIT

8/12/87 - JRB

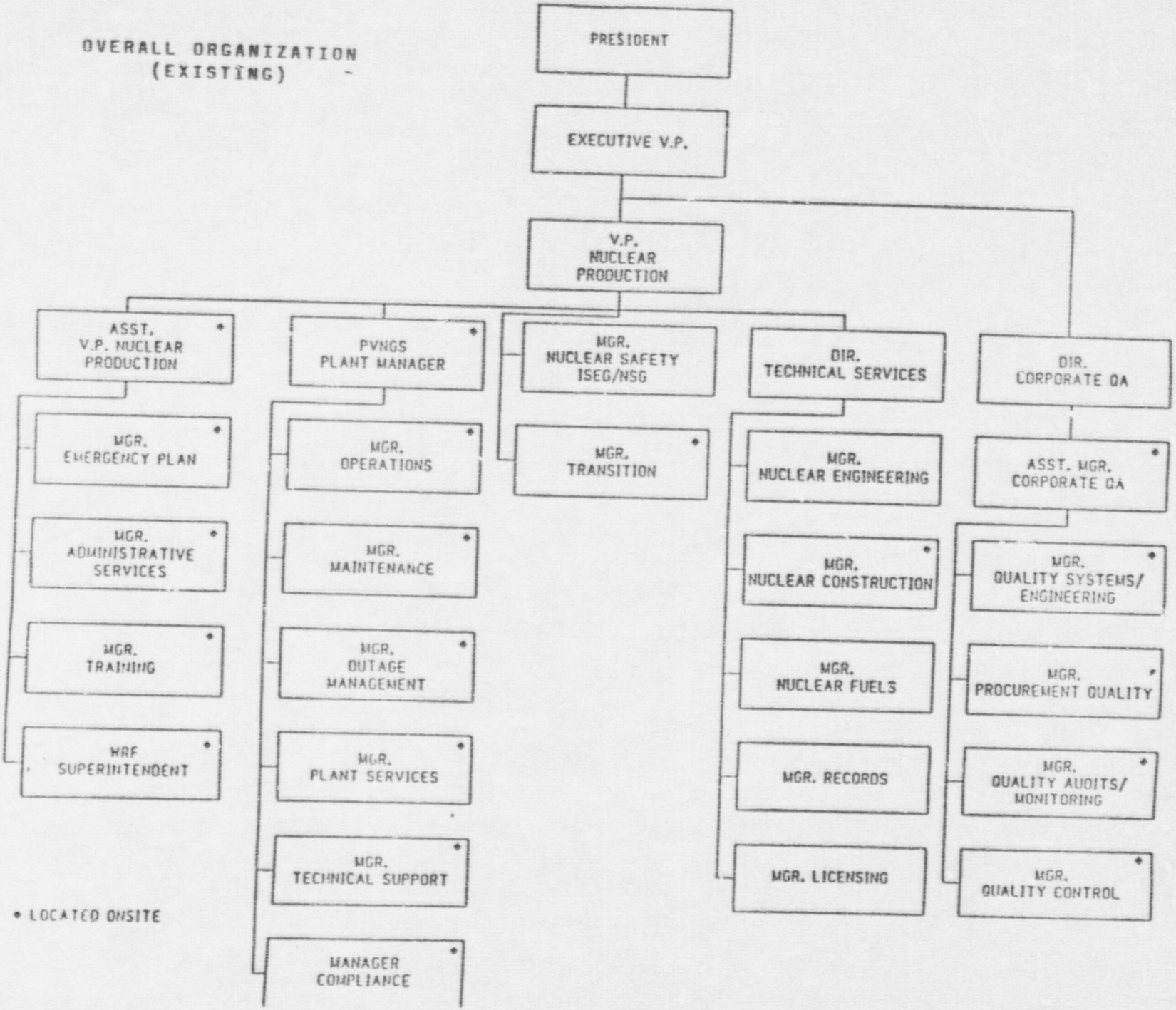
ANNUNCIATOR STATUS

	U-1	U-2	U-3	TOTAL
MAY	59	41	44	144
JUNE	57	37	40	134
JULY*	59	31	35	125

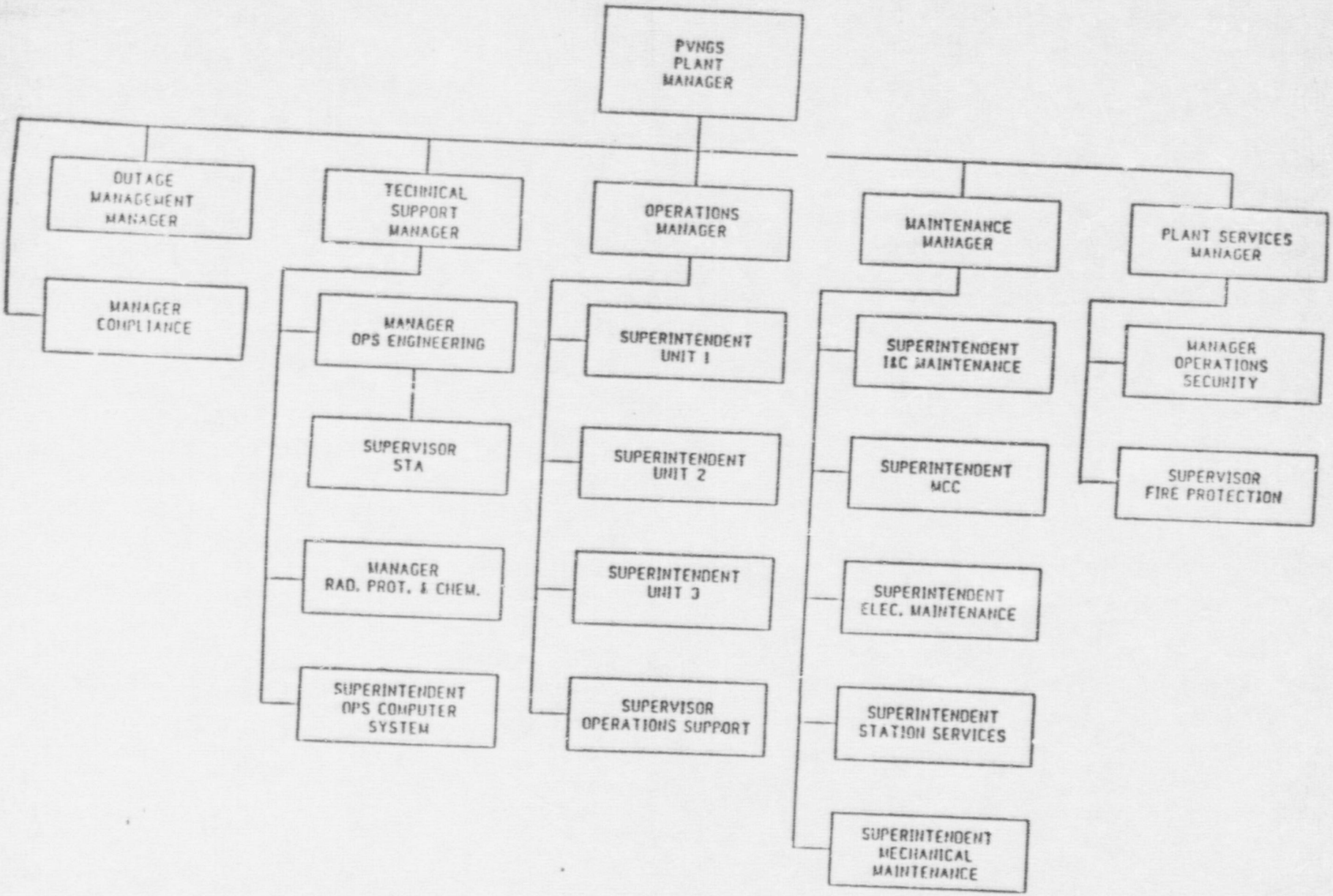
* AS OF JULY 29, 1987

8/12/87 - JRB

OVERALL ORGANIZATION (EXISTING)



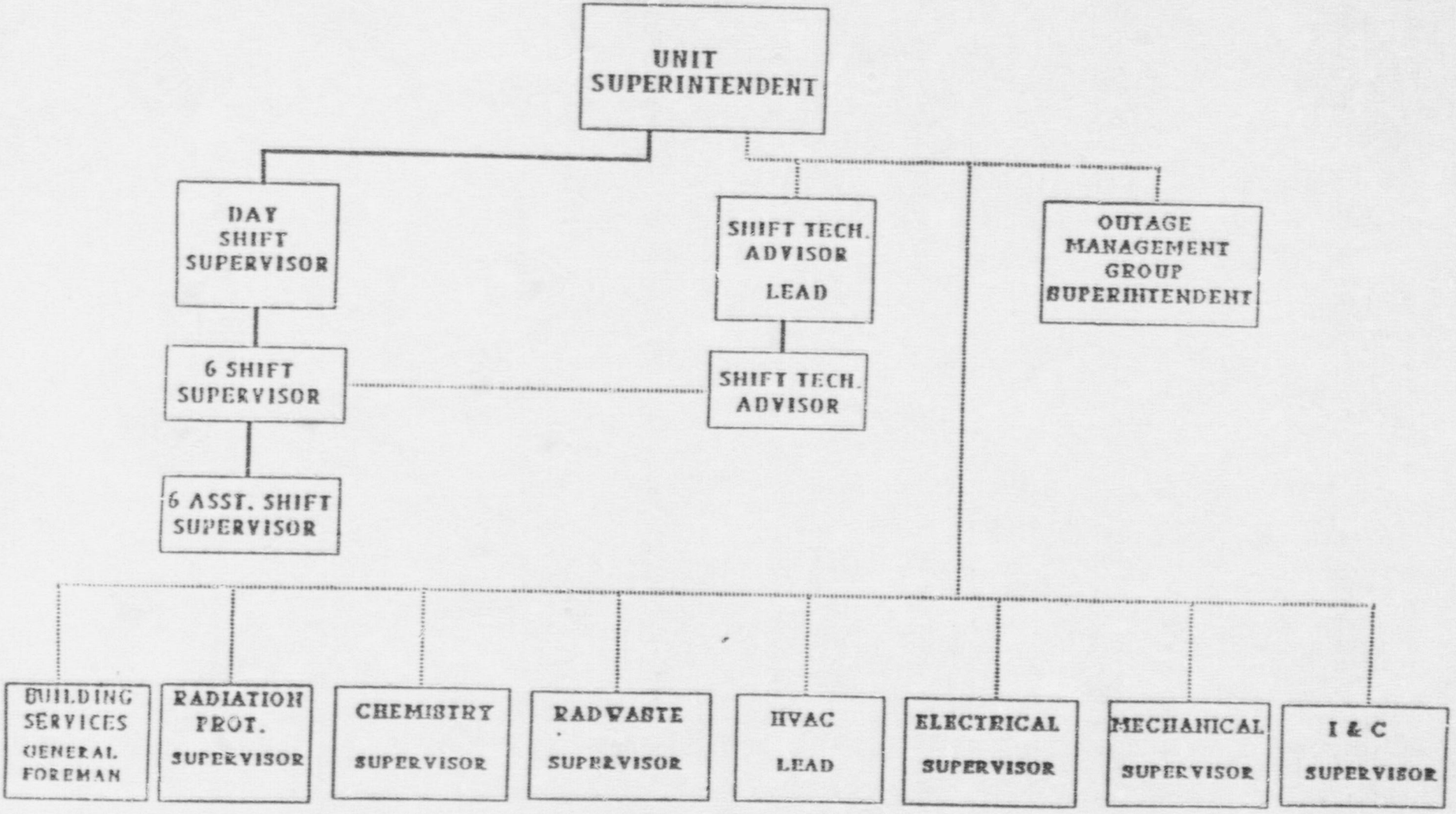
* LOCATED ONSITE



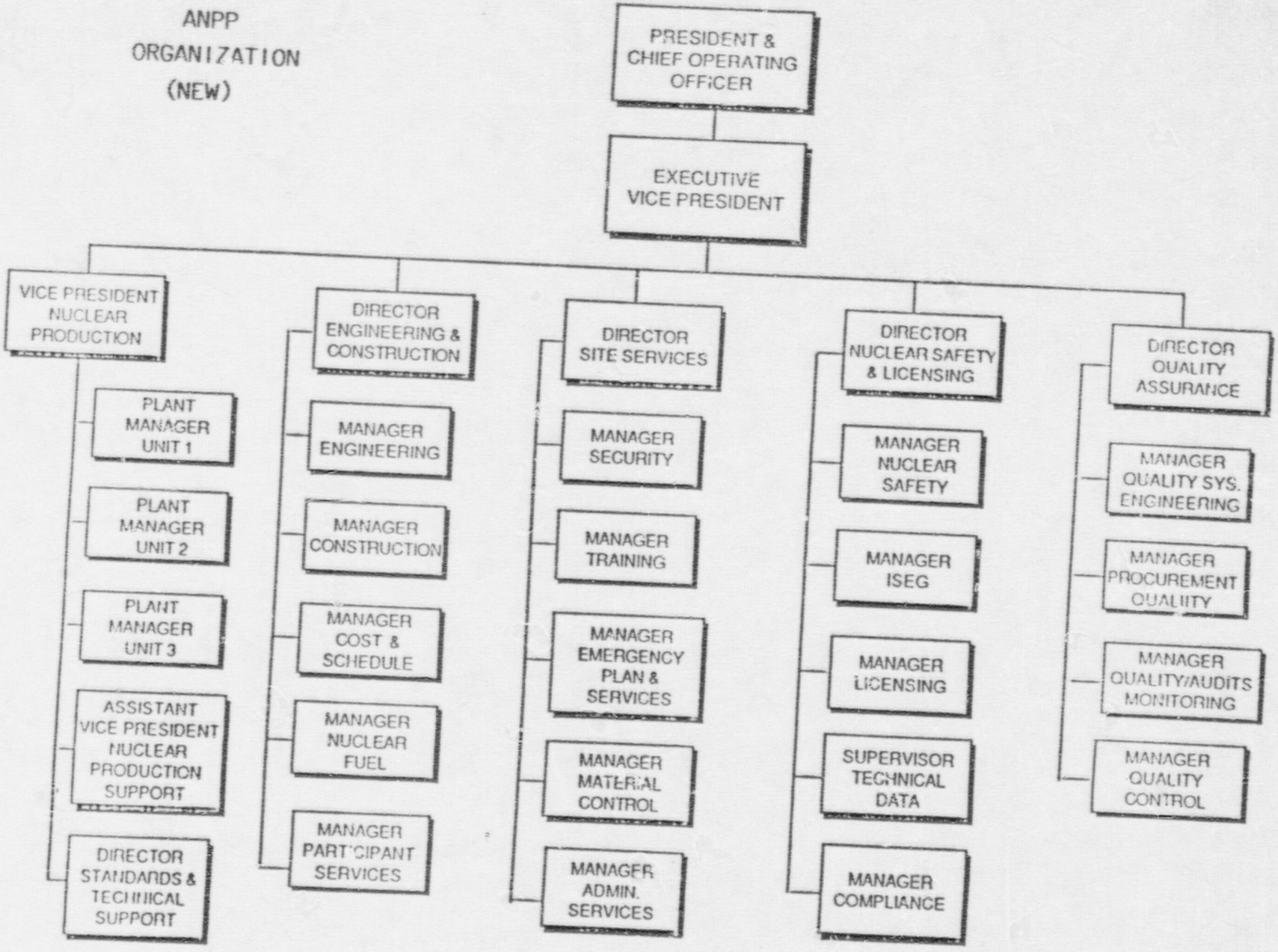
ONSITE ORGANIZATION (EXISTING)

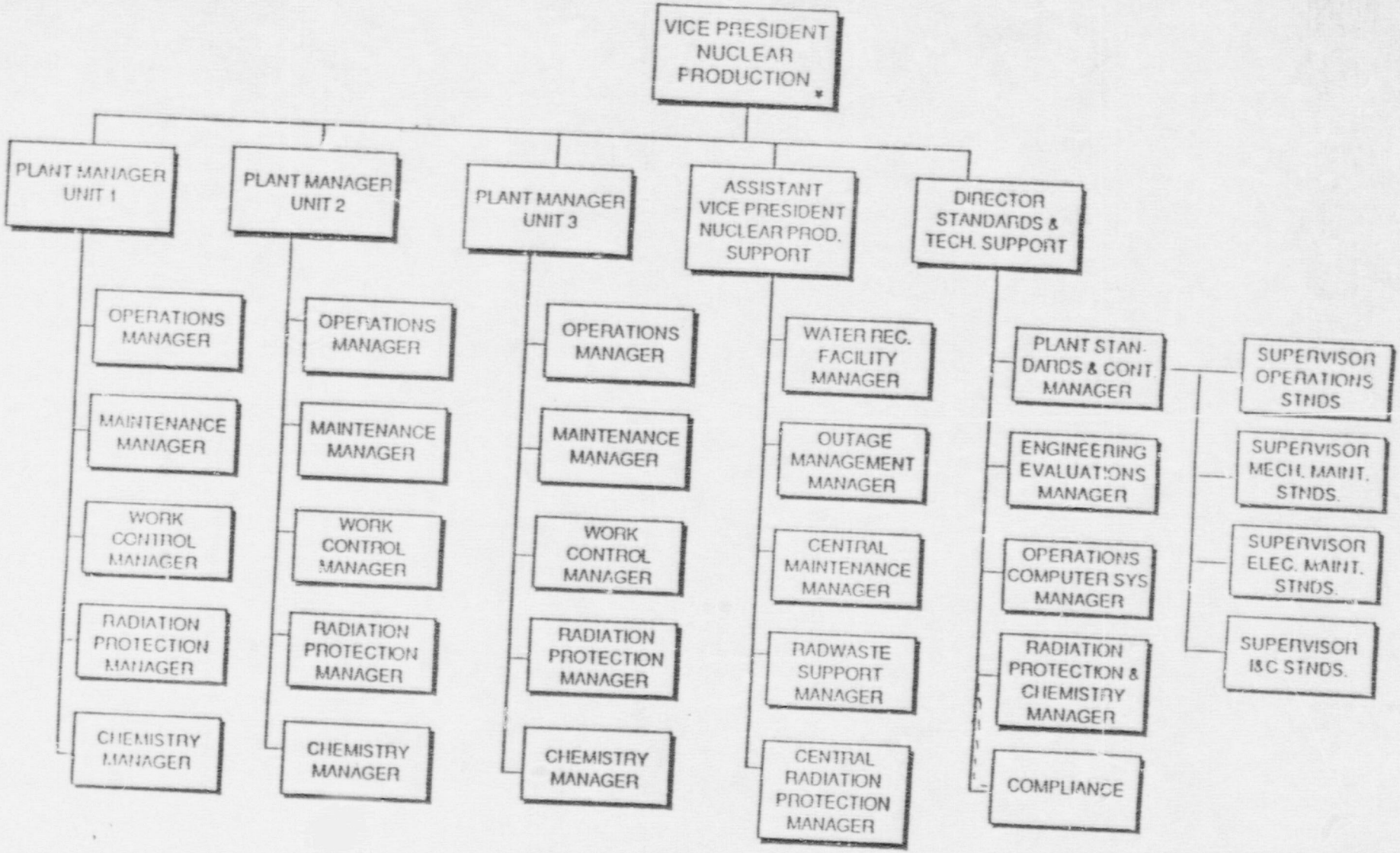
Unit Staffing

(EXISTING)



ANPP
ORGANIZATION
(NEW)



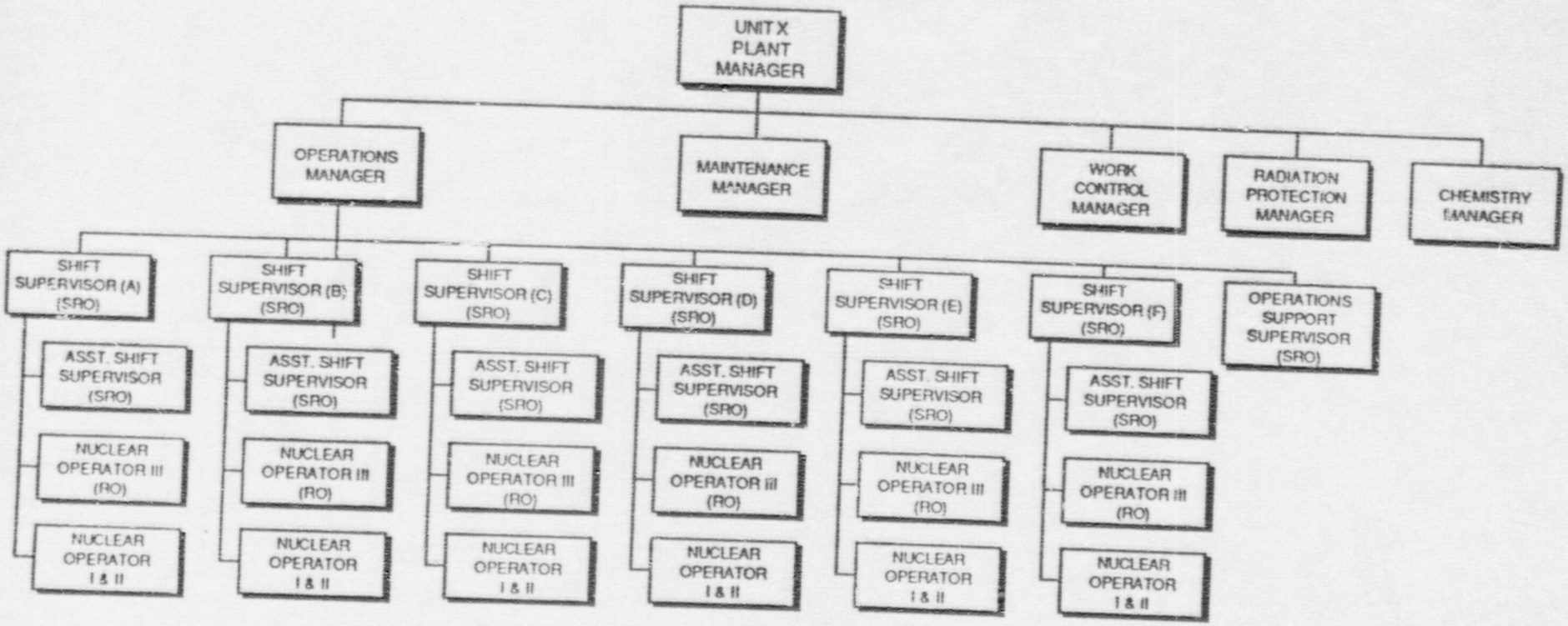


—— MATRIX

*LOCATED OFFSITE

ONSITE
ORGANIZATION

(NEW)



(NEW)

UNIT SPECIFIC
ORGANIZATION