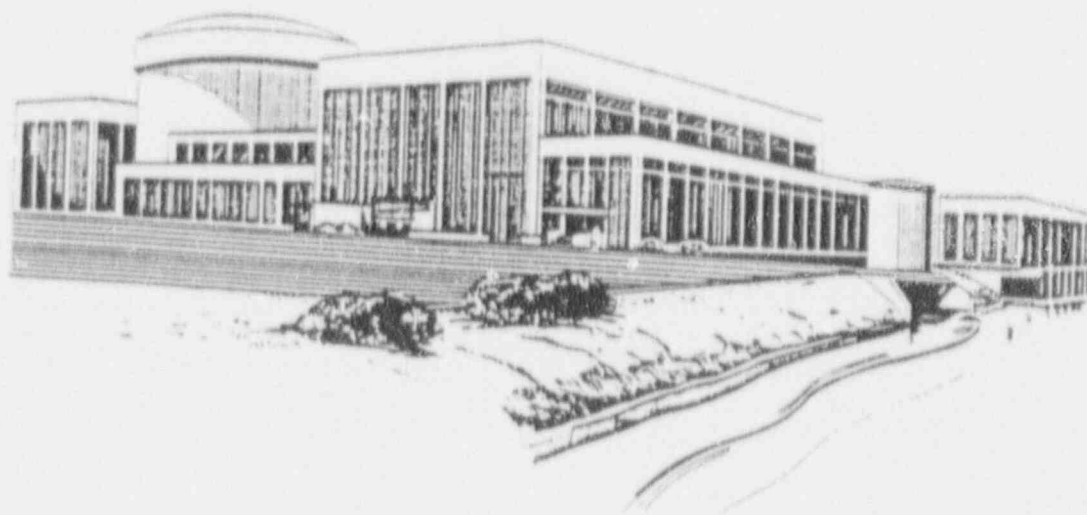


# FORT CALHOUN STATION PERFORMANCE INDICATORS

AUGUST 1992



Prepared by:

Production Engineering Division  
System Engineering  
Test and Performance Group

Pursuit of excellence is an attitude...  
it involves wisdom and sound judgment...  
it is a lifetime, career-long commitment...  
it is a way of life...it is doing the job  
right the first time, every time. It is  
inner-directed. not the result of external  
pressure, it is our own self worth—who  
we are and the pride and satisfaction  
that comes from being the right kind of  
person, not just in doing the right things.

James J. O'Connor

OMAHA PUBLIC POWER DISTRICT  
FORT CALHOUN STATION  
PERFORMANCE INDICATORS REPORT

*Prepared By:*  
*Production Engineering Division*  
*System Engineering*  
*Test and Performance Group*

AUGUST 1992

# Table of Contents/Summary

## INPO INDUSTRY KEY PARAMETERS

PAGE

	INDUSTRY UPPER 10%	OPPD GOAL	OPPD THIS MONTH	OPPD LAST MONTH	TREND	
UNPLANNED AUTOMATIC REACTOR SCRAMS PER 7,000 HOURS CRITICAL	0.63	0	7.08	5.69	NMA	3
SAFETY SYSTEM PERFORMANCE (year-to-date vs.)						
HIGH PRESSURE SAFETY						
INJECTION SYSTEM	0.0014	0.008	0.0007	0.0	NA	6
AUXILIARY FEEDWATER SYSTEM	0.0034	0.01	0.0012	0.0027	NA	7
EMERGENCY AC POWER SYSTEM	0.0065	0.024	0.0019	0.0	NA	8
THERMAL PERFORMANCE	99.8%	99.3%	99.7%	99.6%	I	10
UNIT CAPABILITY FACTOR	84.1%	69.2%	62.0%	34.0%	I	12
UNPLANNED CAPABILITY LOSS FACTOR	1.87%	4.5%	38%	66.0%	I	13
FUEL RELIABILITY INDICATOR (microcurie-gram)	NA	7.5x10-4	6.75x10-4	NA	NA	15
COLLECTIVE RADIATION EXPOSURE (person-rem)	118.5/YR	250. /R	239.9	236.5	NA	16
VOLUME OF LOW-LEVEL SOLID RADIOACTIVE WASTE (cubic ft)	2,118.5/YR	3,000/YR	868.1	839.0	NA	17
INDUSTRIAL SAFETY ACCIDENT RATE/DISABLING						
INJURY/ILLNESS FREQUENCY RATE	0.16	0.3	1.26	1.12	A	18
CHEMISTRY INDEX/SECONDARY						
SYSTEM CHEMISTRY	0.20	0.45	NA	0.56	NA	45

## OPERATIONS

PAGE

	INDUSTRY UPPER 10%	OPPD GOAL	OPPD THIS MONTH	OPPD LAST MONTH	TREND	
STATION NET GENERATION (10,000 Mwh)	NA	NA	21.9	10.3	I	1
FORCED OUTAGE RATE	0.25%	2.4%	18.6%	12.9%	A	2
UNPLANNED AUTOMATIC REACTOR SCRAMS PER 7,000 CRITICAL HOURS	0.63	0	7.08	5.69	NMA	3
UNPLANNED SAFETY SYSTEM ACTUATIONS - (INPO DEFINITION)	0	0	0	1	I	4
UNPLANNED SAFETY SYSTEM ACTUATIONS - (NRC DEFINITION)	0	3	1	2	I	5
GROSS HEAT RATE	NA	NA	10,335	10,480.5	I	9
EQUIVALENT AVAILABILITY FACTOR	NA	NA	64.3%	34.4%	I	11
UNIT CAPABILITY FACTOR	84.1%	69.2%	62.0%	34.0%	I	12
UNPLANNED CAPABILITY LOSS FACTOR	1.87%	4.5%	38%	66.0%	I	13
PLANNED CAPABILITY LOSS FACTOR	NA	26.3%	0%	0%	NA	14



OMAHA PUBLIC POWER DISTRICT  
FORT CALHOUN STATION  
PERFORMANCE INDICATORS REPORT

*Prepared By:*  
*Production Engineering Division*  
*System Engineering*  
*Test and Performance Group*

AUGUST 1992

# ABSTRACT

## PURPOSE

The "Performance Indicators Program" is intended to provide selected Fort Calhoun plant performance information to OPPD's personnel responsible for optimizing unit performance. The information is presented in a way that provides ready identification of trends and a means to track progress toward reaching corporate goals. The information can be used for assessing and monitoring Fort Calhoun's plant performance, with emphasis on safety and reliability. Some performance indicators show company goals or industry information. This information can be used for comparison or as a means of promoting pride and motivation.

## SCOPE

The conditions, goals, and projections reflected within this report are current as of the end of the month being reported, unless otherwise stated.

In order for the Performance Indicator Program to be effective, the following guidelines were followed while implementing the program:

- 1) Data was selected which most effectively monitors Fort Calhoun's performance in key areas.
- 2) Established corporate goals and industry information were included for comparison.
- 3) Formal definitions were developed for each performance parameter to ensure consistency in future reports and allow comparison with industry averages where appropriate.

Comments and input are encouraged to ensure that this program is tailored to address the areas which are most meaningful to the people using the report. Please refer comments to the System Engineering Department's Test and Performance Group. To increase personnel awareness of Fort Calhoun Station's plant performance, it is suggested that this report be distributed throughout your respective departments.

## REFERENCES

INPO Good Practices OA-102, "Performance Monitoring - Management Information"

INPO Report Dated November 1984, "Nuclear Power Plant Operational Data"

NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Black-out at Light Water Reactors", Revision 1, Appendix D, "EDG Reliability Program", dated April 6, 1990.

# Table of Contents/Summary

## INPO INDUSTRY KEY PARAMETERS

PAGE

	INDUSTRY UPPER 10%	OPPD GOAL	OPPD THIS MONTH	OPPD LAST MONTH	TREND	
UNPLANNED AUTOMATIC REACTOR SCRAMS PER 7,000 HOURS CRITICAL	0.63	0	7.08	5.69	NMA	3
SAFETY SYSTEM PERFORMANCE (year-to-date values):						
HIGH PRESSURE SAFETY						
INJECTION SYSTEM	0.0014	0.008	0.0007	0.0	NA	6
AUXILIARY FEEDWATER SYSTEM	0.0034	0.01	0.0012	0.0027	NA	7
EMERGENCY AC POWER SYSTEM	0.0065	0.024	0.0019	0.0	NA	8
THERMAL PERFORMANCE	99.8%	99.3%	99.7%	99.6%	I	10
UNIT CAPABILITY FACTOR	84.1%	69.2%	62.0%	34.0%	I	12
UNPLANNED CAPABILITY LOSS FACTOR	1.87%	4.5%	38%	66.0%	I	13
FUEL RELIABILITY INDICATOR (microcuries/gram)	NA	7.5x10 <sup>-4</sup>	6.75x10 <sup>-4</sup>	NA	NA	15
COLLECTIVE RADIATION EXPOSURE (person-rem)	118.5/YR	250/YR	239.9	236.5	NA	16
VOLUME OF LOW-LEVEL SOLID RADIOACTIVE WASTE (cubic ft.)	2,118.5/YR	3,000/YR	868.1	839.0	NA	17
INDUSTRIAL SAFETY ACCIDENT RATE/DISABLING						
INJURY/ILLNESS FREQUENCY RATE	0.16	0.3	1.26	1.12	A	18
CHEMISTRY INDEX/SECONDARY						
SYSTEM CHEMISTRY	0.20	0.45	NA	0.56	NA	45

## OPERATIONS

PAGE

	INDUSTRY UPPER 10%	OPPD GOAL	OPPD THIS MONTH	OPPD LAST MONTH	TREND	
STATION NET GENERATION (10,000 Mwh)	NA	NA	21.9	10.3	I	1
FORCED OUTAGE RATE	0.25%	2.4%	18.6%	12.9%	A	2
UNPLANNED AUTOMATIC REACTOR SCRAMS PER 7,000 CRITICAL HOURS	0.63	0	7.08	5.69	NMA	3
UNPLANNED SAFETY SYSTEM ACTUATIONS - (INPO DEFINITION)	0	0	0	1	I	4
UNPLANNED SAFETY SYSTEM ACTUATIONS - (NRC DEFINITION)	0	3	1	2	I	5
GROSS HEAT RATE	NA	NA	10,335	10,480.5	I	9
EQUIVALENT AVAILABILITY FACTOR	NA	NA	64.3%	34.4%	I	11
UNIT CAPABILITY FACTOR	84.1%	69.2%	62.0%	34.0%	I	12
UNPLANNED CAPABILITY LOSS FACTOR	1.87%	4.5%	38%	66.0%	I	13
PLANNED CAPABILITY LOSS FACTOR	NA	26.3%	0%	0%	NA	14

OPERATIONS (cont'd)PAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
FUEL RELIABILITY INDICATOR (microcuries/gram) .....	NA	7.5x10 <sup>-4</sup>	6.75x10 <sup>-4</sup>	NA	NA	15
DAILY THERMAL OUTPUT (Mwth) .....	NA	1495	NA	NA	NA	19
EQUIPMENT FORCED OUTAGES PER 1,000 CRITICAL HOURS .....	NA	0.2	1.69	1.22	A	20
OPERATIONS AND MAINTENANCE BUDGET .....	NA	NA	NA	NA	NA	21
DOCUMENT REVIEW .....	NA	NA	NA	NA	NA	22

MAINTENANCEPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
EMERGENCY DIESEL GENERATOR UNIT RELIABILITY .....	NA	NA	NA	NA	NA	23
DIESEL GENERATOR RELIABILITY (25 DEMANDS) .....	NA	<4	NA	NA	NA	24
DIESEL GENERATOR UNAVAILABILITY (cumulative hrs.) .....	NA	<210.8/DG	NA	NA	NA	25
AGE OF OUTSTANDING MAINTENANCE WORK ORDERS (CORRECTIVE NON-OUTAGE) .....	NA	NA	NA	NA	NA	26
MAINTENANCE WORK ORDER BREAKDOWN (CORRECTIVE NON-OUTAGE) .....	NA	NA	NA	NA	NMA	27
CORRECTIVE MAINTENANCE BACKLOG GREATER THAN 3 MONTHS OLD (NON-OUTAGE) .....	NA	NA	70.2%	56.3%	I	28
RATIO OF PREVENTIVE TO TOTAL MAINTENANCE .....	NA	65%	55.1%	41.6%	NMA	29
PREVENTIVE MAINTENANCE ITEMS OVERDUE .....	NA	0.5%	0.19%	0.17%	D	30
NUMBER OF OUT OF-SERVICE CONTROL ROOM INSTRUMENTS .....	NA	<13	11	10	D	31
MAINTENANCE OVERTIME .....	NA	10%	22.7%	22.8%	NMA	32
PROCEDURAL NONCOMPLIANCE INCIDENTS (MAINTENANCE) .....	NA	NA	0	1	I	33
PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (ELECTRICAL MAINTENANCE) .....	NA	80%	NA	NA	I	34
PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (PRESSURE EQUIPMENT) .....	NA	80%	NA	NA	NA	35

MAINTENANCE (cont'd)PAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (GENERAL MAINTENANCE) .....	NA	80%	NA	NA	NA	36
PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (MECHANICAL MAINTENANCE) .....	NA	80%	NA	NA	NA	37
PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (INSTRUMENTATION & CONTROL) .....	NA	80%	NA	NA	NA	38
NUMBER OF MISSED SURVEILLANCE TESTS RESULTING IN LICENSEE EVENT REPORTS .....	NA	0	0	0	1	39
COMPONENT FAILURE ANALYSIS REPORT (CFAR) SUMMARY .....	NA	NA	NA	NA	A	40
NUMBER OF NPRDS MULTIPLE FAILURES .....	NA	NA	NA	NA	NA	41
MAINTENANCE EFFECTIVENESS .....	NA	NA	NA	NA	NA	42
CHECK VALVE FAILURE RATE .....	NA	2.00E-6	6.16E-7	6.19E-7	NA	43

CHEMISTRY AND RADIOLOGICAL PROTECTIONPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
COLLECTIVE RADIATION EXPOSURE (person-rem) .....	118.5/YR	250/YR	239.9	236.5	NA	16
VOLUME OF LOW-LEVEL SOLID RADIOACTIVE WASTE .....	2,118.5/YR	3,000/YR	868.1	839.0	NA	17
SECONDARY SYSTEM CHEMISTRY .....	0.20	0.45	0.561%	0.557%	NMA	44
PRIMARY SYSTEM CHEMISTRY PERCENT OF HOURS OUT OF LIMIT .....	NA	2%	2.13%	1.06%	NMA	45
AUXILIARY SYSTEM (CCW) CHEMISTRY PERCENT OF HOURS OUTSIDE STATION LIMITS .....	NA	NA	0%	0%	1	46
IN-LINE CHEMISTRY INSTRUMENTS OUT-OF-SERVICE .....	NA	6	23	24	NMA	47
HAZARDOUS WASTE PRODUCED .....	NA	NA	0	0	NA	48
MAXIMUM INDIVIDUAL RADIATION EXPOSURE (mRem) .....	NA	1,500/YR	1,740	1,707	NMA	49
TOTAL SKIN AND CLOTHING CONTAMINATIONS .....	NA	144	253	248	NMA	50

CHEMISTRY AND RADIOLOGICAL PROTECTION (cont'd)PAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
DECONTAMINATED RADIATION CONTROLLED AREA .....	NA	88%	87.2%	87.0%	NMA	51
RADIOLOGICAL WORK PRACTICES PROGRAM .....	NA	NA	1	11	I	52
NUMBER OF HOT SPOTS .....	NA	remove 1/mo	72	68	D	53
GASEOUS RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT (curies) .....	NA	340/yr	140.7	140.7	NA	54
LIQUID RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT (curies) .....	NA	225/yr	39.5	39.5	NA	55

SECURITYPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
LOGGABLE/REPORTABLE INCIDENTS (SECURITY) .....	NA	NA	18	32	I	56
SECURITY NON-SYSTEM FAILURES .....	NA	NA	NA	NA	NA	57
SECURITY SYSTEM FAILURES .....	NA	NA	NA	NA	NA	58

MATERIALS AND OUTSIDE SERVICESPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
AMOUNT OF WORK ON HOLD AWAITING PARTS (NON-OUTAGE) .....	NA	3.5%	3.0%	2.0%	D	59
SPARE PARTS INVENTORY VALUE (\$ million) .....	NA	NA	12.6	12.6	NA	60
SPARE PARTS ISSUED (\$ thousands) .....	NA	NA	154.1	199.0	NA	61
INVENTORY ACCURACY .....	NA	98%	100%	100%	NA	61
STOCKOUT RATE .....	NA	2.6%	0.32%	0.32%	NA	61
EXPEDITED PURCHASES .....	NA	0.5%	0%	1.8%	I	62
INVOICE BREAKDOWN .....	NA	NA	NA	NA	NA	63
MATERIAL REQUEST PLANNING .....	NA	NA	59.3%	59.3%	NA	63

DESIGN ENGINEERINGPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
OUTSTANDING MODIFICATIONS .....	NA	NA	160	173	I	64

DESIGN ENGINEERING (cont'd)PAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
TEMPORARY MODIFICATIONS (EXCLUDING SCAFFOLDING) .....	NA	0	18	17	NA	65
ENGINEERING ASSISTANCE REQUEST (EAR) BREAKDOWN .....	NA	NA	133	181	NA	66
ENGINEERING CHANGE NOTICE STATUS .....	NA	NA	151	169	NA	67
ENGINEERING CHANGE NOTICE BREAKDOWN .....	NA	NA	NA	NA	NA	68

INDUSTRIAL SAFETYPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
DISABLING INJURY/ILLNESS FREQUENCY RATE ....	0.16	0.3	1.26	1.12	A	18
RECORDABLE INJURY/ILLNESS CASES FREQUENCY RATE .....	NA	2.0	3.28	3.08	A	69

HUMAN RESOURCESPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
NUMBER OF PERSONNEL ERRORS REPORTED IN LERs .....	NA	NA	1	0	D	70
LER ROOT CAUSE BREAKDOWN .....	NA	NA	NA	NA	NA	71
STAFFING LEVEL .....	NA	NA	NA	NA	NA	72
PERSONNEL TURNOVER RATE .....	NA	NA	NA	NA	NA	72

TRAINING AND QUALIFICATIONPAGE

	<u>INDUSTRY</u> <u>UPPER 10%</u>	<u>OPPD</u> <u>GOAL</u>	<u>OPPD</u> <u>THIS MONTH</u>	<u>OPPD</u> <u>LAST MONTH</u>	<u>TREND</u>	
LICENSED OPERATOR REQUALIFICATION TRAINING .....	NA	NA	NA	NA	NA	73
LICENSE CANDIDATE EXAMS .....	NA	NA	NA	NA	NA	74
TOTAL INSTRUCTION HOURS .....	NA	NA	1,395	1,461	NA	75
TOTAL HOURS OF STUDENT TRAINING .....	NA	NA	4,768	5,680	NA	76



	INDUSTRY UPPER 10%	QPPD GOAL	QPPD THIS MONTH	QPPD LAST MONTH	TREND	
VIOLATIONS PER 1,000 INSPECTION HOURS .....	NA	1.5	2.70	3.73	N/A	77
COMPARISON OF VIOLATIONS AMONG REGION IV PLANTS .....	NA	NA	NA	NA	NA	78
CUMULATIVE VIOLATIONS AND NCVs (TWELVE-MONTH RUNNING TOTAL) .....	NA	NA	15/2	16/3	NA	79
OUTSTANDING CORRECTIVE ACTION REPORTS .....	NA	NA	76	72	D	80
OVERDUE AND EXTENDED CORRECTIVE ACTION REPORTS .....	NA	NA	0/0	1/3	NA	81
CARs ISSUED vs. SIGNIF. CARs vs. NRC VIOLATIONS ISSUED vs. LERs REPORTED .....	NA	NA	NA	NA	NA	82

REFUELING OUTAGE

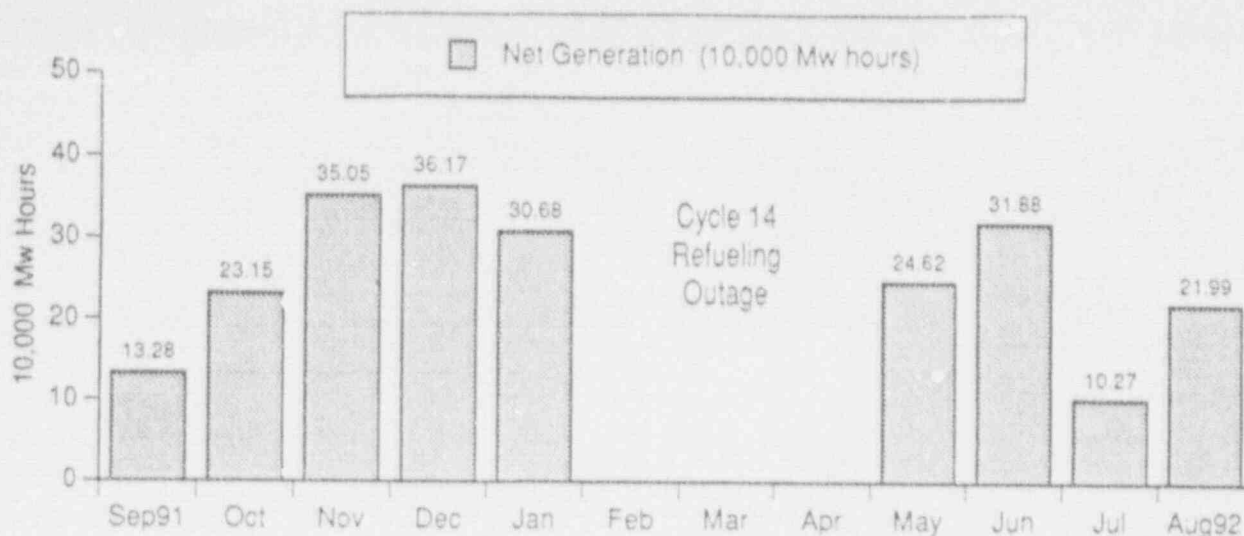
	INDUSTRY UPPER 10%	QPPD GOAL	QPPD THIS MONTH	QPPD LAST MONTH	TREND	
MWO PLANNING STATUS .....	NA	NA	NA	NA	NA	83
OVERALL PROJECT STATUS .....	NA	NA	NA	NA	NA	84
PROGRESS OF CYCLE 15 OUTAGE MODIFICATION PLANNING .....	NA	NA	NA	NA	NA	85
PERFORMANCE INDICATOR DEFINITIONS .....						86
SAFETY ENHANCEMENT PROGRAM INDEX .....						94
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TABLE OF CONTENTS/SUMMARY TREND SYMBOLS

A = ADVERSE TREND  
 I = IMPROVED PERFORMANCE  
 D = DECLINING PERFORMANCE  
 NMA = NEEDS MANAGEMENT ATTENTION  
 NA = NOT APPLICABLE/AVAILABLE



### STATION NET GENERATION

During the month of August 1992, a net total of 219,932 MWH was generated by the Fort Calhoun Station. Unplanned energy losses for the month were a result of the following two forced outages: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed resulting in a controlled shutdown to Mode 2. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure and the plant tripped on TM/LP. The plant was shutdown for the remainder of the month.

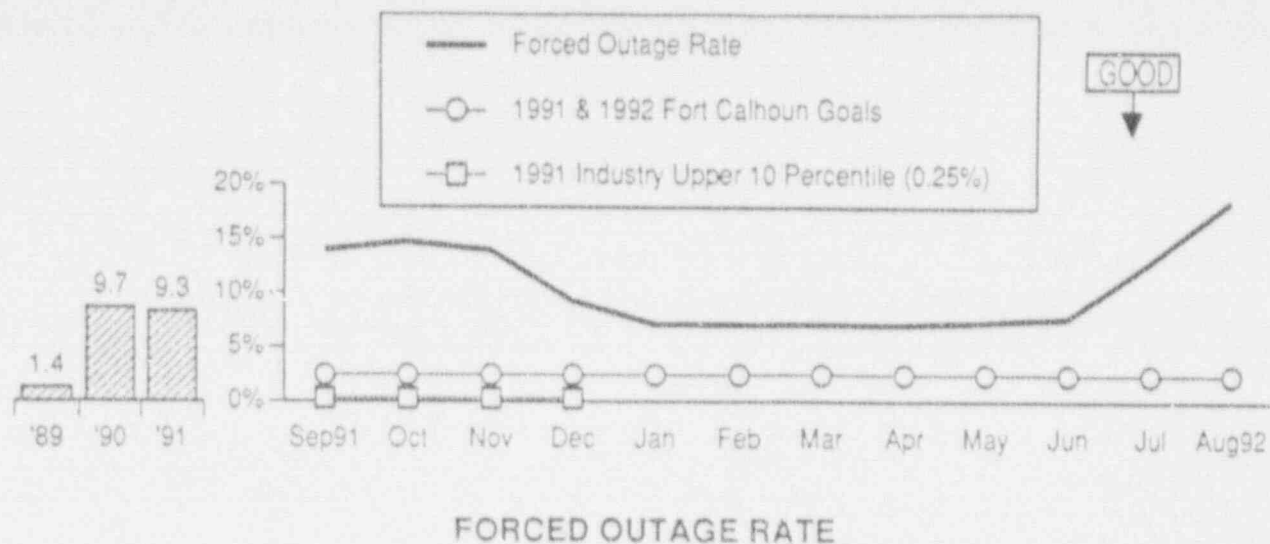
Unplanned energy losses for the month of July were a result of the forced outage that occurred on 7/3/92 due to the loss of an inverter and the subsequent reactor trip. The generator was brought on-line at 0610 hours on 7/23.

During the month of June 1992 unplanned energy losses were a result of a forced outage that occurred on 6/1/92 due to a dropped control rod. The plant was returned to 100% power on 6/4/92.

The station was returned to service after the Cycle 14 Refueling Outage when the reactor was taken critical on 5/1/92 at 1035 hours and the generator was put on-line on 5/3/92. A forced outage occurred on 5/14/92 when the turbine generator tripped on a false high level moisture separator trip signal which caused a simultaneous reactor trip. The reactor was returned to critical and the generator was put on-line on 5/15/92.

Unplanned energy losses for May were: 1) the Cycle 14 Refueling Outage extension; 2) the reduction to 58% power for repair of an inoperable condenser valve; 3) the reactor trip; 4) the hold at 48% power for repair on a feedwater pump suction valve; and 5) the 5/31 dropped control rod caused by a faulty clutch coil.

Data Source: Station Generation Report  
 Accountability: Patterson  
 Adverse Trend: None



The forced outage rate was reported as 18.6% for the twelve months from 9/1/91 to 8/31/92.

The following two forced outages occurred during the month of August 1992: 1) on 8/5/92 the turbine was taken off-line to replace a feeder breaker to the 125V dc panel AI-41A. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure and the plant tripped on TM/LP. The plant was shutdown for the remainder of the month.

A forced outage caused by the loss of an inverter and the subsequent reactor trip occurred on 7/3/92. Additionally, RC-142 opened and failed to reclose. The generator was brought on-line at 0610 hours on 7/23/92.

A forced outage occurred on 6/1/92 when the unit was shutdown due to a dropped control rod. The generator was brought on-line at 0852 on 6/2/92.

A forced outage occurred on 5/14/92 at 1557 hours when the turbine generator tripped on a false high level moisture separator trip signal which caused a simultaneous reactor trip. The generator was brought on-line at 1150 hours at 5/15/92 following repairs.

During the months of September and October 1991 a forced outage occurred when the station batteries were declared inoperable. The generator was taken off-line on 9/12/91 and remained off line until 10/6/91.

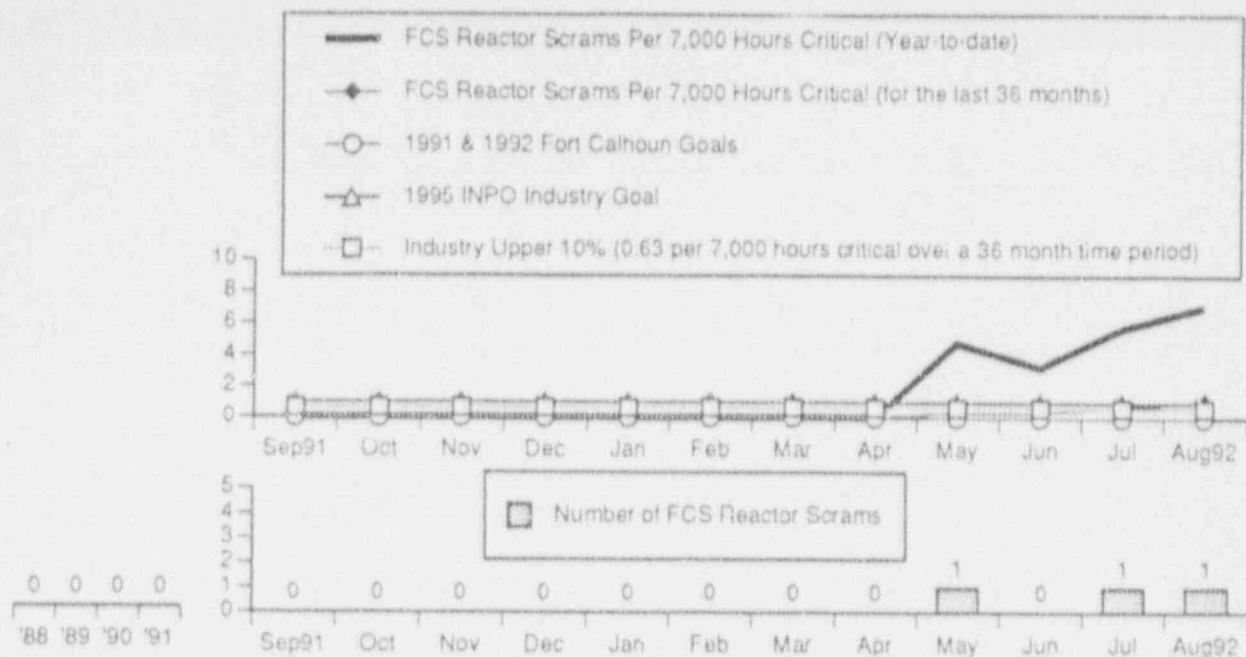
The generator was taken off line on October 18 & 19, 1991 due to a steam leak on a turbine control valve before seat drain line. The generator was again taken off-line on October 25 & 26 due to a steam leak from an instrument tap on the high pressure turbine.

The 1992 and 1991 Fort Calhoun goals for Forced Outage Rate are 2.4%.

Data Source: Month Operations Report & NERC GAD Forms

Accountability: Patte Jon

Adverse Trend: An adverse trend is indicated based on four consecutive months of declining performance.



### UNPLANNED AUTOMATIC REACTOR SCRAMS PER 7,000 HOURS CRITICAL

The upper graph shows the number of unplanned automatic reactor scrams per 7,000 hours critical (as defined in INPO's 11/91 publication "Detailed Descriptions of International Nuclear Power Plant Performance Indicators and Other Indicators") for Fort Calhoun Station. This value is calculated by multiplying the total number of scrams in a specified time period by 7,000 hours, then dividing that number by the total number of critical hours in the same time period. The year-to-date station value is 7.08 and the value for the last 36 months is 1.08 for the month of August 1992. The lower graph shows the number of unplanned automatic reactor scrams that occurred during each month for the last twelve months.

There was one unplanned automatic reactor scram in August 1992. This scram occurred on August 22 as a result of the failure of an AC/DC converter in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure and the plant tripped.

There was one unplanned automatic reactor scram in July 1992. This scram occurred on July 3 at 2336 as a result of the loss of inverter No. 2.

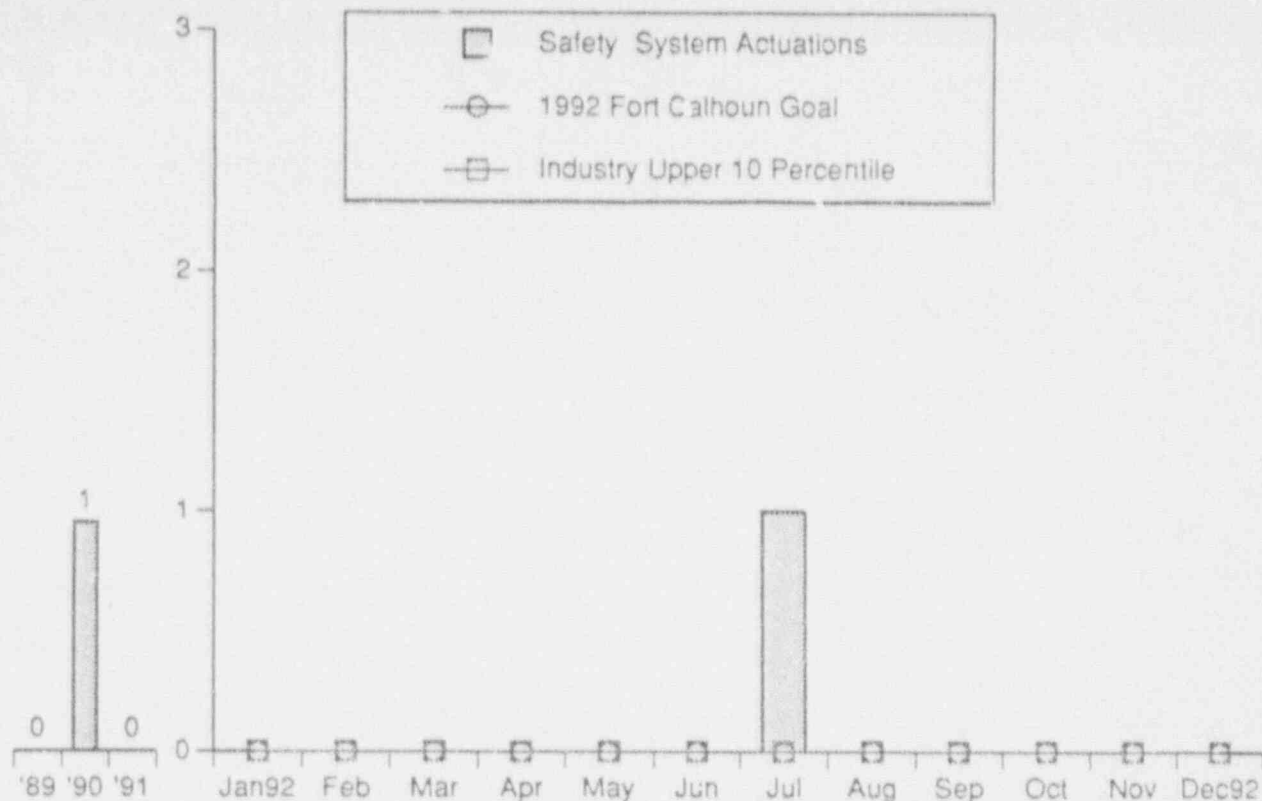
There was one unplanned automatic reactor scram in May 1992. This scram occurred on May 14 at 1557 when the turbine generator tripped on a false high level moisture separator trip signal which caused a simultaneous reactor trip. The last unplanned automatic reactor scram prior to this occurred on July 2, 1986.

The 1992 goal for unplanned automatic reactor scrams per 7,000 hours critical has been set at zero. The 1995 INPO industry goal is one unplanned automatic reactor scram per 7,000 hours critical. The industry upper ten percentile value is approximately 0.63 scrams per 7,000 hours critical for a 36 month time period.

Data Source: Monthly Operations Report & Plant Licensee Event Reports (LERs)

Accountability: Patterson

Adverse Trend: None



#### UNPLANNED SAFETY SYSTEM ACTUATIONS - (INPO DEFINITION)

There were no unplanned safety system actuations during the month of August 1992.

There was one unplanned safety system actuation during the month of July 1992 due to the loss of an inverter and the subsequent reactor trip on 7/3/92.

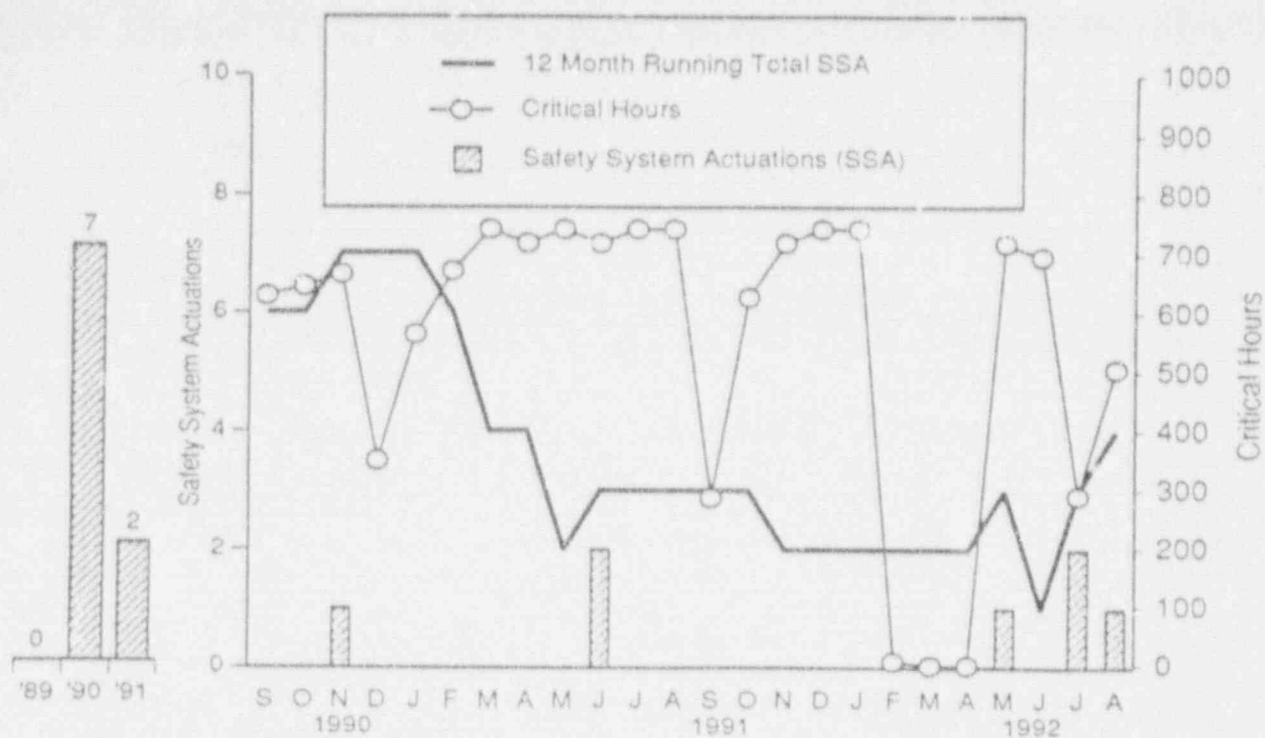
The 1992 goal for the number of unplanned safety system actuations is zero.

The industry upper ten percentile value for the number of unplanned safety system actuations per year is zero.

Data Source: Monthly Operations Report & Plant Licensee Event Reports (LERs)

Accountability: Jaworski/Foley/Ronning

Adverse Trend: None



### UNPLANNED SAFETY SYSTEM ACTUATIONS - (NRC DEFINITION)

This indicator shows the number of unplanned safety system actuations (SSAs) which include the High and Low Pressure Safety Injection Systems, the Safety Injection Tanks, and the Emergency Diesel Generators. The NRC classification of SSAs includes actuations when major equipment is operated and when the logic systems for these safety systems are challenged.

An unplanned safety system actuation occurred on August 22, 1992 due to the failure of an AC/DC converter in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip.

Two unplanned safety system actuations occurred in July 1992: 1) On July 3 there was an inverter failure and the subsequent reactor trip; 2) On July 23 there was unplanned diesel generator start when an operator performing a surveillance test inadvertently pushed the normal start button instead of the alarm acknowledge button.

An unplanned safety system actuation occurred on May 14, 1992 when the turbine generator tripped on a false high level moisture separator trip signal which caused a simultaneous reactor trip and subsequent anticipatory start signal to both diesel generators.

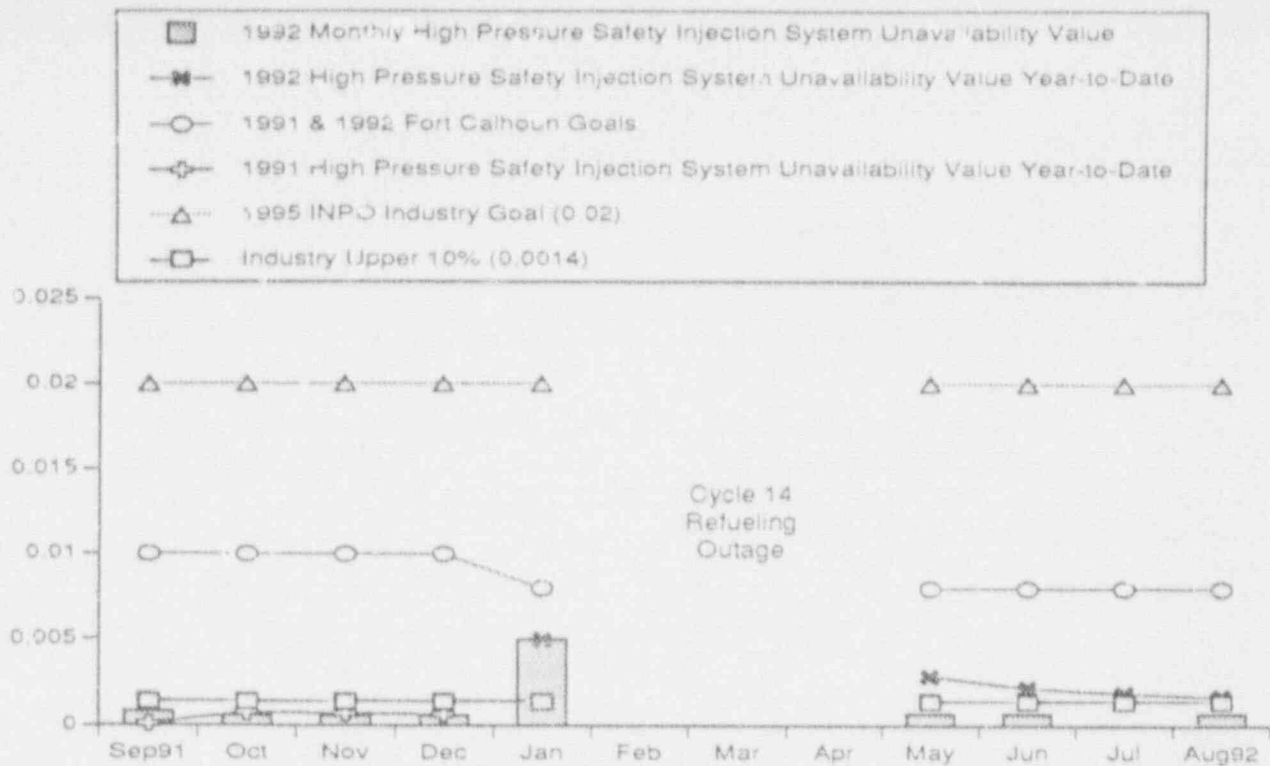
The 1992 Fort Calhoun goal for this indicator is a maximum of three.

Data Source: Monthly Operations Report & Plant Licensee Event Reports (LERs)

Accountability: Jaworski/Foley/Ronning

Adverse Trend: None





### HIGH PRESSURE SAFETY INJECTION SYSTEM SAFETY SYSTEM PERFORMANCE

This indicator shows the High Pressure Safety Injection System unavailability value, as defined by INPO in the Safety System Performance Indicator Definitions, for the reporting month.

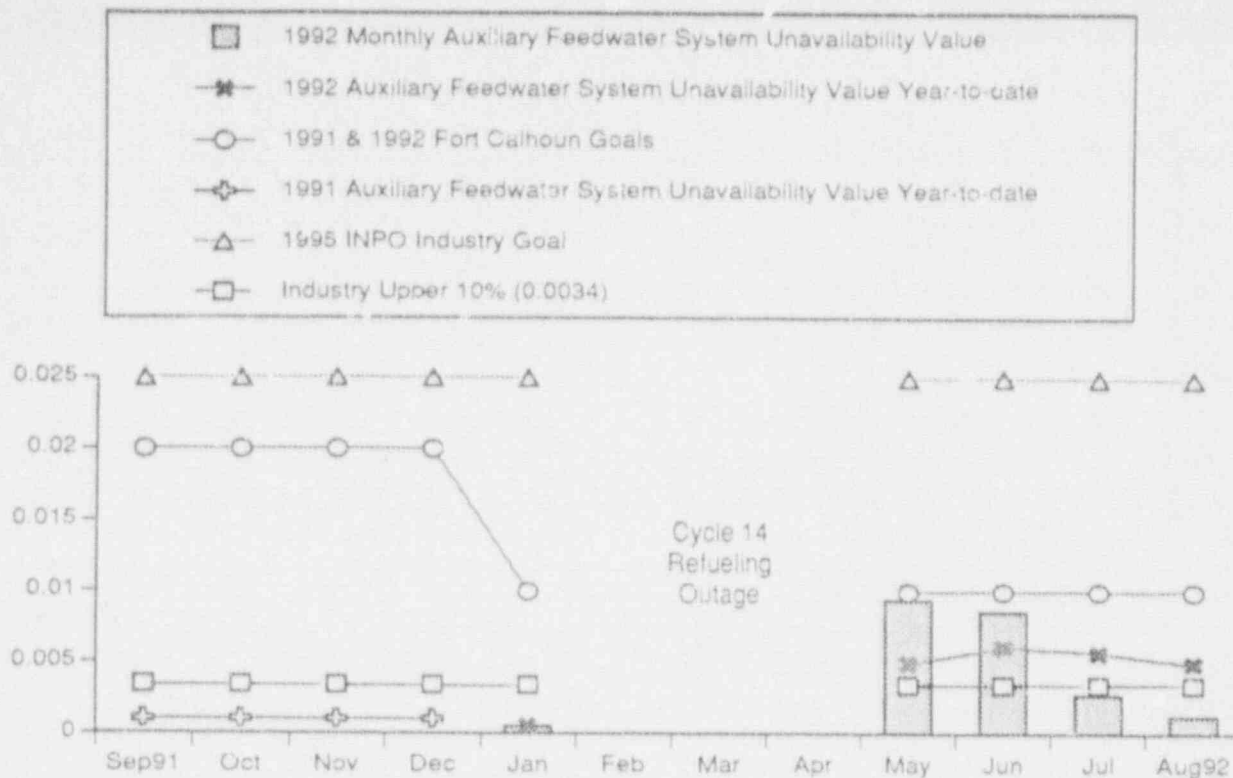
The High Pressure Safety Injection System unavailability value for August 1992 was 0.0007. The 1992 year-to-date HPSI unavailability value was 0.0017 at the end of August. There were 1.1 hours of planned unavailability for surveillance tests in August.

In July there were no (zero) hours of planned or unplanned unavailability; In June there were 1.5 hours of planned unavailability for surveillance tests and in May there were 1.5 hours of planned unavailability for surveillance tests.

The 1992 Fort Calhoun goal for this indicator is 0.008. The 1995 INPO industry goal is 0.02 and the industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 0.0014.

Data Source: Jaworski/Schaffer  
Accountability: Jaworski/Schaffer  
Adverse Trend: None





### AUXILIARY FEEDWATER SYSTEM SAFETY SYSTEM PERFORMANCE

This indicator shows the Auxiliary Feedwater System Unavailability value, as defined by INPO in the Safety System Performance Indicator Definitions, for the reporting month.

The Auxiliary Feedwater System Unavailability Value for August 1992 was 0.0012. The 1992 year-to-date AFW unavailability value was 0.0049 at the end of August.

There were 1.2 hours of planned unavailability for surveillance tests in August.

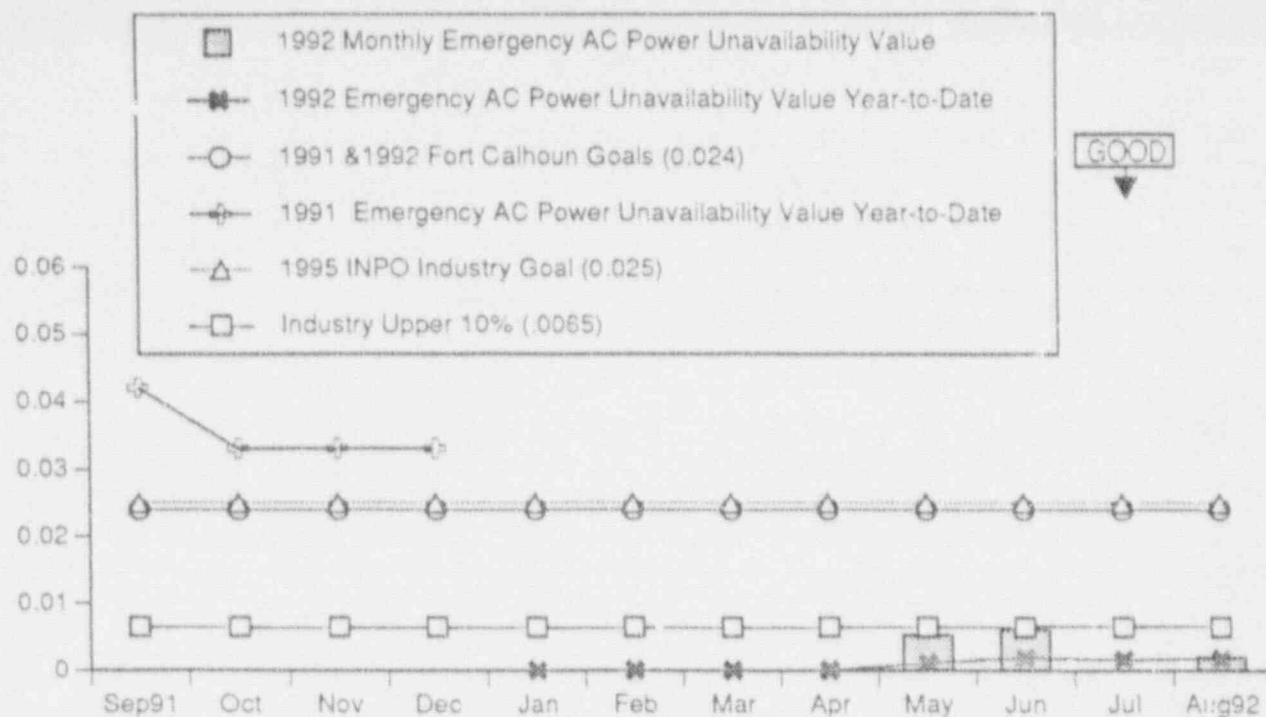
There were 1.6 hours of planned unavailability for surveillance tests in July.

In June 1992 there were 2.82 hours of planned unavailability for a PM and 7.33 hours of unplanned unavailability for corrective maintenance on a flow instrument.

In May 1992 preventive maintenance activities resulted in 2.67 hours of planned unavailability and there were 10.9 hours of unplanned unavailability due to corrective maintenance following the initial attempt to perform a PM.

The 1992 Fort Calhoun goal for this indicator is 0.01. The 1995 INPO industry goal is 0.025 and the industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 0.0034.

Data Source: Jaworski/Hilgenkamp  
 Accountability: Jaworski/Hilgenkamp  
 Adverse Trend: None



### EMERGENCY AC POWER SYSTEM SAFETY SYSTEM PERFORMANCE

This indicator shows the Emergency AC Power System unavailability value, as defined by INPO in the Safety System: Performance Indicator Definitions, for the reporting month.

The Emergency AC Power System unavailability value for August 1992 is 0.0019. The Emergency AC Power System unavailability value year-to-date is 0.0017.

There were 2.9 hours of planned unavailability for DG-1 in August to inspect relays for contact degradation.

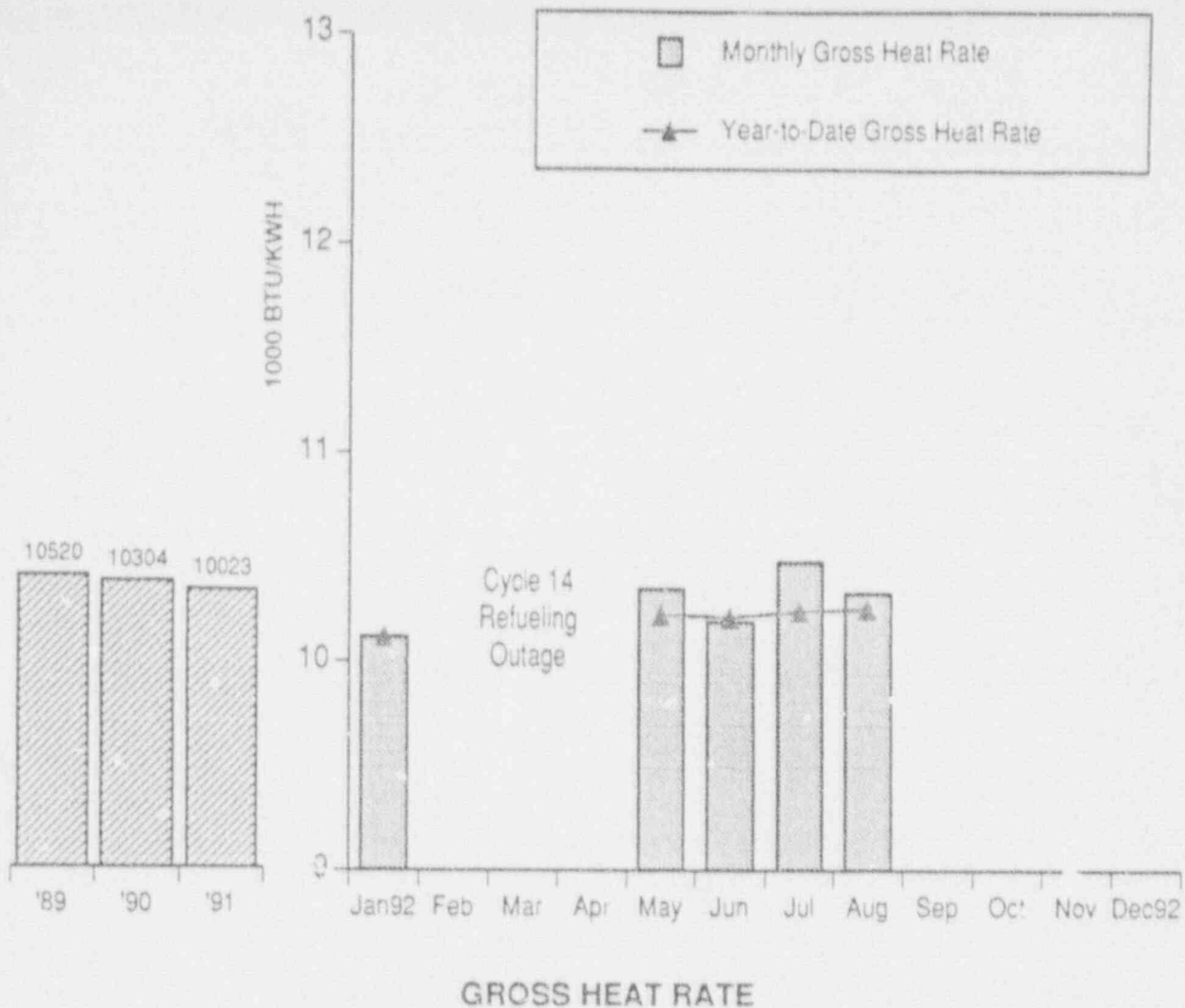
In July there were no (zero) hours of planned or unplanned unavailability.

In June 1992 there were 9 hours of planned unavailability for DG-2 for retorquing radiator fan retaining bolts.

In May 1992 there were 7.9 hours of planned unavailability for DG-1 to tighten the fan blades and repair a starting air solenoid valve.

The 1992 Fort Calhoun goal for this indicator is 0.024. The 1995 INPO industry goal is 0.025 and the industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 0.0065.

Data Source: Jaworski/Ronning  
Accountability: Jaworski/Ronning  
Adverse Trend: None



This indicator shows the Gross Heat Rate (GHR) for the reporting month, the year-to-date value, and the year-end GHR for the previous 3 years.

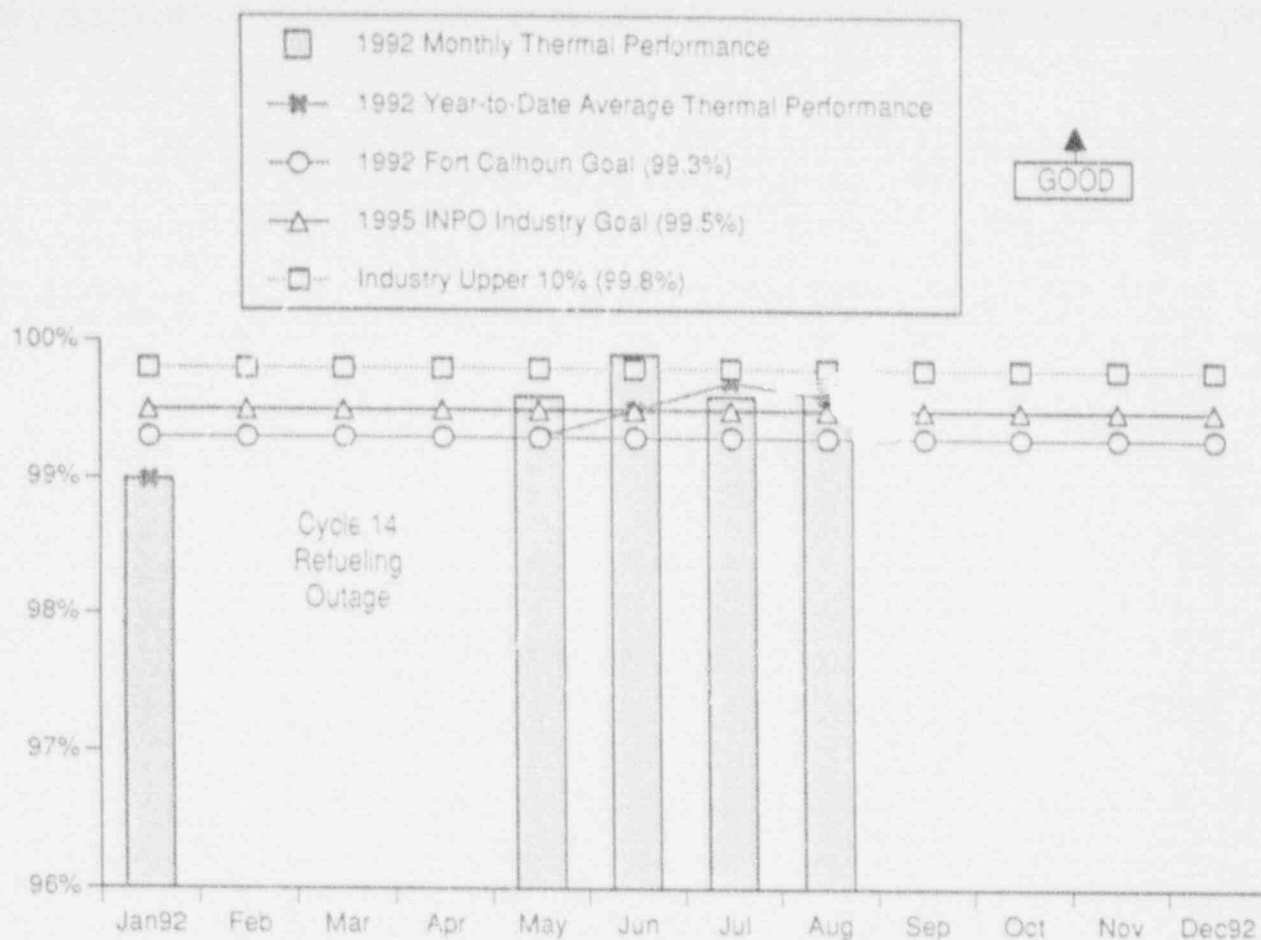
The gross heat rate for the Fort Calhoun Station was reported as 10,335 BTU/KWH during the month of August 1992.

The year-to-date gross heat rate was reported as 10,259 BTU/KWH.

Data Source: Holthaus/Gray (Manager/Source)

Accountability: Patterson

Adverse Trends: None



### THERMAL PERFORMANCE

This indicator shows the Thermal Performance value for the reporting month, the year-to-date average thermal performance value, the 1992 Fort Calhoun goal, the 1995 INPO industry goal and the industry median value.

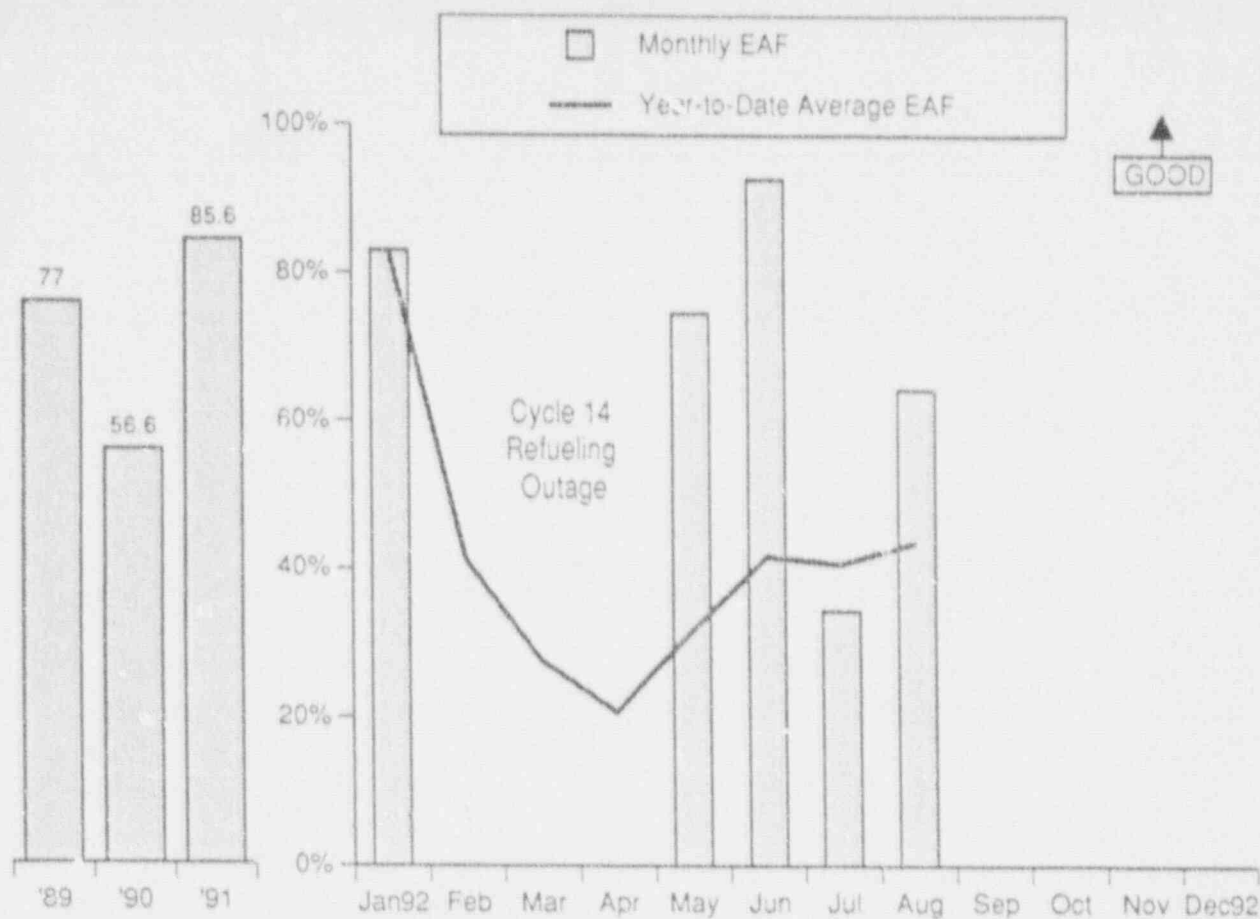
The thermal performance value for the reporting month was 99.7%. The year-to-date average thermal performance value was 99.6%.

The 1992 Fort Calhoun Goal for this indicator is 99.3%. The 1995 INPO industry goal is 99.5% and the industry upper ten percentile value (for the one year period from 1/90 through 12/91) is approximately 99.8%.

Data Source: Jaworski/Popek

Accountability: Jaworski/Popek

Adverse Trend: None



### EQUIVALENT AVAILABILITY FACTOR

This indicator shows the plant monthly Equivalent Availability Factor (EAF), the year-to-date EAF for 1992, and the EAF for the previous 3 years.

The EAF for August 1992 was reported as 64.29%. This figure is a result of the following two forced outages that occurred during August: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip. The plant was shutdown for the remainder of the month.

The EAF for July 1992 was reported as 34.39%. This figure is a result of the forced outage caused by the loss of an inverter and the subsequent reactor trip on 7/3/92. The plant was brought to 90% power on 7/26/92.

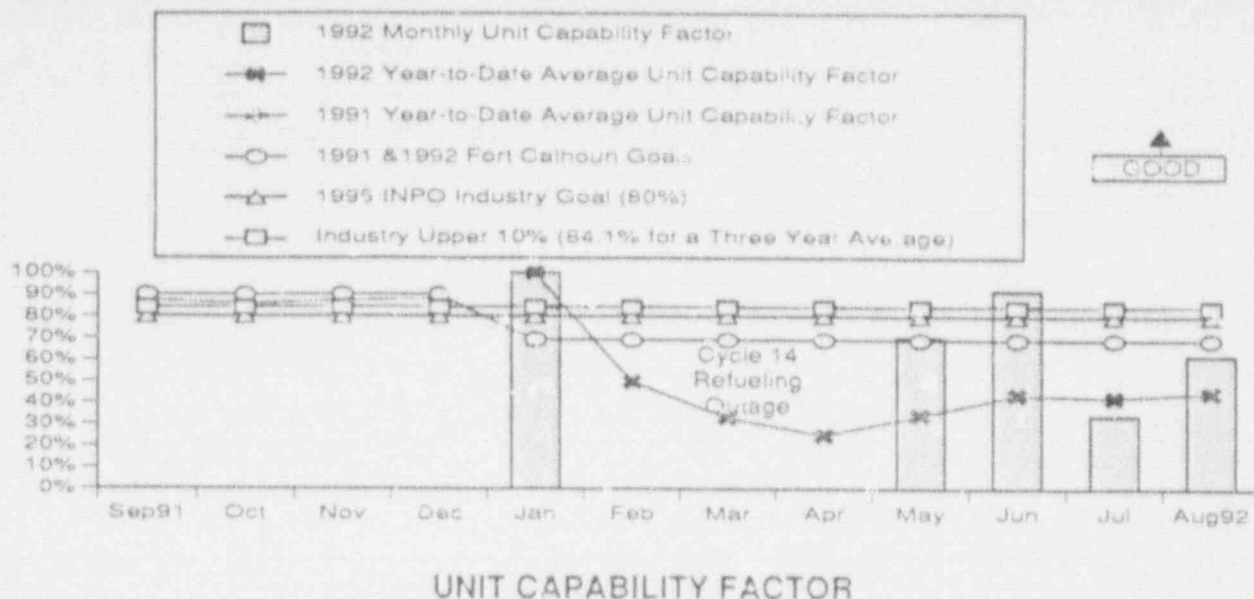
The year-to-date average EAF was reported as 43.63%.

Data Source: Dietz/Parra (Manager/Source)

Accountability: Patterson

Adverse Trend: None





This indicator shows the plant monthly Unit Capability (UCF) Factor and the 1995 INPO industry goal. UCF is defined as the ratio of the available energy generation over a given period of time to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions) over the same time period, expressed as a percentage.

The UCF was reported as 62% for the month of August 1992. Unplanned energy losses for the month were a result of the following two forced outages: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip. The plant was shutdown for the remainder of the month.

The UCF was reported as 34% for the month of July 1992. Energy losses for the month were due to the forced outage caused by the loss of an inverter and the subsequent reactor trip on 7/3/92. The plant was brought to 90% power on 7/26/92.

The year-to-date average unit capability factor was reported as 44.7%.

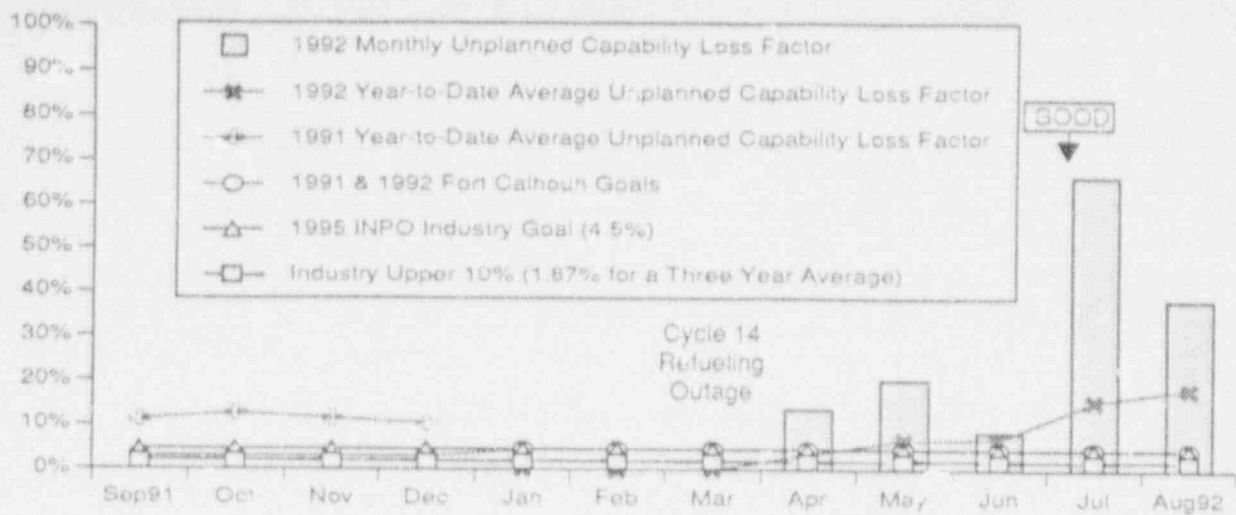
The 1995 INPO industry goal is 80% and the industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 84.1%.

The 1992 Fort Calhoun goal for Unit Capability Factor is 69.2%. The basis for this goal is 86 days for the Cycle 14 Refueling Outage, 20 days rampup (10 full power equivalent days), unplanned loss of 11.5 full power equivalent days, and 10 day rampup (5 full power equivalent days).

Data Source: Generation Totals Report & Monthly Operating Report

Accountability: Patterson

Adverse Trend: None



### UNPLANNED CAPABILITY LOSS FACTOR

This indicator shows the plant monthly Unplanned Capability Loss Factor (UCLF), the Fort Calhoun UCLF goal for 1992, and the 1995 INPO industry goal. UCLF is defined as the ratio of the unplanned energy losses during a given period of time, to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions), expressed as a percentage.

The UCLF was reported as 38% for the month of August 1992. Unplanned energy losses for the month were a result of the following two forced outages: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip. The plant was shutdown for the remainder of the month.

The UCLF was reported as 66% for the month of July 1992. Unplanned energy losses for the month were due to the forced outage caused by the loss of an inverter and the subsequent reactor trip on 7/3/92 and operating at less than full power from 7/23 through 7/31 after bringing the unit back on-line.

The year-to-date average UCLF is 18.2%.

The 1995 INPO industry goal is 4.5% and the industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 1.87%.

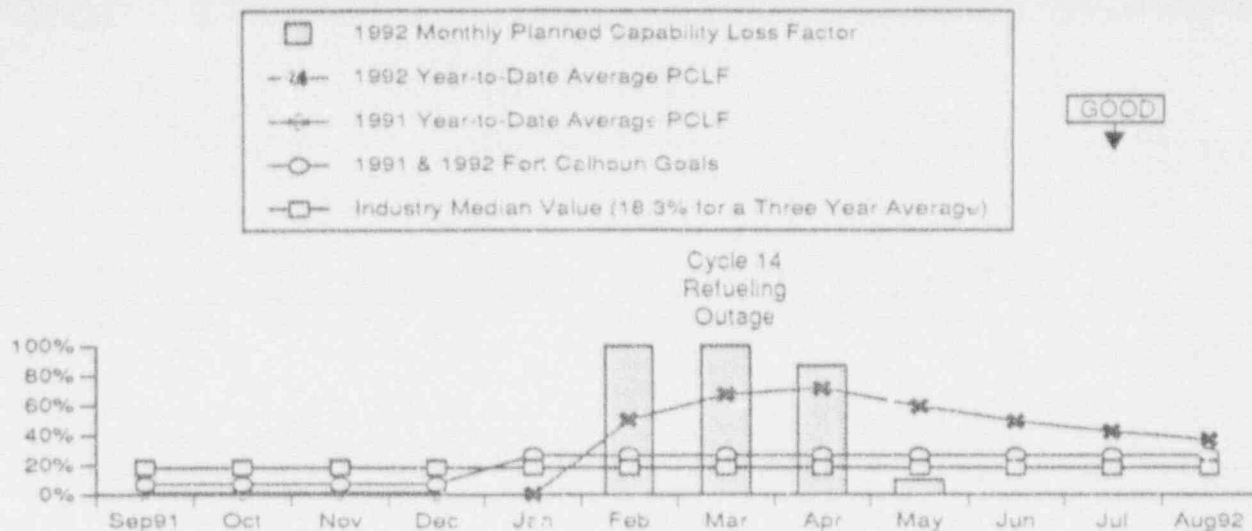
The Fort Calhoun goal for Unplanned Capability Loss Factor is 4.5%. The basis for this goal is an unplanned loss of 11.5 full power equivalent days and 10 day rampup (5 full power equivalent days).

Data Source: Generation Totals Report & Monthly Operating Report

Accountability: Patterson

Adverse Trend: None





### PLANNED CAPABILITY LOSS FACTOR

This indicator shows the plant monthly Planned Capability Loss Factor (PCLF), the PCLF year-to-date monthly average, and the Fort Calhoun yearly average goals for 1991 and 1992. PCLF is defined as the ratio of the planned energy losses during a given period of time, to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions), expressed as a percentage.

The PCLF was reported as 0% for the month of August 1992. Energy losses for the month were due to the following two forced outages: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an A/C/DC converter failed in the Turbine Electric Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip. The plant was shutdown for the remainder of the month. These energy losses were classified as unplanned.

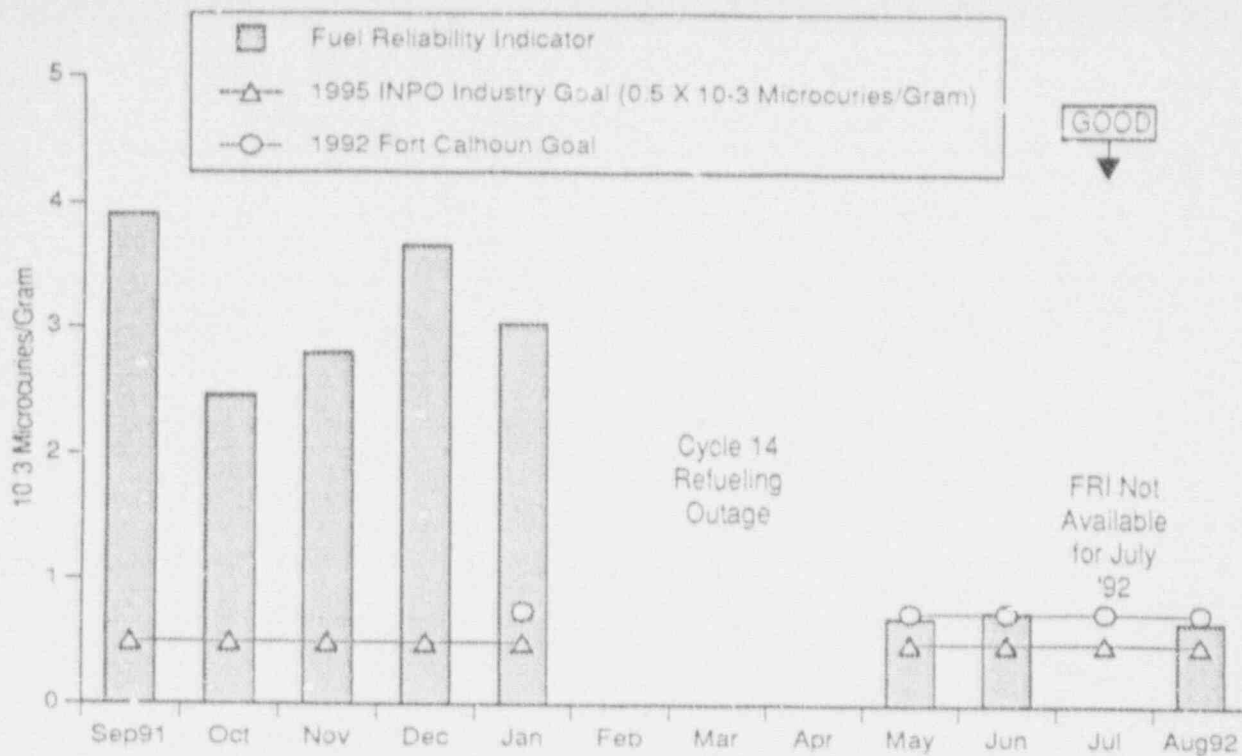
The PCLF was reported as 0% for the month of July 1992. Energy losses for July were due to the forced outage caused by the loss of an inverter and the subsequent reactor trip on 7/3/92. These energy losses were classified as unplanned.

The year-to-date-average monthly PCLF for 1992 is 37.1%.

The 1992 Fort Calhoun yearly average Planned Capability Loss Factor goal is 26.3%. The basis for this goal is 86 days for the Cycle 14 Refueling Outage and 20 days rampup (10 full power equivalent days). The 1991 goal was 7%.

The PCLF industry median value (for the three year period from 1/89 through 12/91) is 18.3%.

Data Source: Generation Totals Report & Monthly Operating Report  
 Accountability: Patterson  
 Adverse Trend: None



### FUEL RELIABILITY INDICATOR

The Fuel Reliability Indicator (FRI) was reported as  $6.75 \times 10^{-4}$  microcuries/gram for the month of August 1992. This compares to  $7.51 \times 10^{-4}$  microcuries/gram for the month of June. The FRI was not reported for the month of July due to limited data available for trending. Only a few days at the beginning and a few days at the very end of July met the INPO criteria for steady state operation.

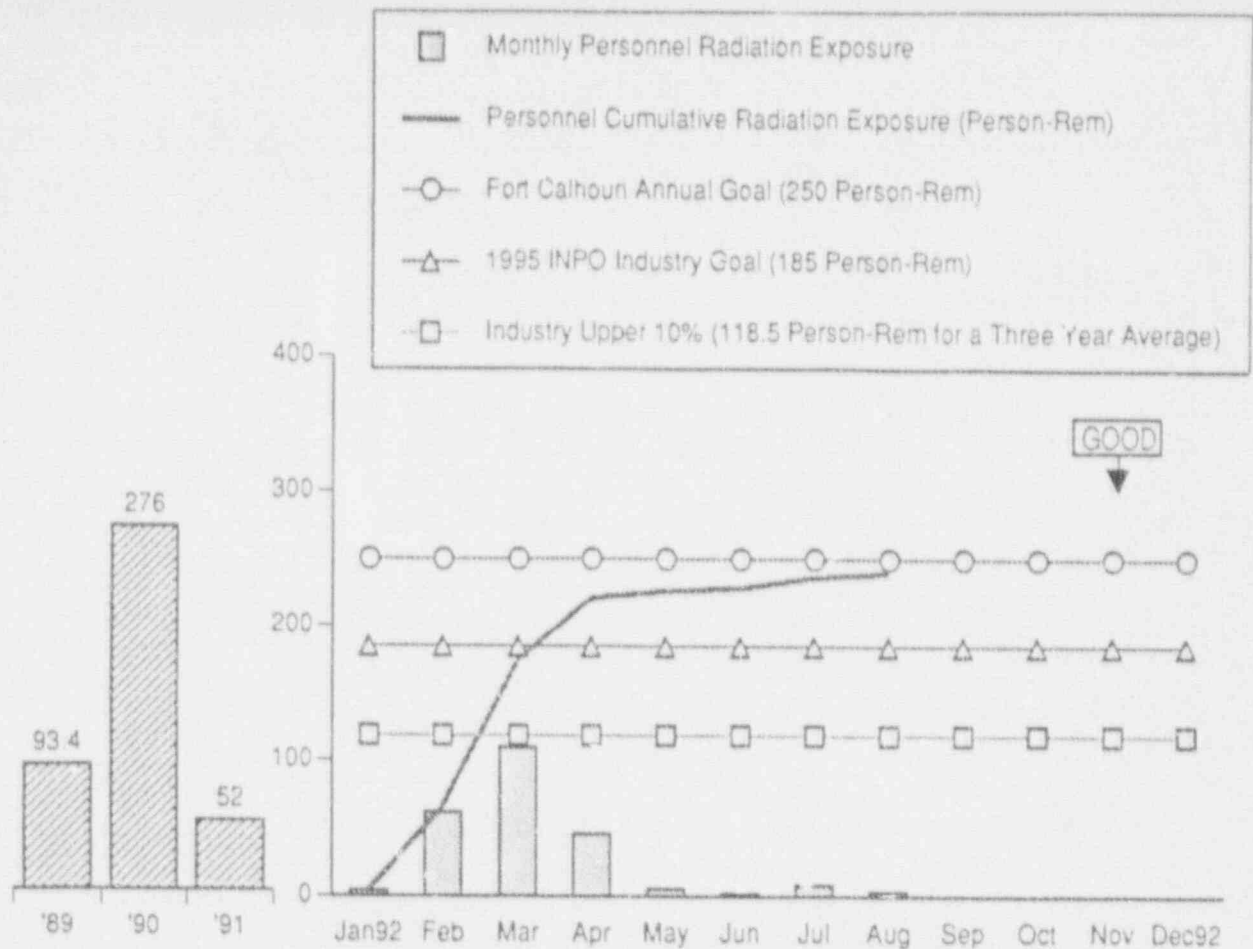
The August FRI was calculated using the data from August 1 through 4 and 14 through 21. In accordance with the INPO definition of steady state operation, the plant was at power levels above 85% during this time and the power levels did not vary more than + or - 5% for at least 3 days. Only the iodine concentration values from the days that meet this steady state criteria can be factored into the INPO Fuel Reliability Indicator.

The last detected fuel failure was during Cycle 13. The FRI values observed during the later months of Cycle 13 were in the  $2.5 \times 10^{-3}$  to  $3.9 \times 10^{-3}$  microcuries/gram range.

A Fort Calhoun goal of  $7.5 \times 10^{-4}$  microcuries/gram will be utilized in 1992. Fort Calhoun recognizes the INPO 1995 U.S. industry goal of  $5.0 \times 10^{-4}$  microcuries/gram and will revise the annual FRI goal accordingly.

The FRI was not applicable while the plant was shutdown for the refueling outage in February, March and April, and was not reported during those months.

Data Source: Holthaus/Guliani  
 Accountability: Patterson/Spilker  
 Adverse Trend: None



### COLLECTIVE RADIATION EXPOSURE

During August 1992, 3,432 person-rem was recorded by TLDs worn by personnel while working at the Fort Calhoun Station. The year-to-date exposure is 239.902 person-rem.

The Fort Calhoun goal for personnel radiation exposure (cumulative) during 1992 is 250 person-rem. Cumulative radiation exposure for the Cycle 14 Refueling Outage was 216.899 person-rem, which exceeds the outage goal of 210 person-rem. The goal was not achieved because the outage was longer than anticipated and there was more exposure than expected due to the stuck reactor vessel stud and the thermal shield inspection.

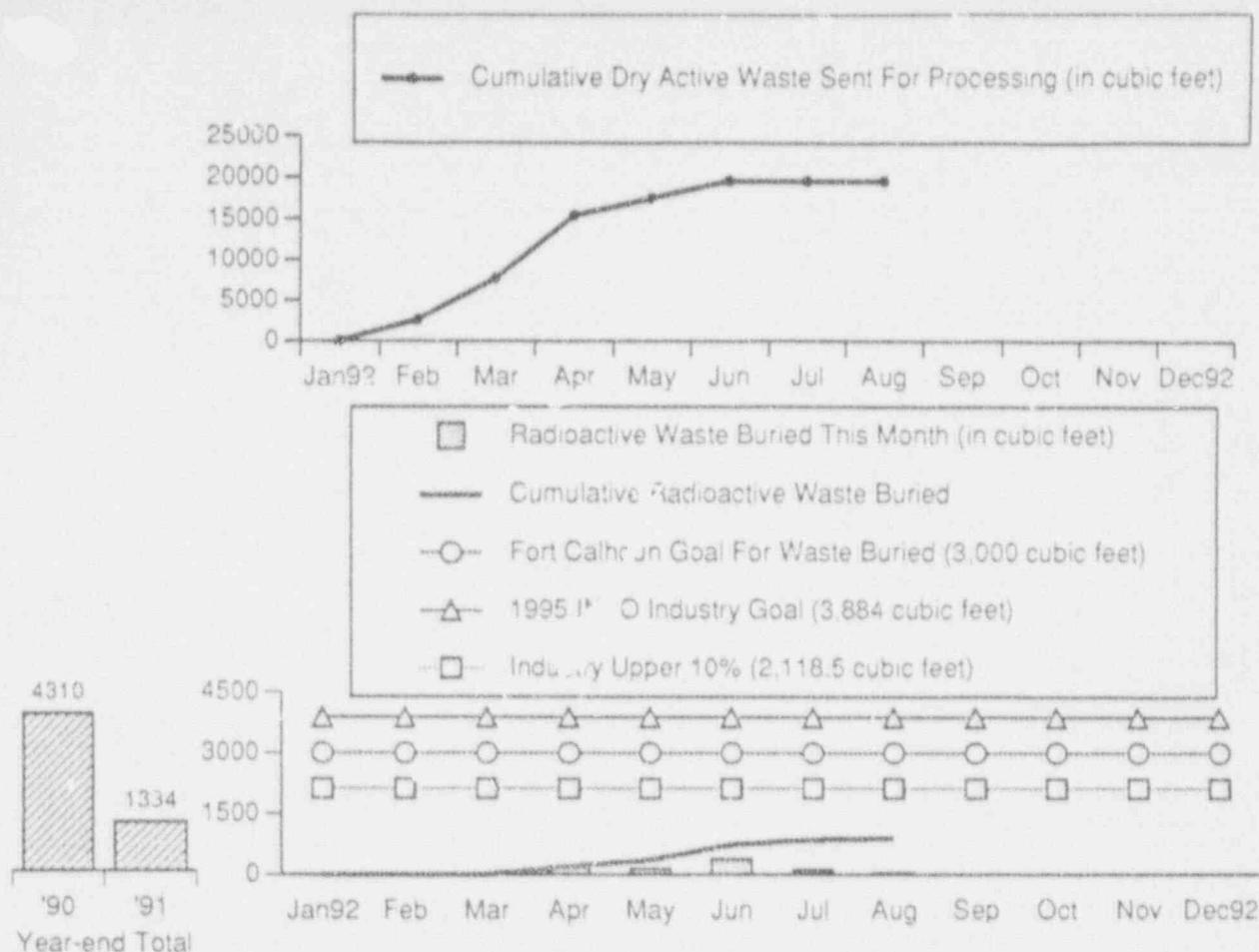
The 1995 INPO industry goal is 185 person-rem per year. The industry upper ten percentile value (for the three year period from 1/89 through 12/91) is approximately 118.5 person-rem per year. The three year average for Fort Calhoun Station from 1/89 through 12/91 is 140.4 person-rem per year.

Data Source: Patterson/Williams (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None

SEP 54



### VOLUME OF LOW-LEVEL SOLID RADIOACTIVE WASTE

The upper graph shows the volume of radioactive oil and dry radioactive waste sent for processing. The lower graph shows the volume of the monthly radioactive waste buried, the cumulative annual total for radioactive waste buried, and the year-end totals for radioactive waste buried the previous 2 years.

Cumulative amount of solid radwaste shipped off-site for processing (cubic feet)	19,520
Amount of solid radwaste shipped off-site for processing during August (cubic feet)	0.0
Volume of solid radioactive waste which was buried during August (cubic feet)	29.1
Cumulative volume of solid radioactive waste buried in 1992 (cubic feet)	868.1
Amount of solid radioactive waste in temporary storage (cubic feet)	240.6

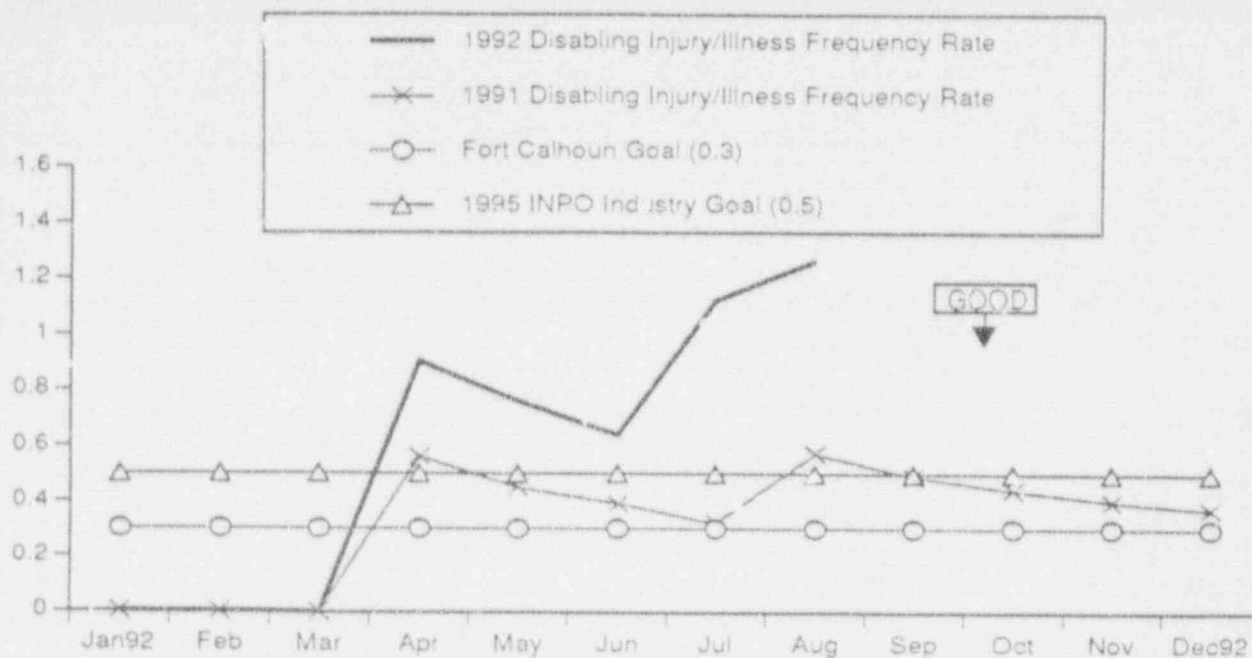
The 1992 Fort Calhoun goal for the volume of solid radioactive waste which has been buried is 3,000 cubic feet. The 1995 INPO industry goal is 110 cubic meters (3,884 cubic feet) per year. The industry upper ten percentile value is approximately 60 cubic meters (2,118.5 cubic feet) per year.

Data Source: Patterson/Breuer (Manager/Source)

Accountability: Patterson/Bilau

Adverse Trend: None

SEP 54



### DISABLING INJURY/ILLNESS FREQUENCY RATE (LOST TIME ACCIDENT RATE)

This indicator shows the 1992 disabling injury/illness frequency rate. The 1991 disabling injury/illness frequency rate is also shown.

The disabling injury/illness frequency rate for January through August 1992 was 1.26. There was one disabling injury, a strained back, reported for the month of August. The total number of lost time accidents that have been reported during 1992 is 5. The 1992 disabling injury/illness frequency rate goal was set at 0.30. The 1995 INPO Industry goal is 0.50.

The disabling injury/illness frequency rate for the past twelve months is 1.03.

4 of the 5 disabling injuries for 1992 were back injuries. The Industrial Safety Coordinator has developed an action plan to address this adverse trend.

The industry upper ten percentile disabling injury/illness frequency rate is approximately 0.16.

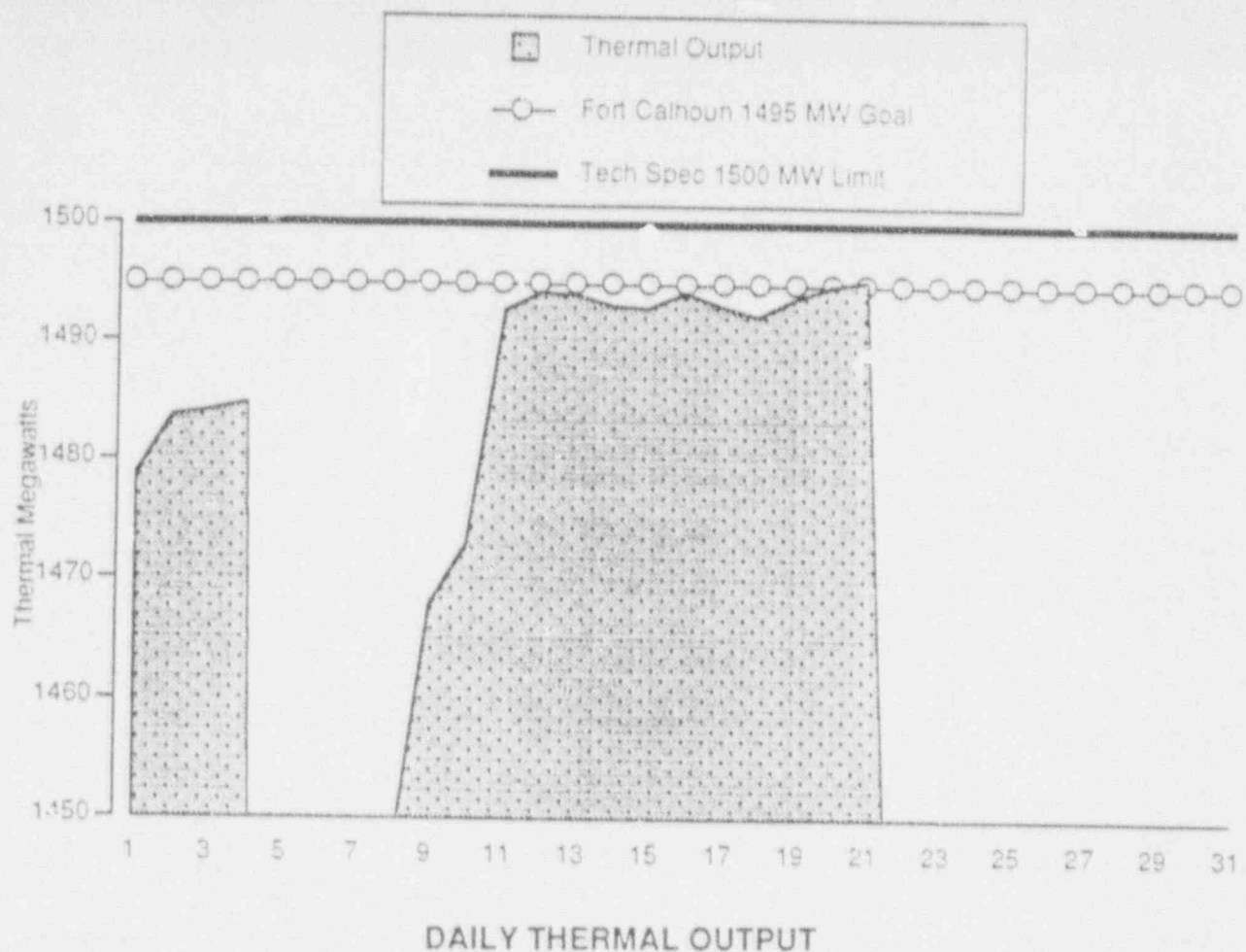
<u>Year</u>	<u>Year-End Rate</u>
1989	0.4
1990	0.5
1991	0.4

Data Source: Sorenson/Skaggs (Manager/Source)

Accountability: Patterson/Richard

Adverse Trend: The manager of the Safety Department has stated that, based on this indicator's 1992 values being above the 5 year average values, an adverse trend is indicated.

SEP 25 & 26



The above thermal output graph displays the daily operating power level during August 1992, the 1500 thermal megawatt average technical specification limit, and the 1495 thermal megawatt Fort Calhoun goal.

The daily thermal output chart for August reflects the following forced outages: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/22/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure and the plant tripped. The plant was shut-down for the remainder of the month.

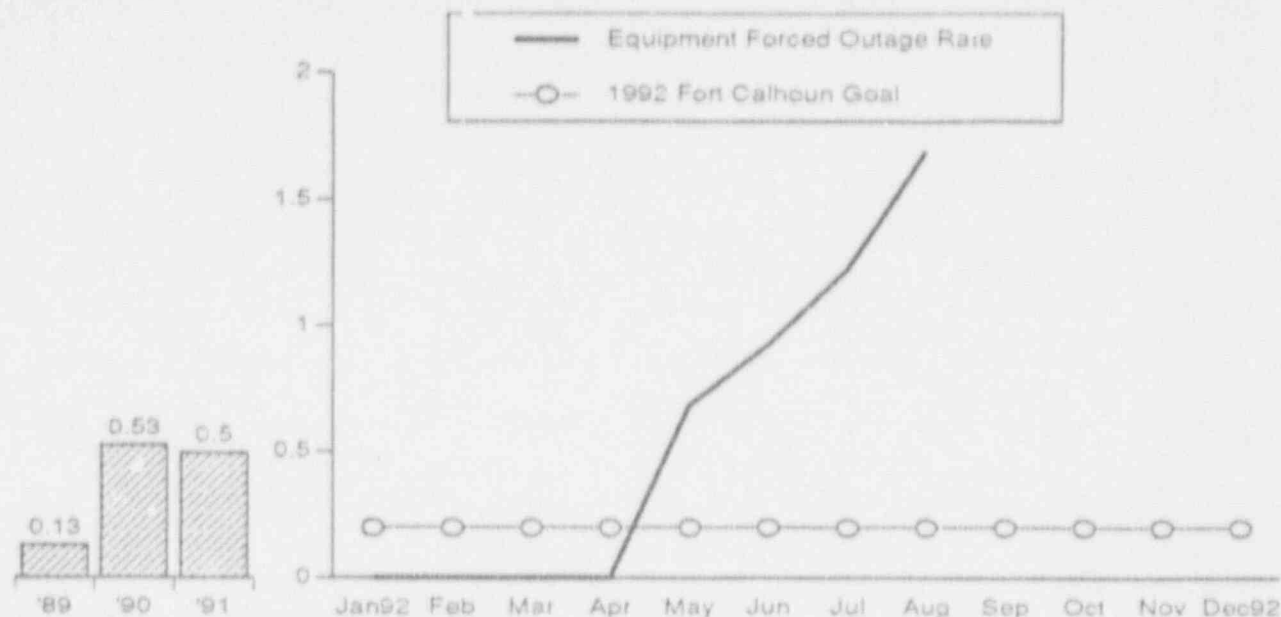
Fort Calhoun Station is currently operating at a level of Peak Linear Heat Rate such that, if Incore detector alarm monitoring is not maintained, power must be reduced below 80% within 2 hours.

Data Source: Holthaus/Gray (Manager/Source)

Accountability: Patterson/Trausch

Adverse Trend: None





### EQUIPMENT FORCED OUTAGES PER 1,000 CRITICAL HOURS

The equipment forced outage rate per 1,000 critical hours was 1.69 for the months from January through August 1992.

The following two equipment forced outages occurred in August: 1) on 8/5/92 a feeder breaker to the 125V dc panel AI-41A failed. The turbine generator was synchronized to the grid on 8/6/92; 2) on 8/2/92 an AC/DC converter failed in the Turbine Electro Hydraulic Control system. Pressurizer safety valve RC-142 then opened prior to reaching design pressure during a plant transient and trip. The plant was shutdown for the remainder of the month.

There was one equipment forced outage during July due to the loss of an inverter and the subsequent reactor trip on 7/3/92.

There was one equipment forced outage during June due to a dropped control rod. The rod was dropped at 2305 on 5/31/92 and reactor shutdown commenced at that time. The generator was taken off-line at 0234 on 6/1/92 and was brought back on-line at 0852 on 6/2/92.

There was one equipment forced outage during May. This equipment forced outage occurred on May 14 when the turbine generator tripped on a false high level moisture separator trip signal which caused a simultaneous reactor trip.

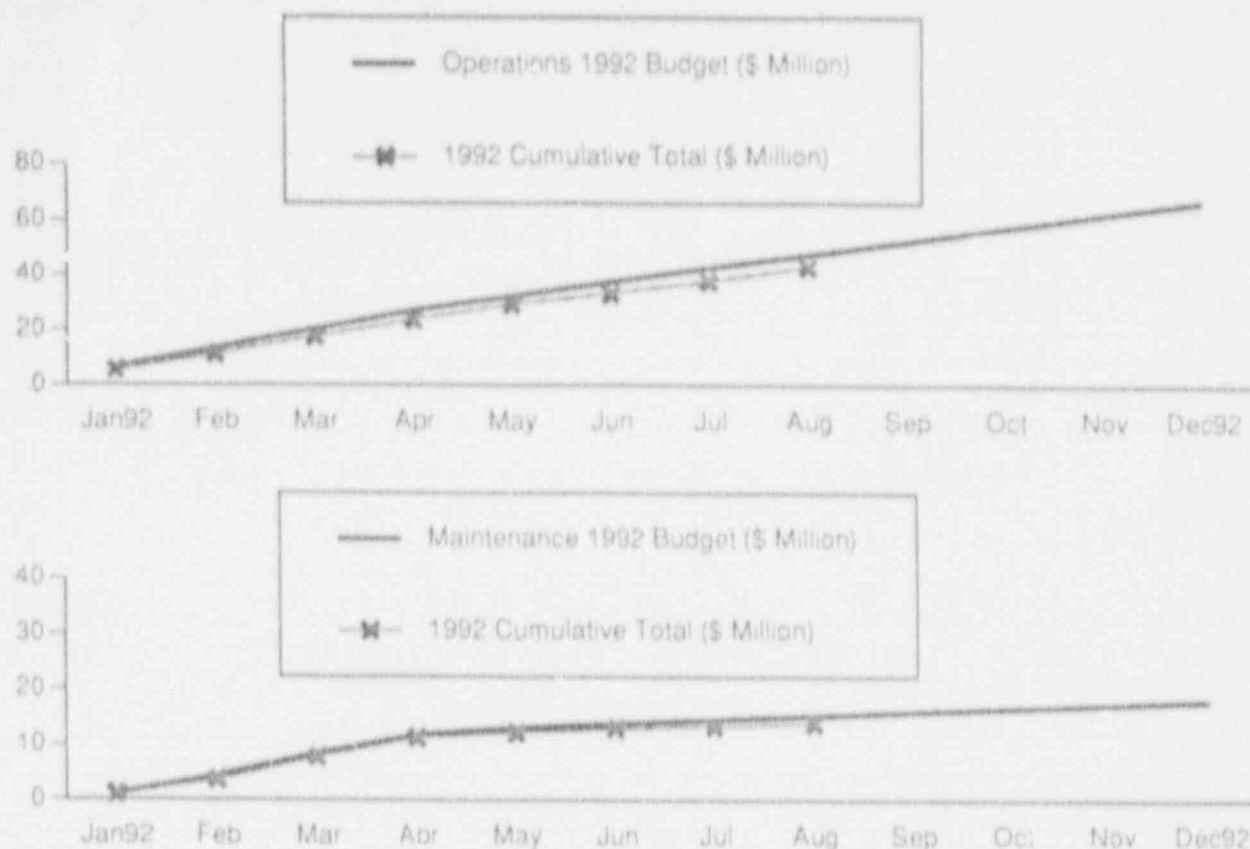
The 1992 Fort Calhoun goal for this indicator is 0.2.

Data Source: Monthly Operations Report & Plant Licensee Event Reports (LERs)

Accountability: Patterson/Jaworski

Adverse Trend: An adverse trend is indicated based on four consecutive months of declining performance.





#### OPERATIONS AND MAINTENANCE BUDGET

The Operations and Maintenance Budget Indicator shows the budget year-to-date as well as the actual expenditures for operations and maintenance for the Fort Calhoun Station.

The budget year-to-date for Operations was 47,161,800 dollars for August 1992 while the actual cumulative expenditures through August totaled 42,983,867 dollars. The 1992 year-end budget for operations has been revised to 62,473,800 dollars, which is a reduction of 4,187,000 dollars.

The budget year-to-date for Maintenance was 15,322,300 dollars for August 1992 while the actual cumulative expenditures through August totaled 13,999,994 dollars. The 1992 year-end budget for maintenance has been revised to 18,342,600 dollars, which is an increase of 188,000 dollars.

Data Source: Gleason/Parent (Manager/Source)

Accountability: Scofield

Adverse Trend: None



### DOCUMENT REVIEW

This indicator shows the number of completed, scheduled, and overdue (greater than 6 months past the scheduled due date) biennial reviews for the reporting month. These document reviews are performed in-house and include Special Procedures, the Site Security Plan, Maintenance Procedures, Preventive Maintenance Procedures, and the Operating Manual.

During August 1992 there were 383 document reviews completed while 604 document reviews were scheduled. At the end of August, there were no document reviews overdue.

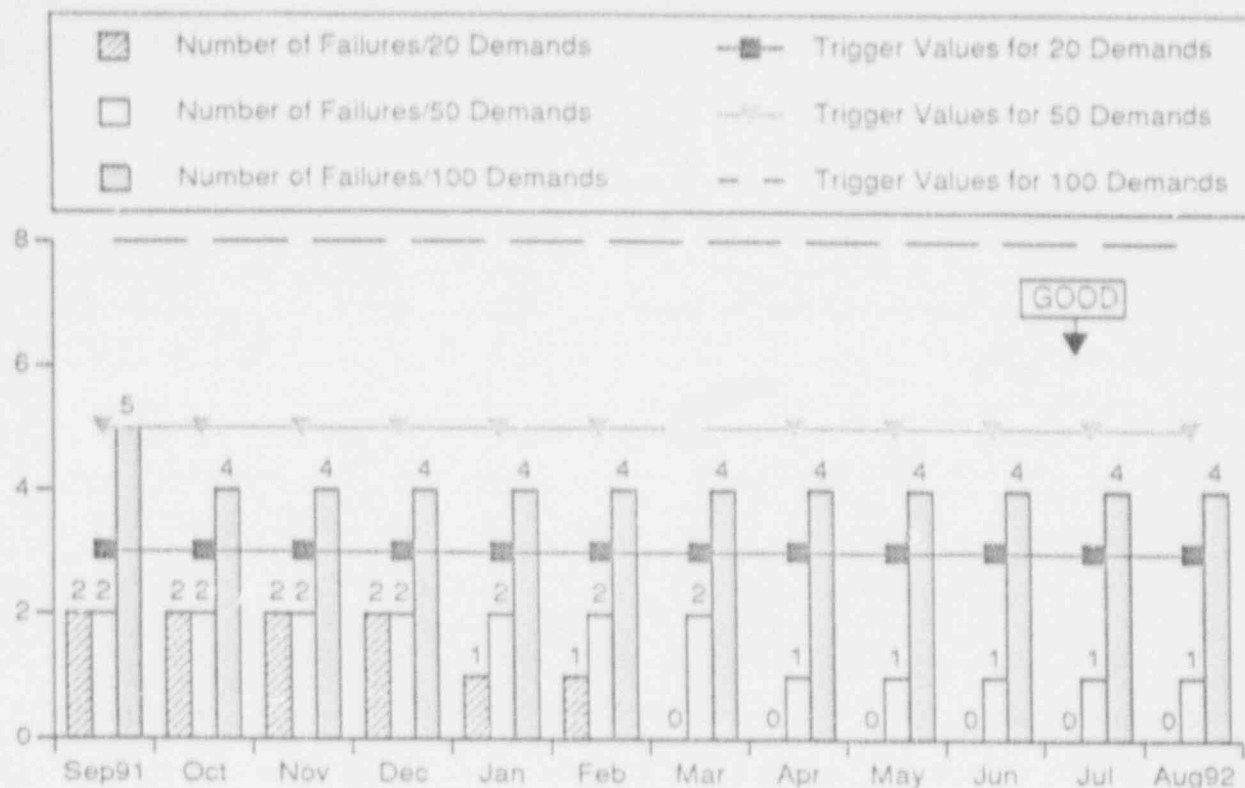
During the month of August there were 48 new or renamed documents reviewed. These new or renamed documents will need to be reviewed again in 1994.

Data Source: Patterson/McKay (Manager/Source)

Accountability: Patterson/Jaworski

Positive Trend

SEP 46



### EMERGENCY DIESEL GENERATOR UNIT RELIABILITY

This bar graph shows three monthly indicators pertaining to the number of failures that were reported during the last 20, 50, and 100 emergency diesel generator demands at the Fort Calhoun Station. Also shown are trigger values which correspond to a high level of confidence that a unit's diesel generators have obtained a reliability of greater than or equal to 95% when the failure values are below the corresponding trigger values. The Fort Calhoun 1992 goal is to have fewer failures than these trigger values.

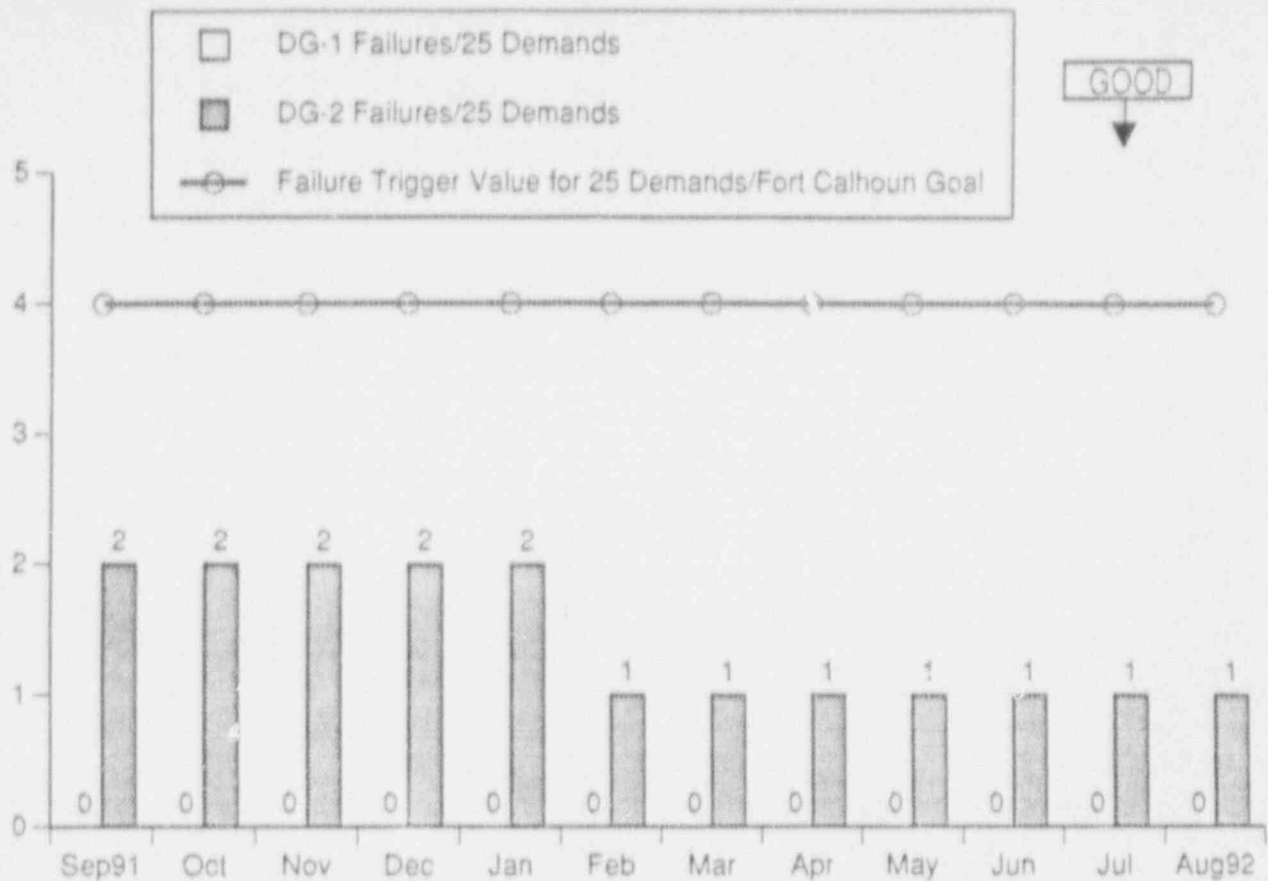
The demands counted for this indicator include the respective number of starts and the respective number of load-runs for both Diesel Generators combined. The number of start demands includes all valid and inadvertent starts, including all start-only demands and all start demands that are followed by load-run demands, whether by automatic or manual initiation. Load-run demands must follow successful starts and meet at least one of the following criteria: a load-run that is a result of a real load signal, a load-run test expected to carry the plant's load and duration as stated in the test specifications, and a special test in which a diesel generator was expected to be operated for a minimum of one hour and to be loaded with at least 50% of design load (see exceptions and other demand criteria in the Definition Section of this report).

The demand failure which occurred during the month of August 1991 for DG-2 was due to a seal failure on the jacket water pump.

Data Source: Jaworski/Ronning (Manager/Source)

Accountability: Jaworski/Ronning

Adverse Trend: None



#### DIESEL GENERATOR RELIABILITY (25 DEMANDS)

This indicator shows the number of failures experienced by each emergency diesel generator during the last 25 start demands and the last 25 load-run demands. A trigger value of 4 failures within the last 25 demands is also shown. This trigger value of 4 failures within 25 demands is the Fort Calhoun goal for 1991.

It must be emphasized that in accordance with NUMARC criteria, certain actions will take place in the event that any one emergency diesel generator experiences 4 or more failures within the last 25 demands on the unit. These actions are described in the Definitions Section of this report. A Standing Order has been drafted for the Fort Calhoun Station to institutionalize and formally approve/adopt the required NUMARC actions.

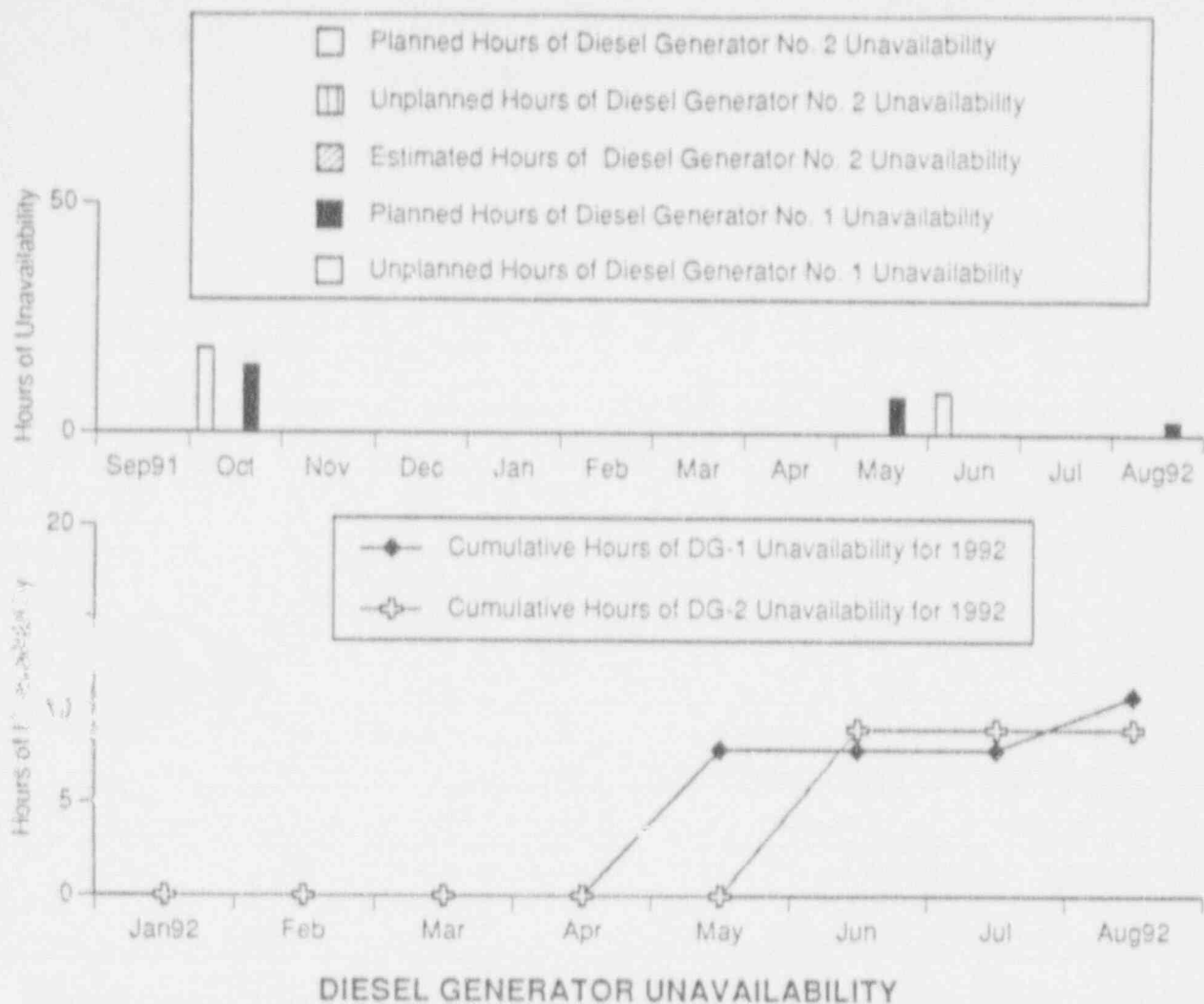
Diesel Generator DG-1 has not experienced any failures during the last 25 demands on the unit.

Diesel Generator DG-2 has experienced one failure during the last 25 demands on the unit. An air damper roll pin failure occurred in July 1991.

Data Source: Jaworski/Ronning (Manager/Source)

Accountability: Jaworski/Ronning

Adverse Trend: None



This indicator provides a monthly illustration of diesel generator unavailability. The top graph shows the diesel generator planned, unplanned, and estimated unavailable hours for DG-1 and DG-2 for each month. The lower graph shows the cumulative hours of unavailability for each diesel generator for the year-to-date.

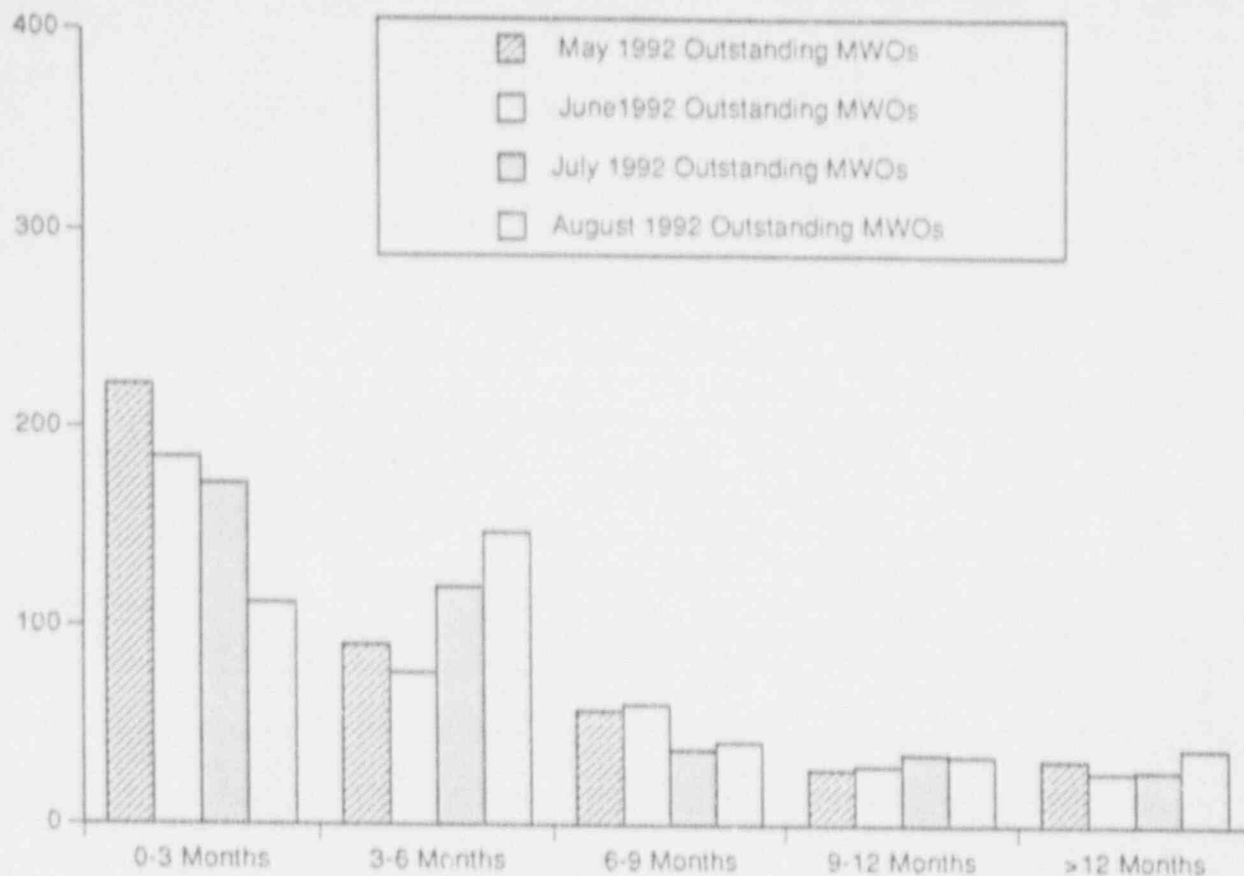
During August there were 2.9 hours of planned unavailability for DG-1 to inspect relays for contact degradation.

The 1992 Fort Calhoun goal is a maximum of 210.82 hours of unavailability for each diesel generator.

Data Source: Jaworski/Ronning (Manager/Source)

Accountability: Jaworski/Ronning

Adverse Trend: None



#### AGE OF OUTSTANDING MAINTENANCE WORK ORDERS (CORRECTIVE NON-OUTAGE)

This indicator shows the age of corrective non-outage maintenance work orders (MWOs) remaining open at the end of the reporting month.

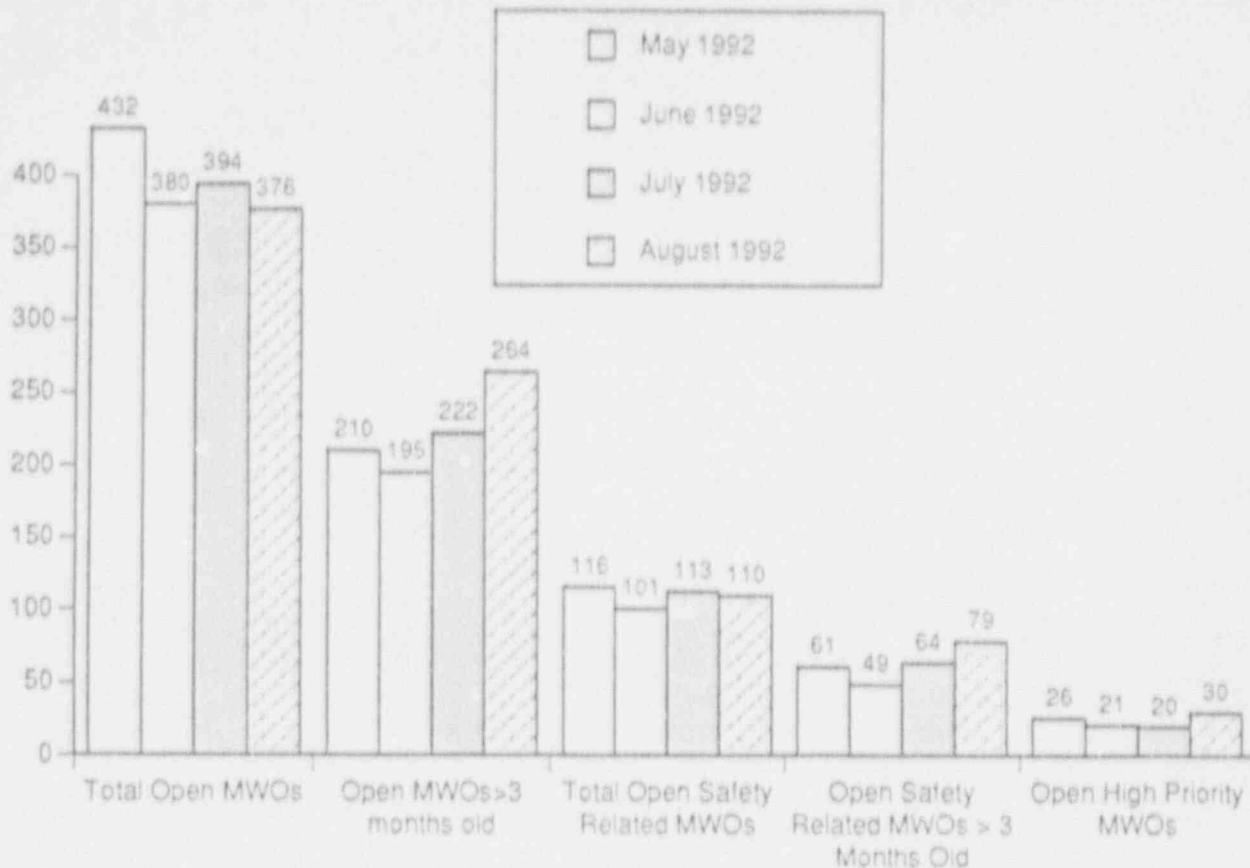
The increase in non-outage corrective maintenance is reflected by the increase in resources dedicated to completing the recent forced outages.

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/ Bobba

Adverse Trend: None





#### MAINTENANCE WORK ORDER BREAKDOWN (CORRECTIVE NON-OUTAGE)

This indicator shows the total number of corrective non-outage MWOs remaining open at the end of the reporting month, along with a breakdown by several key categories.

The number of open MWOs > 3 months old increased during March and April because on-line activities had to be scheduled beyond the end of the Cycle 14 Refueling Outage.

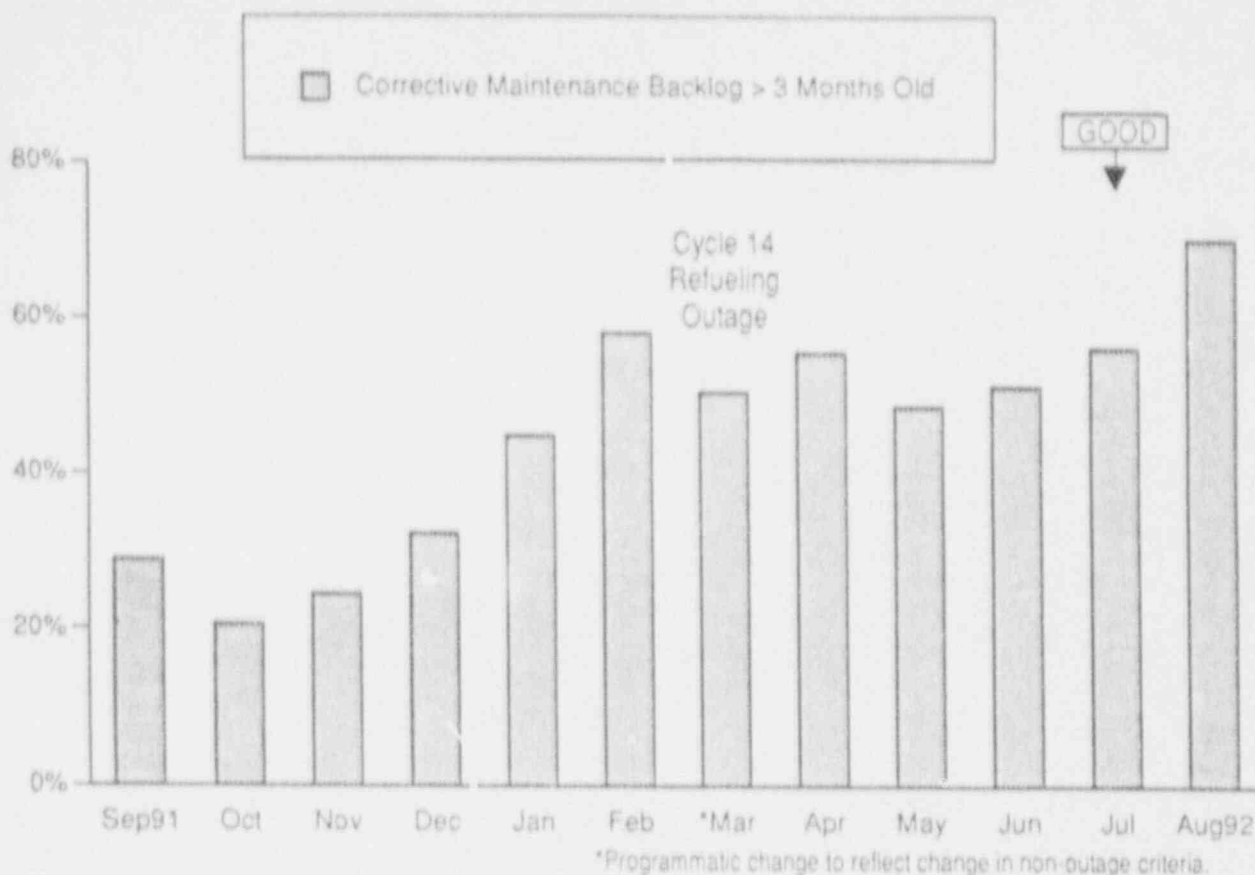
The 1992 goal for this indicator is to have less than 350 total corrective non-outage maintenance work orders remaining open.

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/Bobba

Adverse Trend: None

SEP 36



### CORRECTIVE MAINTENANCE BACKLOG GREATER THAN 3 MONTHS OLD (NON-OUTAGE)

This indicator shows the percentage of open corrective non-outage maintenance work orders that were greater than three months old at the end of the reporting month.

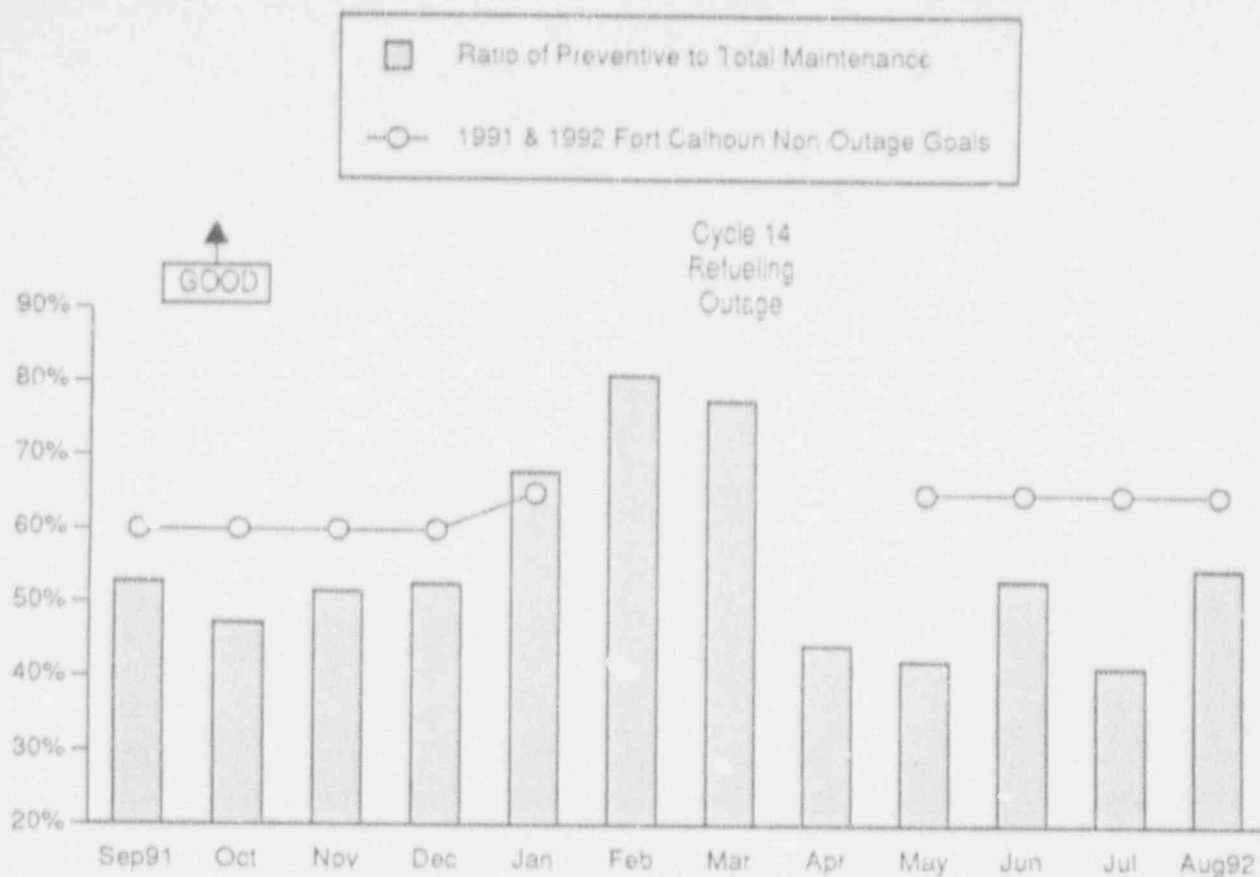
The percentage of open corrective non-outage maintenance work orders that were greater than three months old at the end of August 1992 was reported as 70.2%.

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/ Bobba

Adverse Trend: An adverse trend is indicated based on three consecutive months of increasing values for this indicator. The increase in non-outage corrective maintenance is reflected by the increase in resources dedicated to completing the recent forced outages.

SEP 36



### RATIO OF PREVENTIVE TO TOTAL MAINTENANCE

This indicator shows the ratio of completed non-outage preventive maintenance to total completed non-outage maintenance.

The ratio of preventive to total maintenance was 55.1% in August 1992.

The increase in non-outage corrective maintenance is reflected by the increase in resources dedicated to completing the recent forced outages.

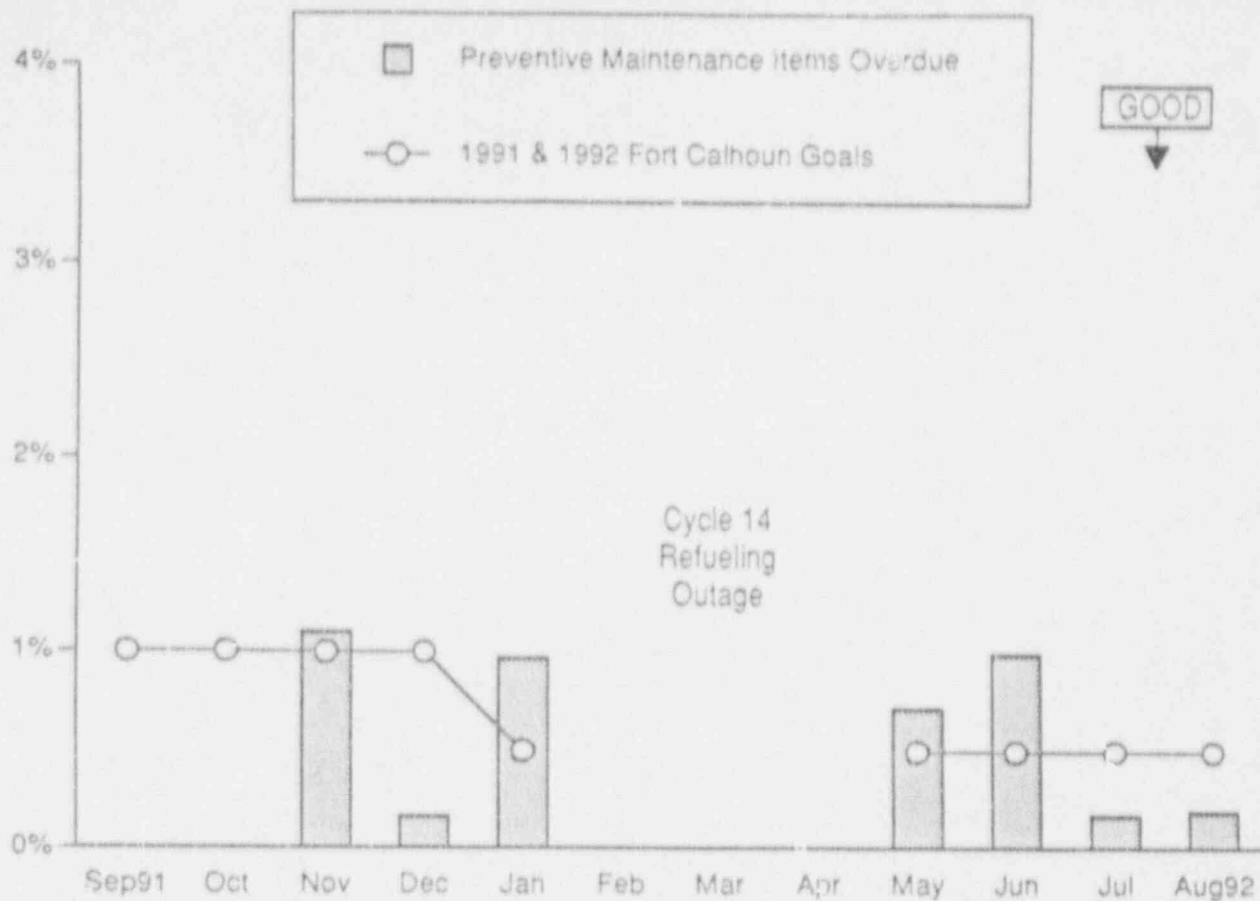
The 1992 Fort Calhoun goal is to attain a ratio of preventive to total maintenance non-outage greater than 65%. The 1991 Fort Calhoun goal was to attain a ratio of preventive to total maintenance greater than 60%.

Accountability: Patterson/ Bobba

Data Source: Patterson/Schmitz (Manager/Source)

Adverse Trend: None

SEP 41



### PREVENTIVE MAINTENANCE ITEMS OVERDUE

The purpose of this indicator is to monitor progress in the administration and execution of preventive maintenance (PM) programs. A small percentage of preventive maintenance items overdue indicates a station commitment to the preventive maintenance program and an ability to plan, schedule, and perform preventive maintenance tasks as programs require.

During August 1992, 517 PM items were completed. 1 PM item (0.19% of the total ) was not completed within the allowable grace period.

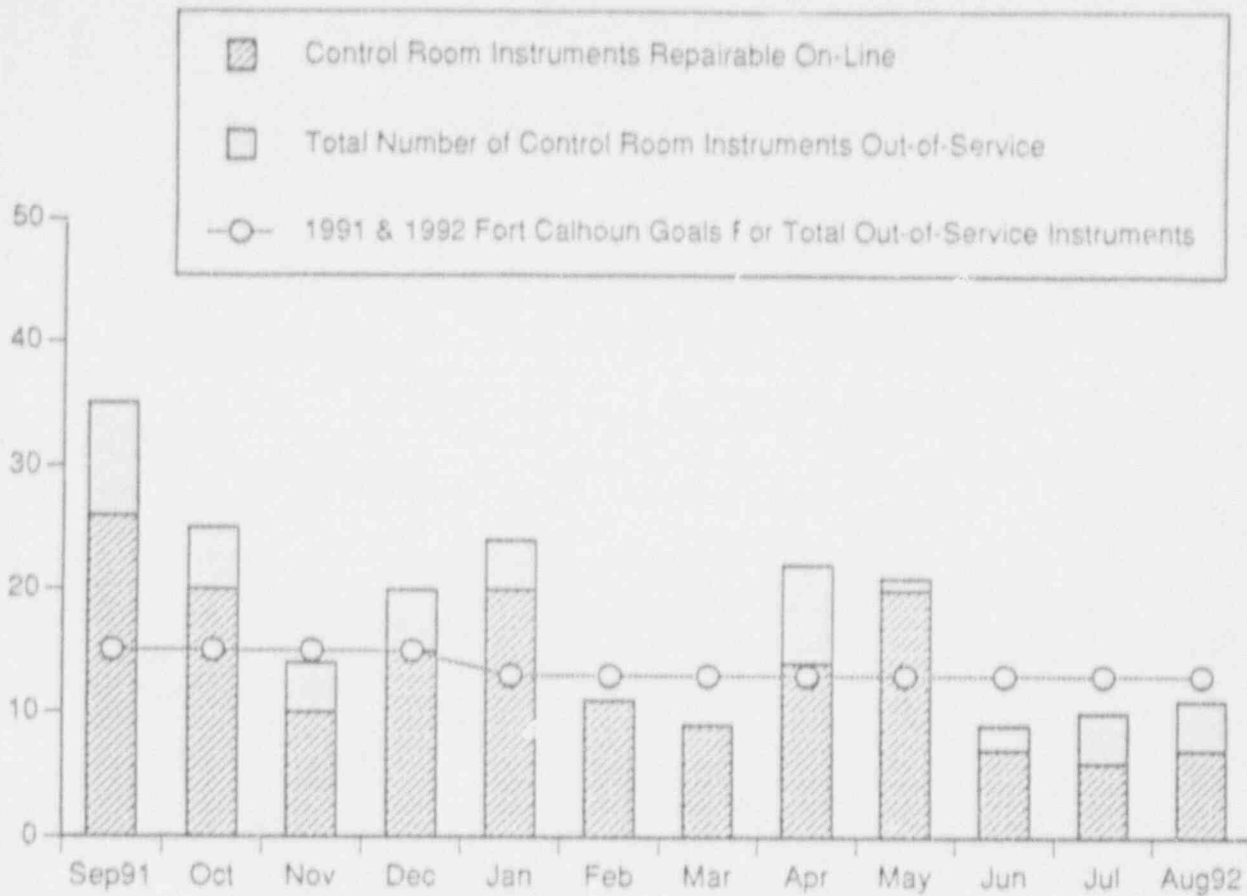
The 1992 Fort Calhoun goal is to have less than 0.5% per month of the preventive maintenance items overdue. The 1991 Fort Calhoun goal was to have less than 1% per month of the preventive maintenance items overdue.

Data Source: Patterson/Brady (Manager/Source)

Accountability: Patterson/ Bobba

Adverse Trend: None

SEP 41



### NUMBER OF OUT-OF-SERVICE CONTROL ROOM INSTRUMENTS

This indicator shows the number of out-of-service control room instruments, the number of instruments repairable during plant operations (on-line), and the 1991 and 1992 Fort Calhoun goals.

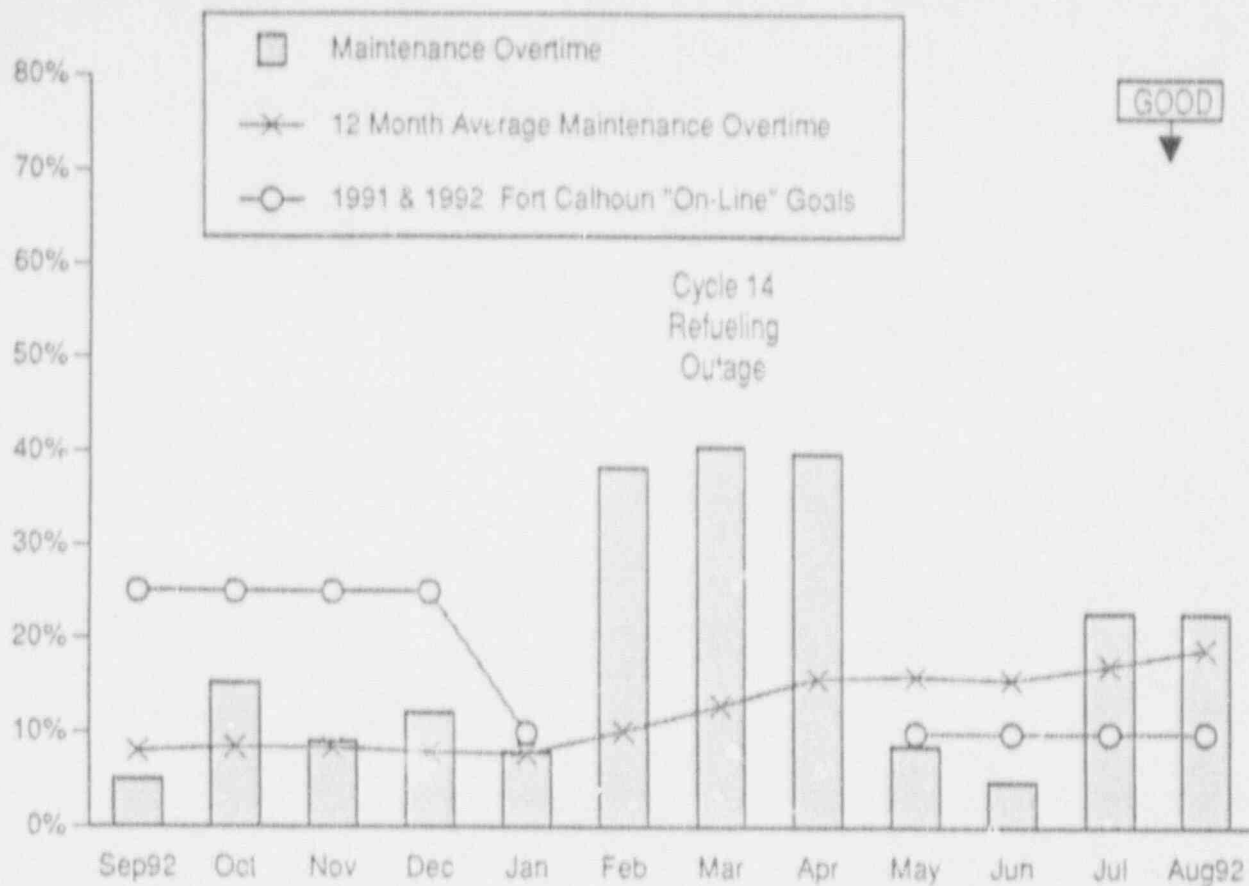
There was a total of 11 out-of-service control room instruments at the end of August 1992. 4 of these instruments require a plant outage to repair. 2 instruments were added and none (0) were completed during the month.

The 1992 Fort Calhoun goal is to have less than 13 out-of-service control room instruments. The 1991 Fort Calhoun goal was to have less than 14 out-of-service control room instruments.

Data Source: Patterson/Spiker (Manager/Source)

Accountability: Patterson/ Bobba

Adverse Trend: None



### MAINTENANCE OVERTIME

The Maintenance Overtime Indicator monitors the ability to perform the desired maintenance activities with the allotted resources. Excessive overtime indicates insufficient resource allocation and can lead to errors due to fatigue.

The percent of overtime hours with respect to normal hours was reported as 22.7% during the month of August 1992. The 12 month average percentage of overtime hours with respect to normal hours was reported as 18.9%. Both July and August overtime were high due to two long term (>2 weeks) forced outages.

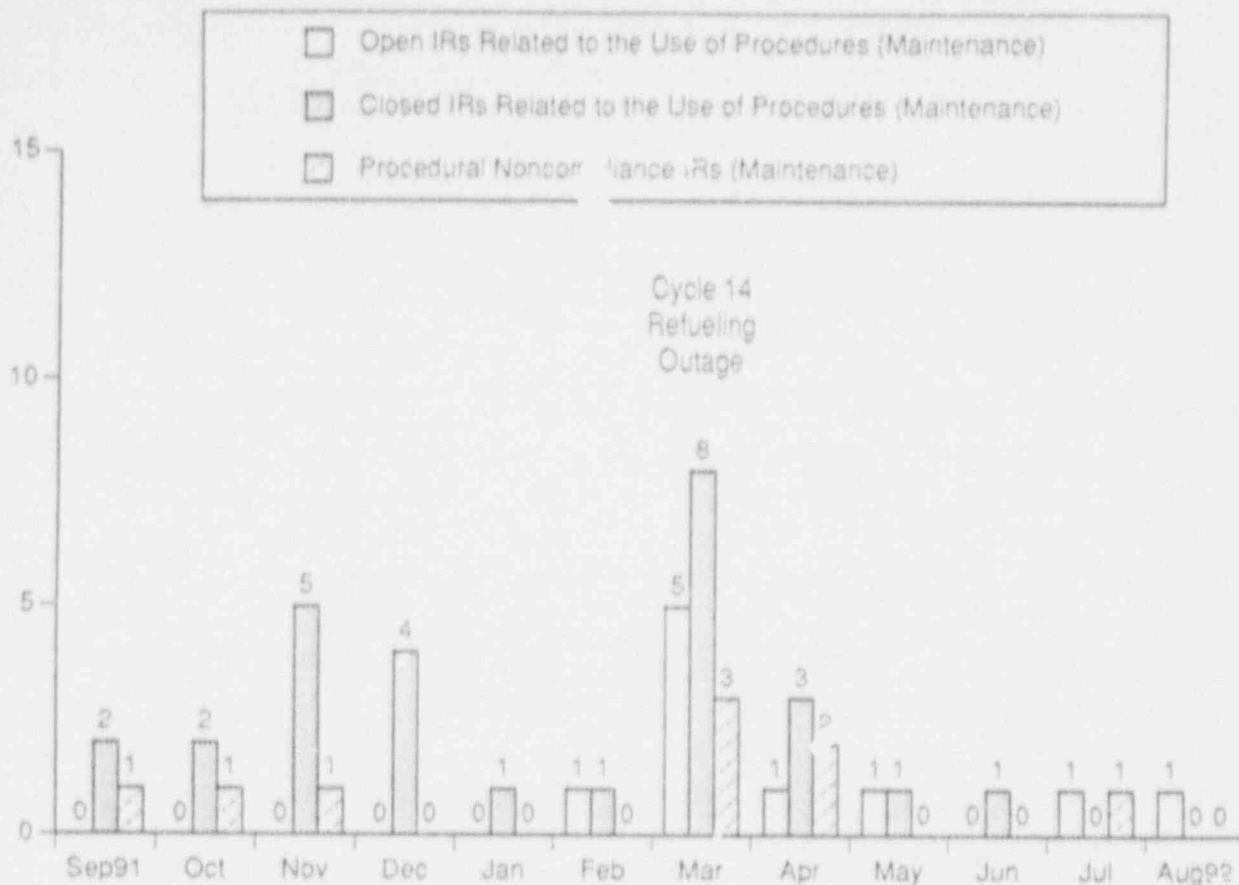
The 1992 Fort Calhoun goal for the "on-line" percentage of maintenance overtime hours worked is a maximum of 10%.

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/ Bobba

Adverse Trend: None





#### PROCEDURAL NONCOMPLIANCE INCIDENTS (MAINTENANCE)

This indicator shows the number of open Maintenance Incident Reports (IRs) that are related to the use of procedures, the number of closed IRs that are related to the use of procedures, and the number of open and closed IRs that received procedural noncompliance cause codes for each of the last twelve months.

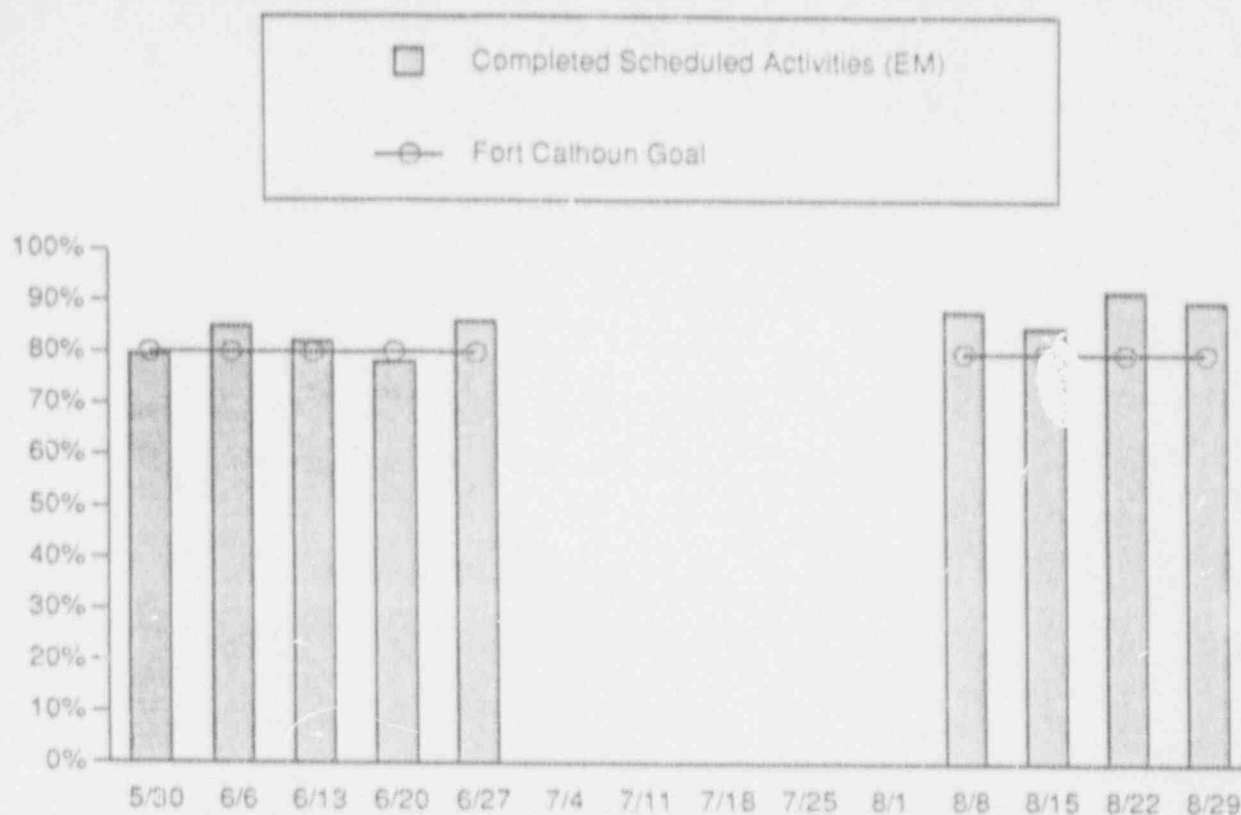
There were no (zero) procedural noncompliance incidents for maintenance reported for the month of August 1992.

Data Source: Patterson/McKay (Manager/Source)

Accountability: Patterson/Bobba

Adverse Trend: None

SEP 15, 41 & 44



#### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (ELECTRICAL MAINTENANCE)

This indicator shows the percent of the number of completed maintenance activities as compared to the number of scheduled maintenance activities concerning Electrical Maintenance. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and miscellaneous maintenance activities.

Data for this indicator was not available for the month of July 1992 due to the forced outage from 7/3 through 7/23.

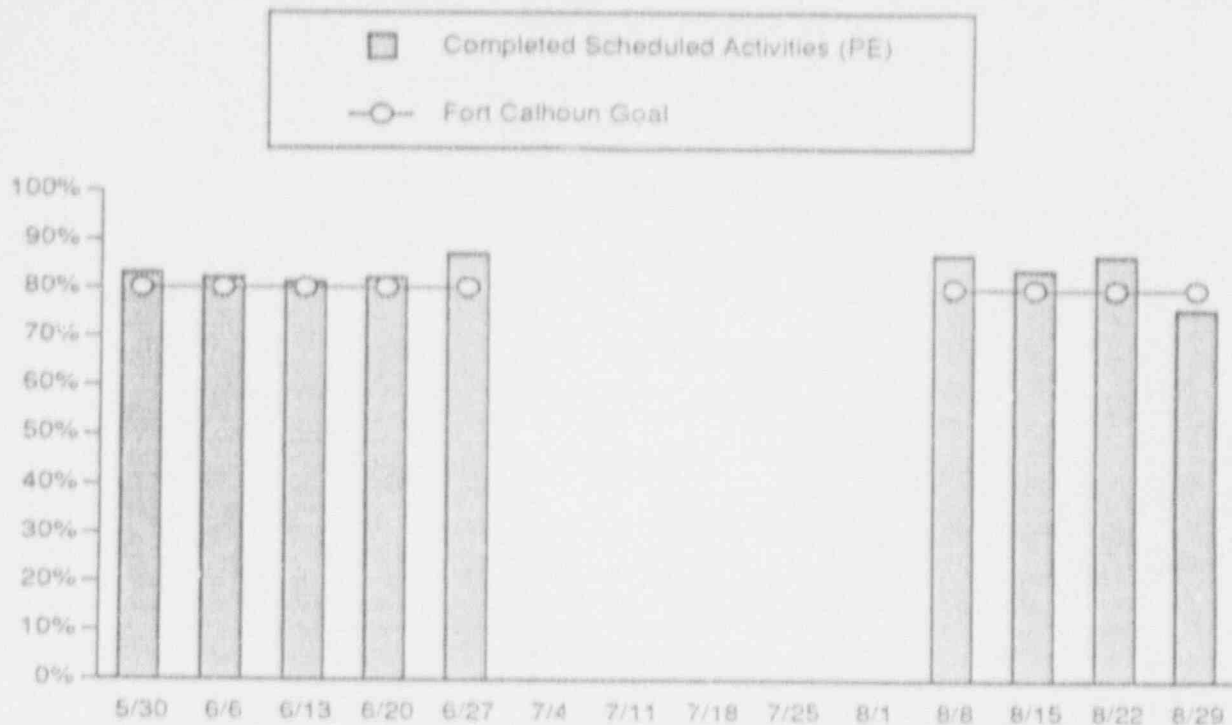
Data for this indicator was not tracked during the Cycle 14 Refueling Outage.

The Fort Calhoun Station goal for this indicator is 80%.

Reporting Month	Completed Scheduled Activities
Week 1	88%
Week 2	85%
Week 3	92%
Week 4	90%

Data Source: Patterson/Schmitz (Manager/Source)  
 Accountability: Patterson/Bobba  
 Adverse Trend: None

SEP 33



### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (PRESSURE EQUIPMENT)

This indicator shows the percent of the number of completed maintenance activities as compared to the number of scheduled maintenance activities concerning Pressure Equipment Maintenance. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and miscellaneous maintenance activities.

Performance was below the goal for the week ending 8/29 due to the extensive PE resources required for emergent activities during the forced outage that began on 8/22.

Data for this indicator was not available for the month of July 1992 due to the forced outage from 7/3 through 7/23.

Data for this indicator was not tracked during the Cycle 14 Refueling Outage.

The Fort Calhoun Station goal for this indicator is 80%.

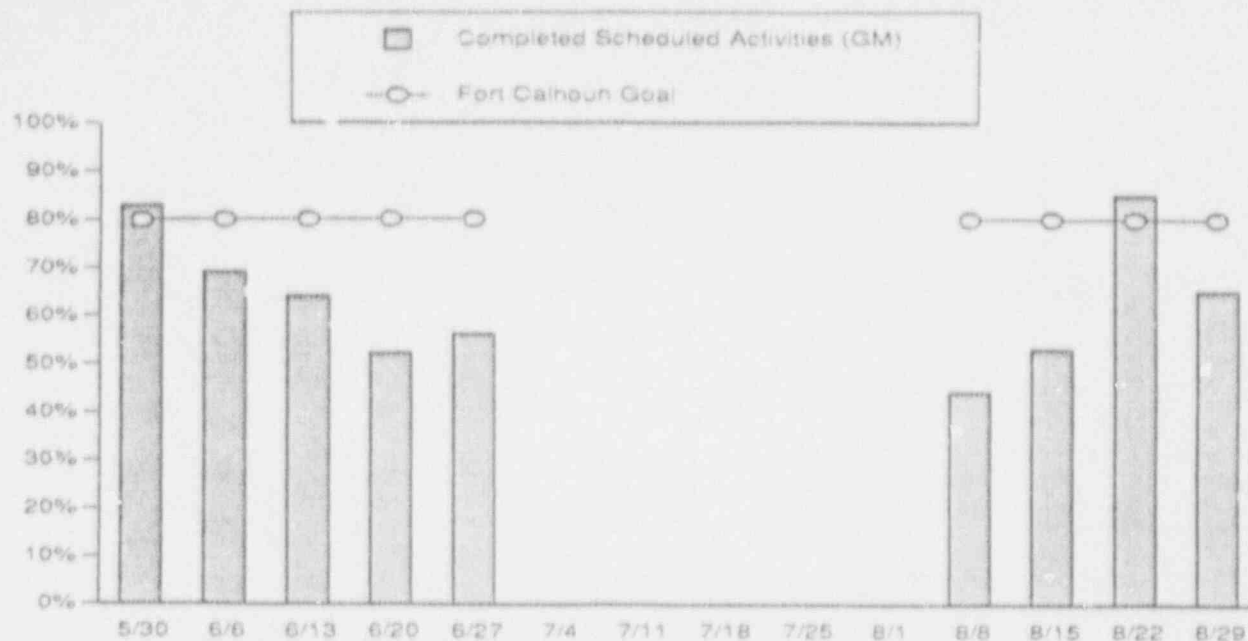
Reporting Month	Completed Scheduled Activities
Week 1	87%
Week 2	84%
Week 3	87%
Week 4	76%

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/Bobba

Adverse Trend: None

SEP 33



### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (GENERAL MAINTENANCE)

This indicator shows the percent of the number of completed maintenance activities as compared to the number of scheduled maintenance activities concerning General Maintenance. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and miscellaneous maintenance activities.

Performance was below the goal during the month of August 1992 because work scope changes were higher than anticipated and weather holds were necessary for many outside work activities.

Data for this indicator was not available for the month of July 1992 due to the forced outage from 7/3 through 7/23.

Data for this indicator was not tracked during the Cycle 14 Refueling Outage.

The Fort Calhoun Station goal for this indicator is 80%.

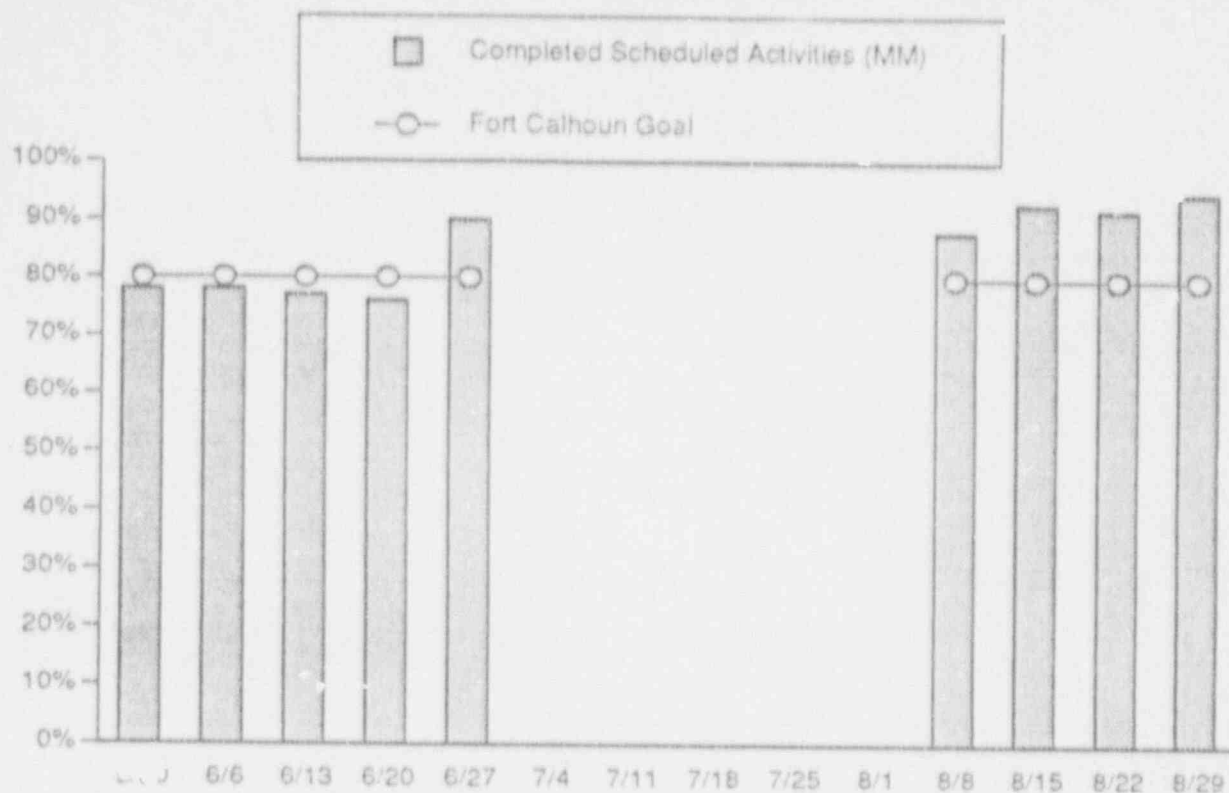
Reporting Month	Completed Scheduled Activities
Week 1	44%
Week 2	53%
Week 3	85%
Week 4	65%

Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/Bobba

Adverse Trend: None

SEP 33



#### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (MECHANICAL MAINTENANCE)

This indicator shows the percent of the number of completed maintenance activities as compared to the number of scheduled maintenance activities concerning Mechanical Maintenance. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and miscellaneous maintenance activities.

Data for this indicator was not available for the month of July 1992 due to the forced outage from 7/3 through 7/23.

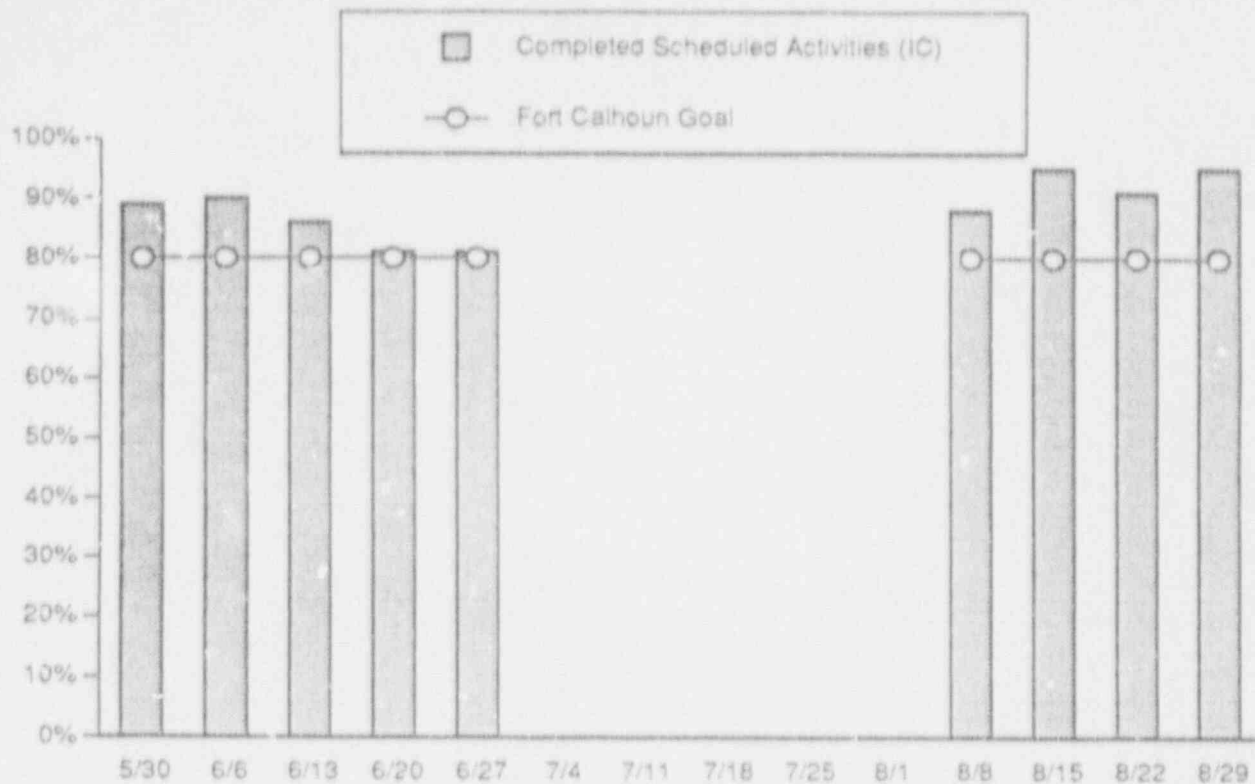
Data for this indicator was not tracked during the Cycle 14 Refueling Outage.

The Fort Calhoun Station goal for this indicator is 80%.

Reporting Month	Completed Scheduled Activities
Week 1	88%
Week 2	93%
Week 3	92%
Week 4	95%

Data Source: Patterson/Schmitz (Manager/Source)  
 Accountability: Patterson/Bobba  
 Adverse Trend: None

SEP 33



#### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES (INSTRUMENTATION & CONTROL)

This indicator shows the percent of the number of completed maintenance activities as compared to the number of scheduled maintenance activities concerning Instrumentation & Control. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and miscellaneous maintenance activities.

Data for this indicator was not available for the month of July 1992 due to the forced outage from 7/3 through 7/23.

Data for this indicator was not tracked during the Cycle 14 Refueling Outage.

The Fort Calhoun Station goal for this indicator is 80%.

Reporting Month	Completed Scheduled Activities
Week 1	88%
Week 2	95%
Week 3	91%
Week 4	95%

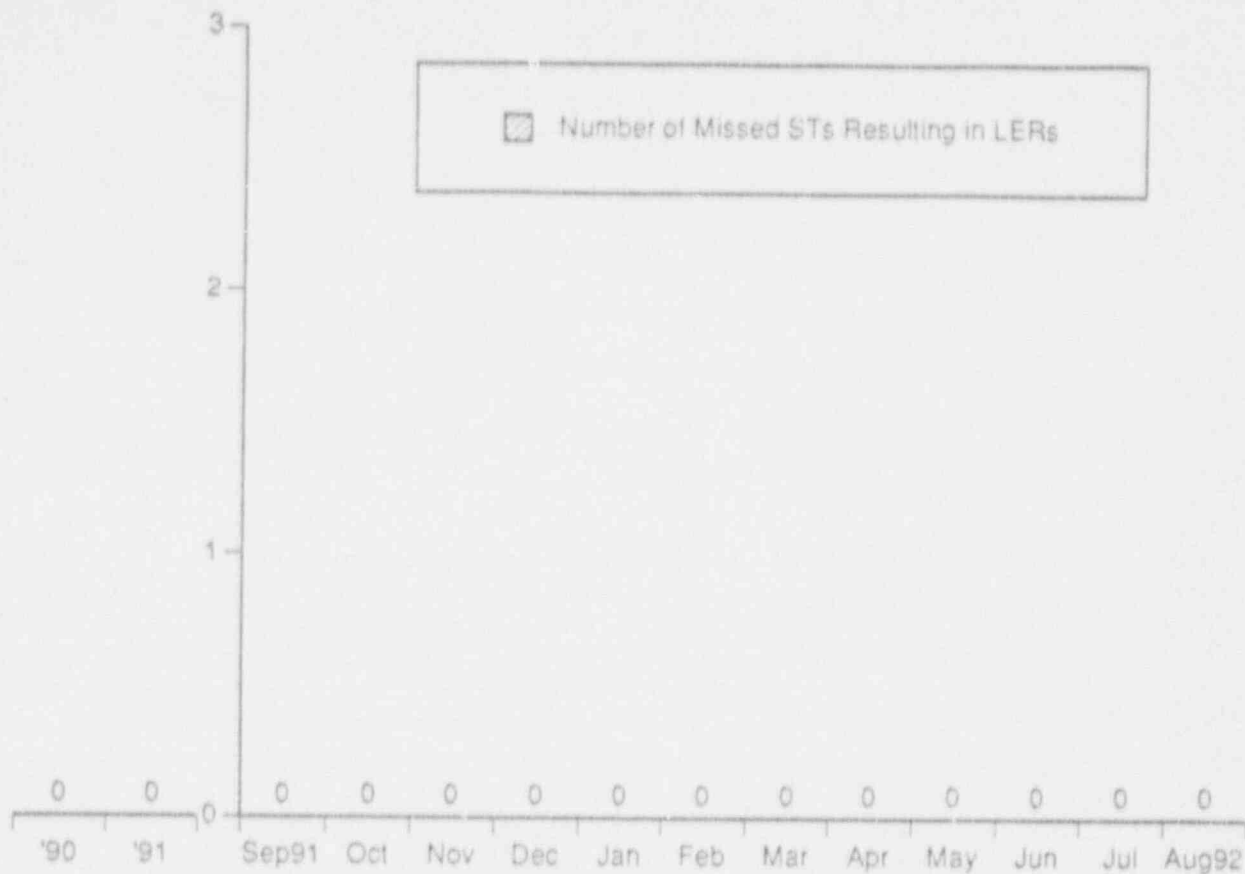
Data Source: Patterson/Schmitz (Manager/Source)

Accountability: Patterson/Bobba

Adverse Trend: None

SEP 33





#### NUMBER OF MISSED SURVEILLANCE TESTS RESULTING IN LICENSEE EVENT REPORTS

This indicator shows the number of missed Surveillance Tests (STs) that result in Licensee Event Reports (LERs) during the reporting month. The graph on the left shows the yearly totals for the indicated years.

During the month of August 1992 there were no (zero) missed STs that resulted in LERs.

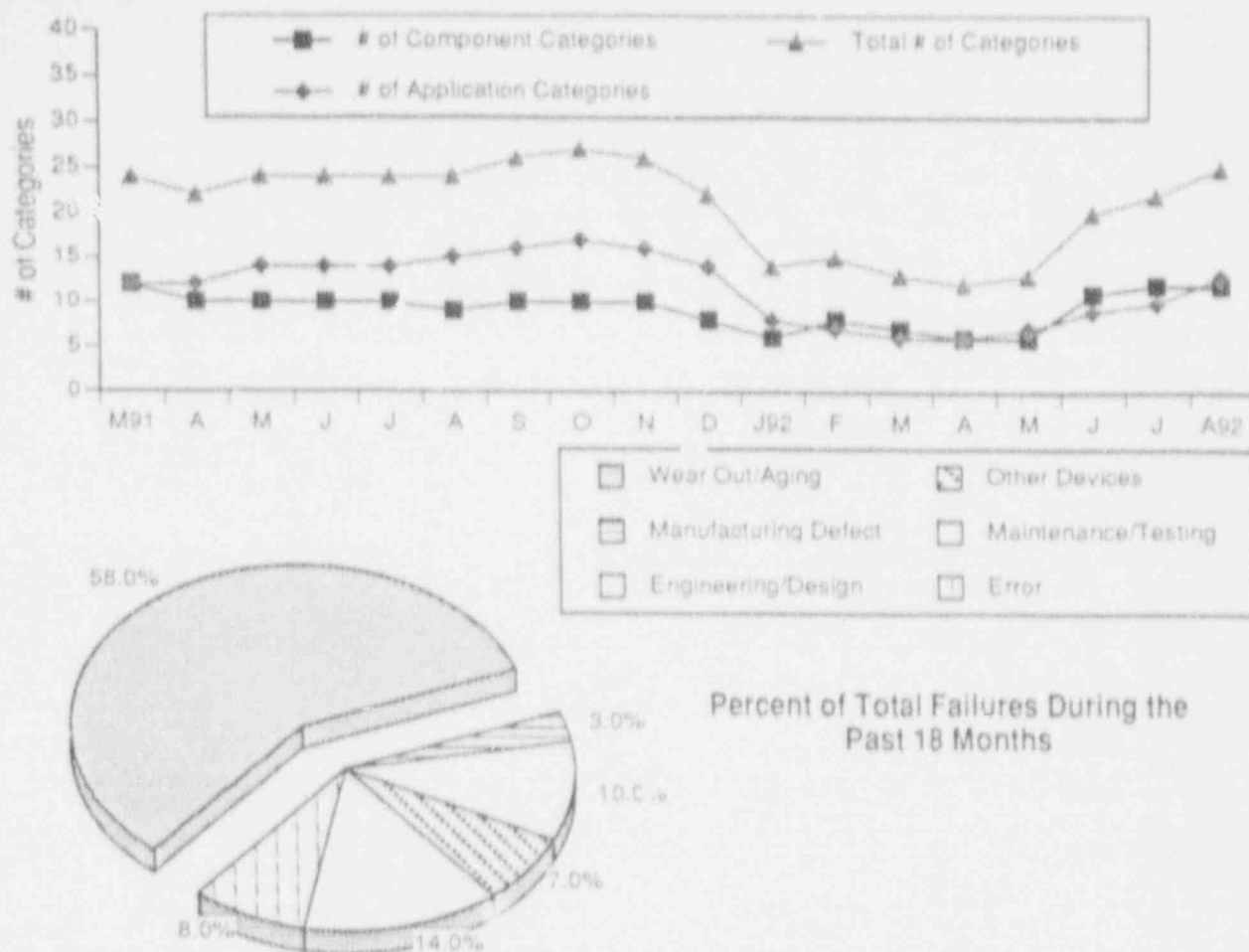
The 1991 & 1992 Fort Calhoun goals for this indicator are zero.

Data Source: Monthly Operating Report & Plant Licensee Event Reports (LERs)

Accountability: Patterson/Jaworski

Adverse Trend: None

SEP 60 & 61



### COMPONENT FAILURE ANALYSIS REPORT (CFAR) SUMMARY

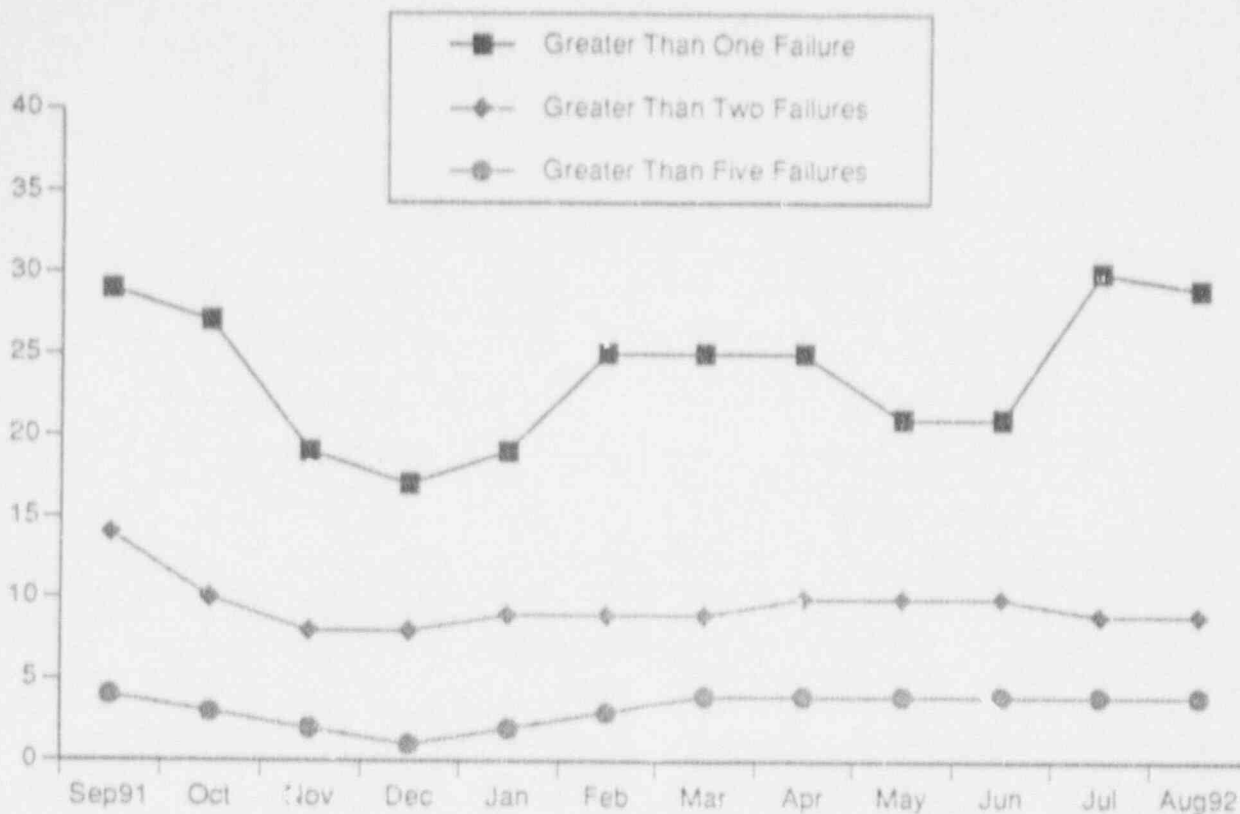
The top chart illustrates the number of component categories, application categories and total categories in which the Fort Calhoun Station has significantly higher (1.645 standard deviations) failure rates than the industry failure rates during the past 18 months (from March 1991 through August 1992). Fort Calhoun Station reported a higher failure rate in 12 of the 87 component categories (valves, pumps, motors, etc.) during the past 18 months. The station reported a higher failure rate in 13 of the 140 application categories (main steam stop valves, auxiliary/emergency feedwater pumps, control element drive motors, etc.) during the past 18 months.

The pie chart depicts the breakdown by INPO cause categories (see the "Definitions" section of this report for descriptions of these categories) for the failure reports that were submitted to INPC by Fort Calhoun Station during the past 18 months.

Data Source: Jaworski/Dowdy (Manager/Source)

Accountability: Jaworski/Dowdy

Adverse Trend: An adverse trend is indicated based on four consecutive months of increasing values for application and total failures. This trend is due to failures found during the Cycle 14 Refueling Outage. The figures have increased for the last 4 reporting months because INPO requires approximately 3 months for auditing and processing of failure reports.



### NUMBER OF NPRDS MULTIPLE FAILURES

This indicator shows the number of multiple NPRDS reportable failures over the preceding eighteen months sorted by component manufacturer and model number. The indicator is divided into three parts: manufacturer model numbers with more than one failure in eighteen months, manufacturer model numbers with more than two failures in eighteen months, and manufacturer model numbers with more than five failures in eighteen months.

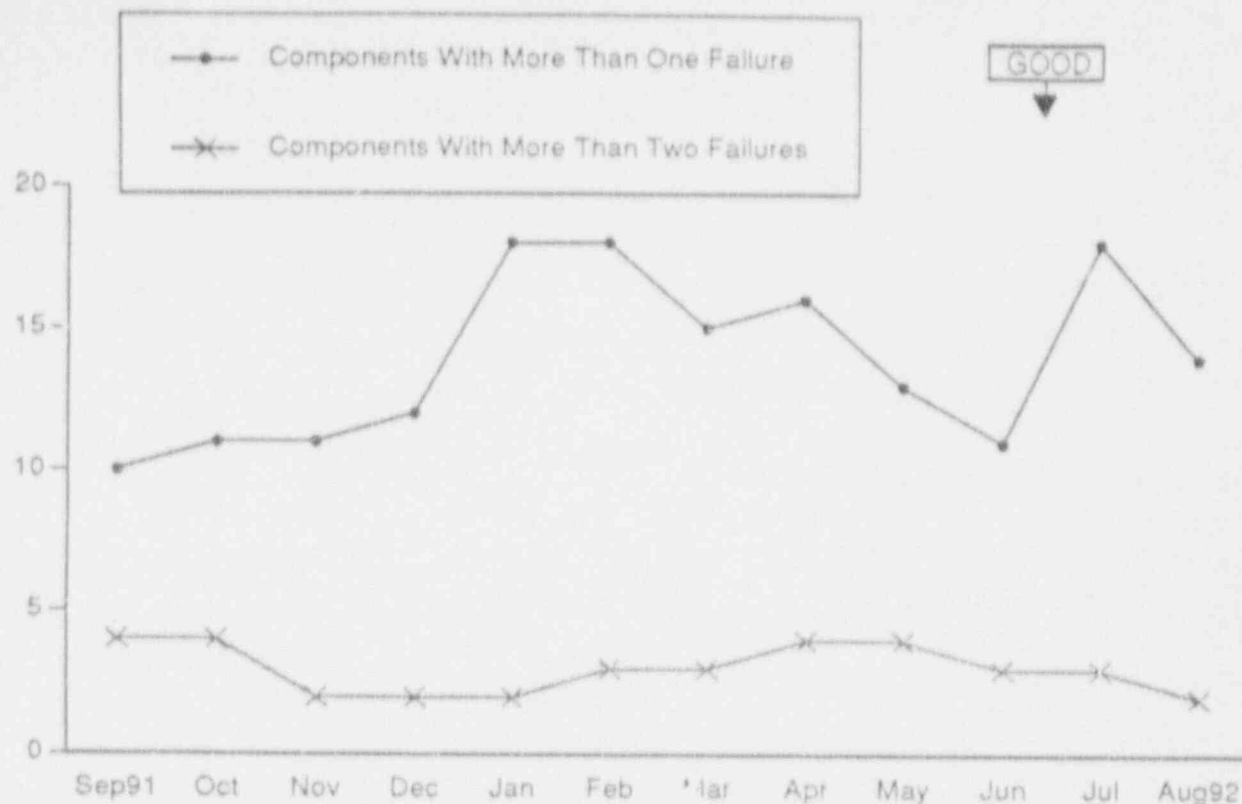
During the past eighteen months, there were 29 model types that had more than one failure in eighteen months. 9 of these had more than two failures. 4 component types, General Electric 50-570-01 power supplies, Gaulin P18 pumps, Byron Jackson 28RXL pumps and Jayco Incorporated 150 valves had more than five failures. The model types with more than two failures are: the QS<sup>TM</sup>DS (3 failures), General Electric 50-570 power supplies (4 failures), General Electric 50-570-01 power supplies (9 failures), Faulk Type Y couplings (3 failures), Byron Jackson 28 RXL pumps (7 failures), Gaulin P18 pumps (8 failures), Jayco Incorporated 150 valves (6 failures), Norgren 11-024-0 valves (3 failures) and Copes-Vulcan D-100-60 valves (3 failures).

Increases in the number of model numbers with more than one failure is mostly due to failures found during the Cycle 14 Refueling Outage.

Data Source: Jaworski/Dowdy (Manager/Source)

Accountability: Jaworski/Dowdy

Adverse Trend: None



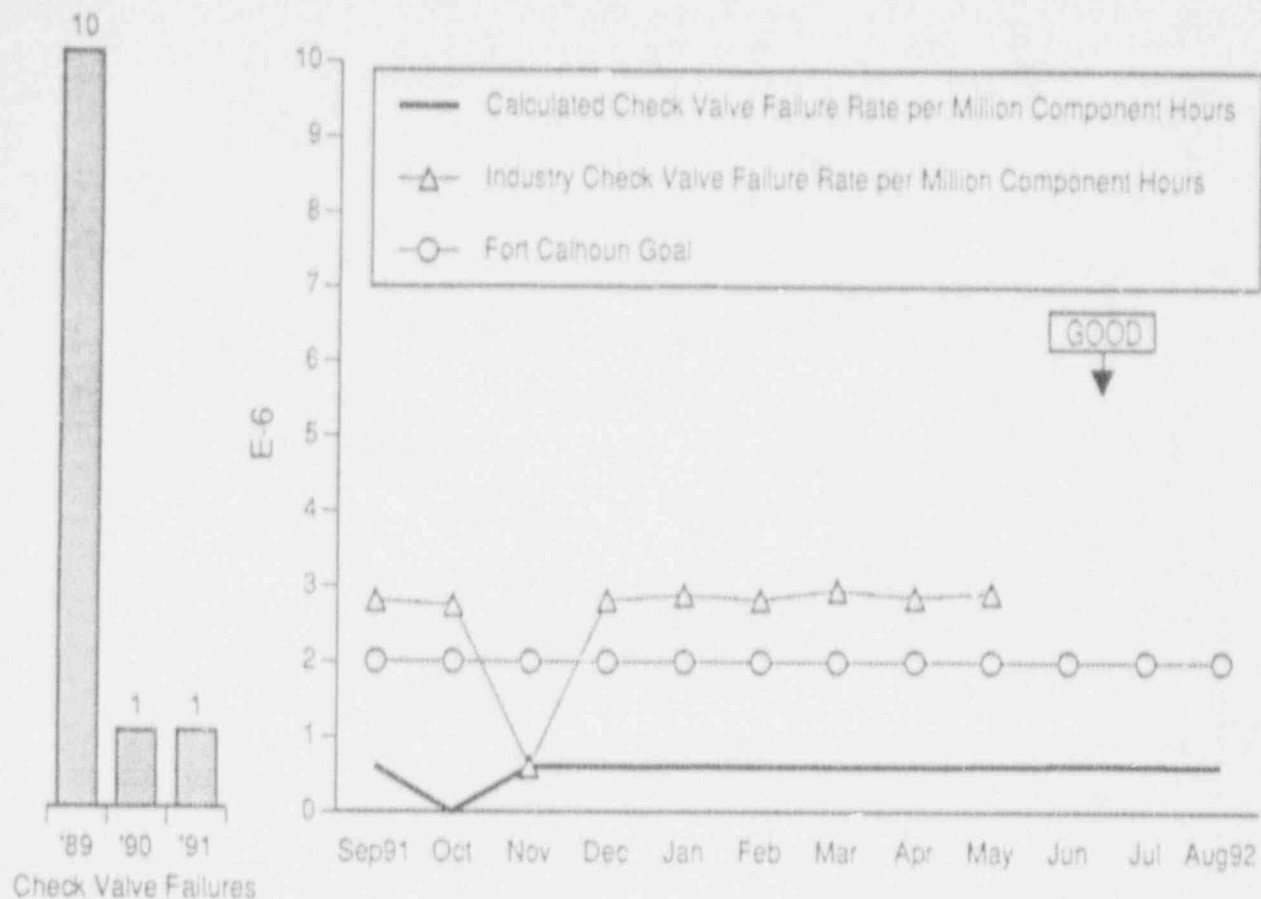
### MAINTENANCE EFFECTIVENESS

The Maintenance Effectiveness Indicator was developed following guidelines set forth by the Nuclear Regulatory Commission's Office for Analysis and Evaluation of Operational Data (NRC/AEOD). The NRC/AEOD is currently developing and verifying a maintenance effectiveness indicator using the Nuclear Plant Reliability Data System (NPRDS) component failures.

This indicator has been revised to show the number of NPRDS components with more than one failure during the last eighteen months and the number of NPRDS components with more than two failures during the last eighteen months. The number of NPRDS components with more than two failures in an eighteen month period should indicate the effectiveness of plant maintenance.

During the last 18 reporting months there were 14 NPRDS components with more than 1 failure. 2 of the 14 had more than two failures. The tag numbers of the components with more than two failures are CH-1A and CH-1B.

Data Source: Jaworski/Dowdy (Manager/Source)  
 Accountability: Patterson/Bobba  
 Adverse Trend: None



### CHECK VALVE FAILURE RATE

This indicator shows the Fort Calhoun check valve failure rate, the Fort Calhoun goal and the industry check valve failure rate. This rate is based upon failures during the previous 18 months. The check valve failures at Fort Calhoun Station for the previous three years are shown on the left.

The data for the industry check valve failure rate is three months behind the reporting month due to the time involved in collecting and processing the data.

For May 1992, the Fort Calhoun Station reported an actual check valve failure rate of 6.18 E-7, while the industry reported an actual failure rate of 2.92 E-6. At the end of August 1992, the Fort Calhoun Station reported a calculated check valve failure rate of 6.16 E-7.

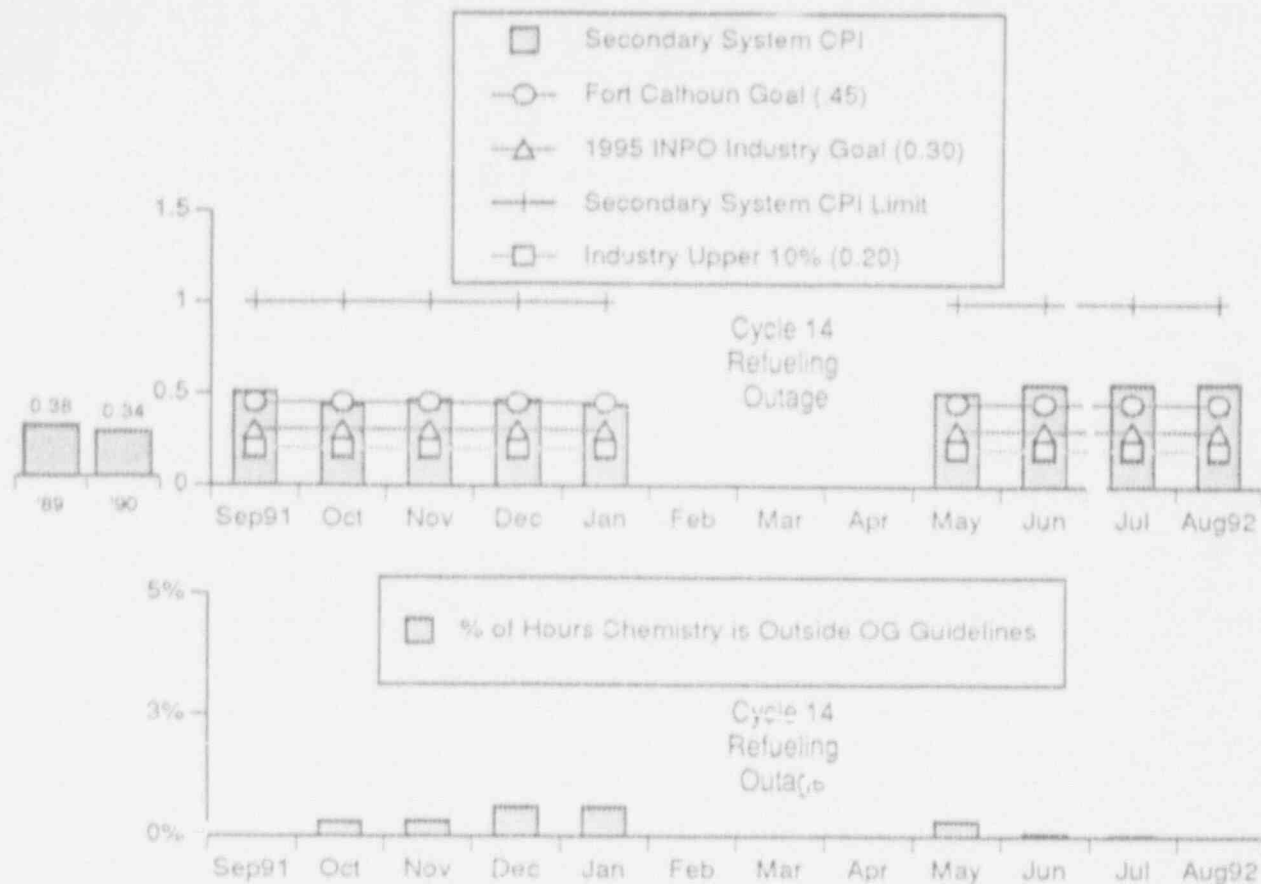
The 1992 Fort Calhoun goal for this indicator is a maximum failure rate of 2.00 E-6.

Data Source: Jaworski/Dowdy (Manager/Source)

Accountability: Jaworski/Rollins

Adverse Trend: None

SEP 43



## SECONDARY SYSTEM CHEMISTRY

The top graph, Secondary System Chemistry Performance Index (CPI), is calculated using the following three parameters: cation conductivity in steam generator blowdown, sodium in steam generator blowdown, and condensate pump discharge dissolved oxygen. The bottom graph shows the percent of total hours of 13 parameters exceeding the Owners Group (OG) guidelines during power operation.

The CPI was reported as 0.561 for the month of August 1992. The percent of hours outside the OG guidelines was reported as 0.0% for the month of August 1992.

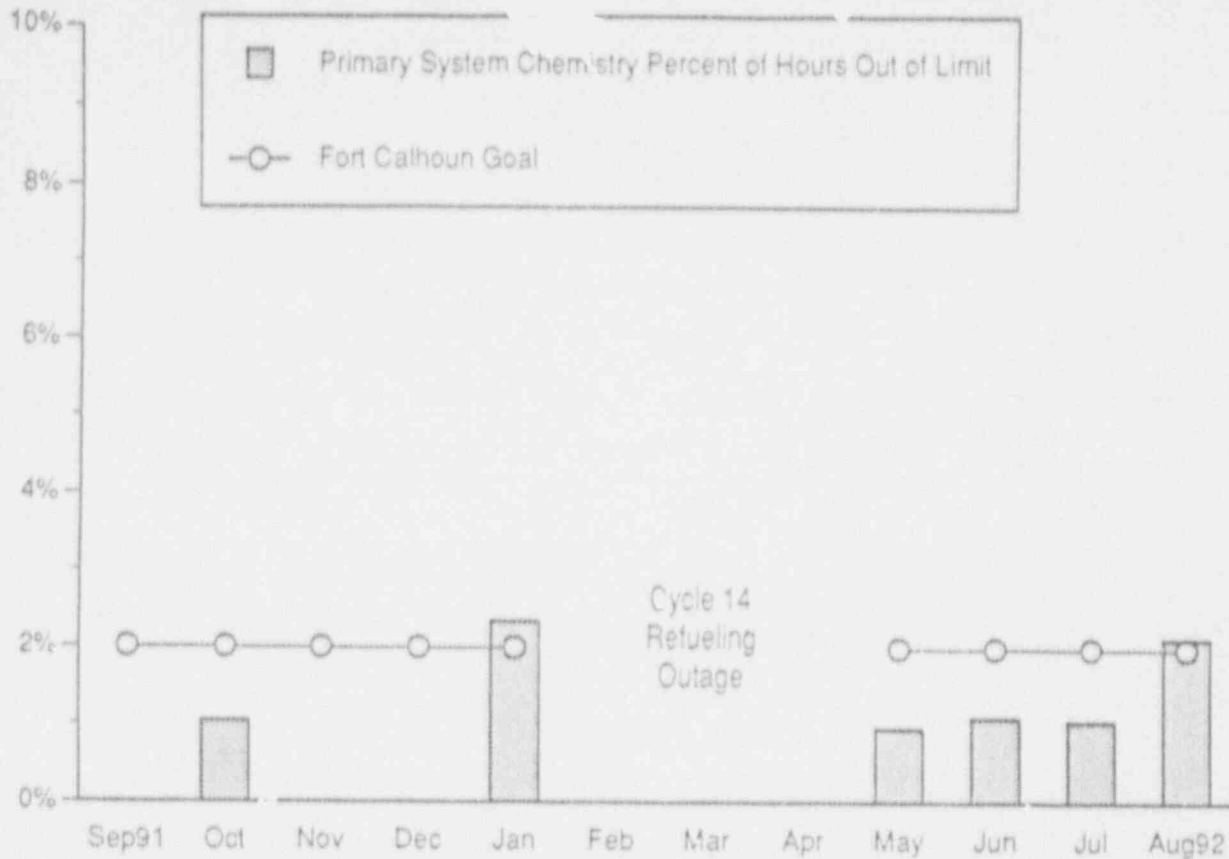
The 1991 & 1992 Fort Calhoun goals for the CPI are 0.45. The INPO 1995 Industry goal is 0.30. The industry upper ten percentile value for this indicator was approximately 0.20 for 1991.

Data Source: Franco/Glantz (Manager/Source)

Accountability: Patterson/Schmidt

Adverse Trend: None





### PRIMARY SYSTEM CHEMISTRY PERCENT OF HOURS OUT OF LIMIT

The Primary System Chemistry Percent of Hours Out of Limit indicator tracks the primary system chemistry performance by monitoring six key chemistry parameters. Typically, lithium is the parameter that is out of limit. 100% equates to all six parameters being out of limit for the month.

The Primary System Chemistry Percent of Hours Out of Limit was reported as 2.13% for the month of August 1992.

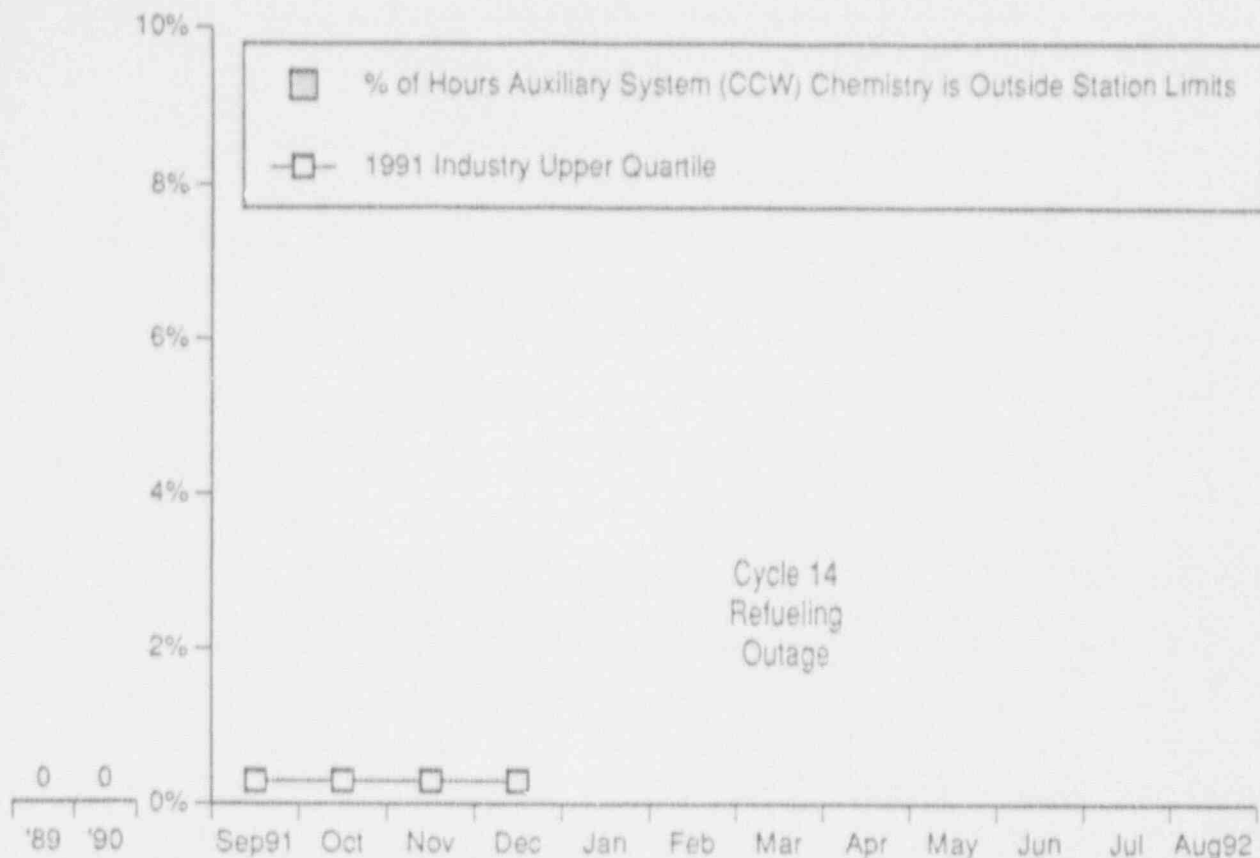
A plant outage in November and December 1990 resulted in a higher percentage of hours out of limit.

The 1992 Fort Calhoun goal for this indicator is a maximum of 2%. The 1991 goal was a maximum of 2%.

Data Source: Franco/Glantz (Manager/Source)

Accountability: Patterson/Smith

Adverse Trend: None



#### AUXILIARY SYSTEM (CCW) CHEMISTRY PERCENT OF HOURS OUTSIDE STATION LIMITS

The Auxiliary System Chemistry Percent of Hours Outside Station Limits indicator tracks the monthly hours that the Component Cooling Water (CCW) system is outside the station chemistry limit.

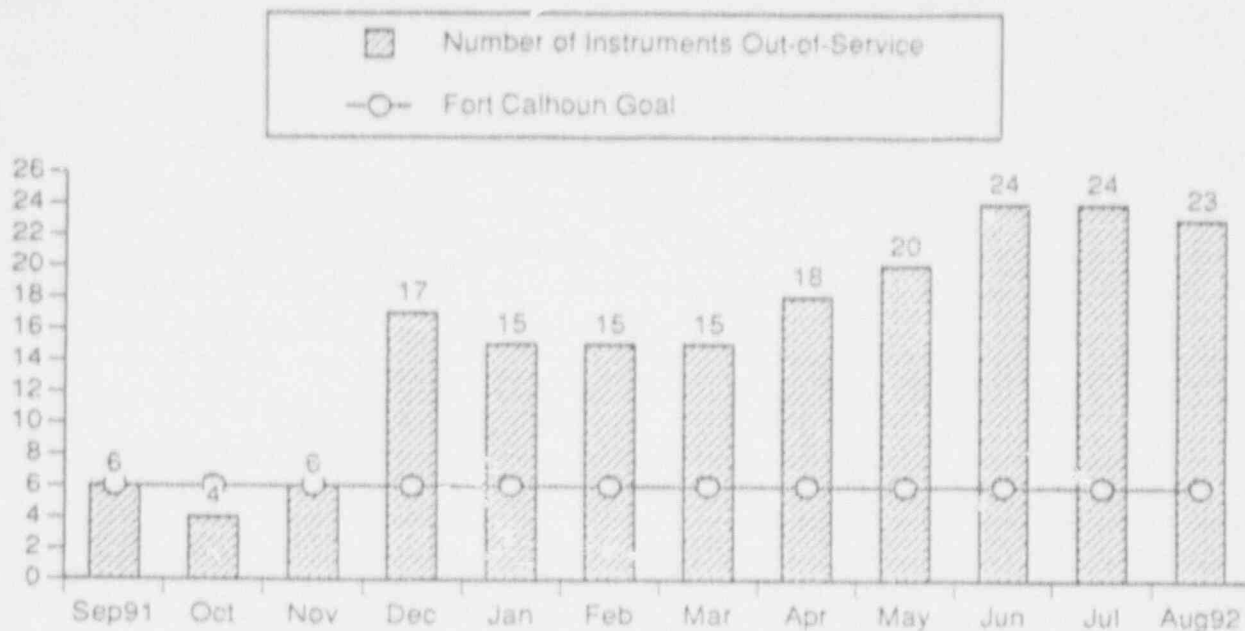
The auxiliary system chemistry percent of hours outside station limits was reported as 0.0% for the month of August 1992. The last out of station limits condition occurred in June 1991 and was due to a low nitrite level in CCW coolant.

The 1991 Fort Calhoun goal for this indicator was a maximum of 2%.

Data Source: Franco/Glantz (Manager/Source)

Accountability: Patterson/Smith

Adverse Trend: None



### IN-LINE CHEMISTRY INSTRUMENTS OUT-OF-SERVICE

This indicator shows the total number of in-line chemistry system instruments out-of-service at the end of the reporting month. The chemistry systems included in this indicator include the Secondary System and the Post Accident Sampling System (PASS).

At the end of August there was a total of 23 in-line chemistry instruments out-of-service. Of these instruments, 19 were from the Secondary System and 4 were from PASS.

The number of PASS instruments reported for August has not changed since July. The entire secondary panel is considered out-of-service because of failure of the data logger and the AI-25 alarm card not being in place. The number of secondary instruments out-of-service has improved by one since July due to a water plant instrument being returned to service.

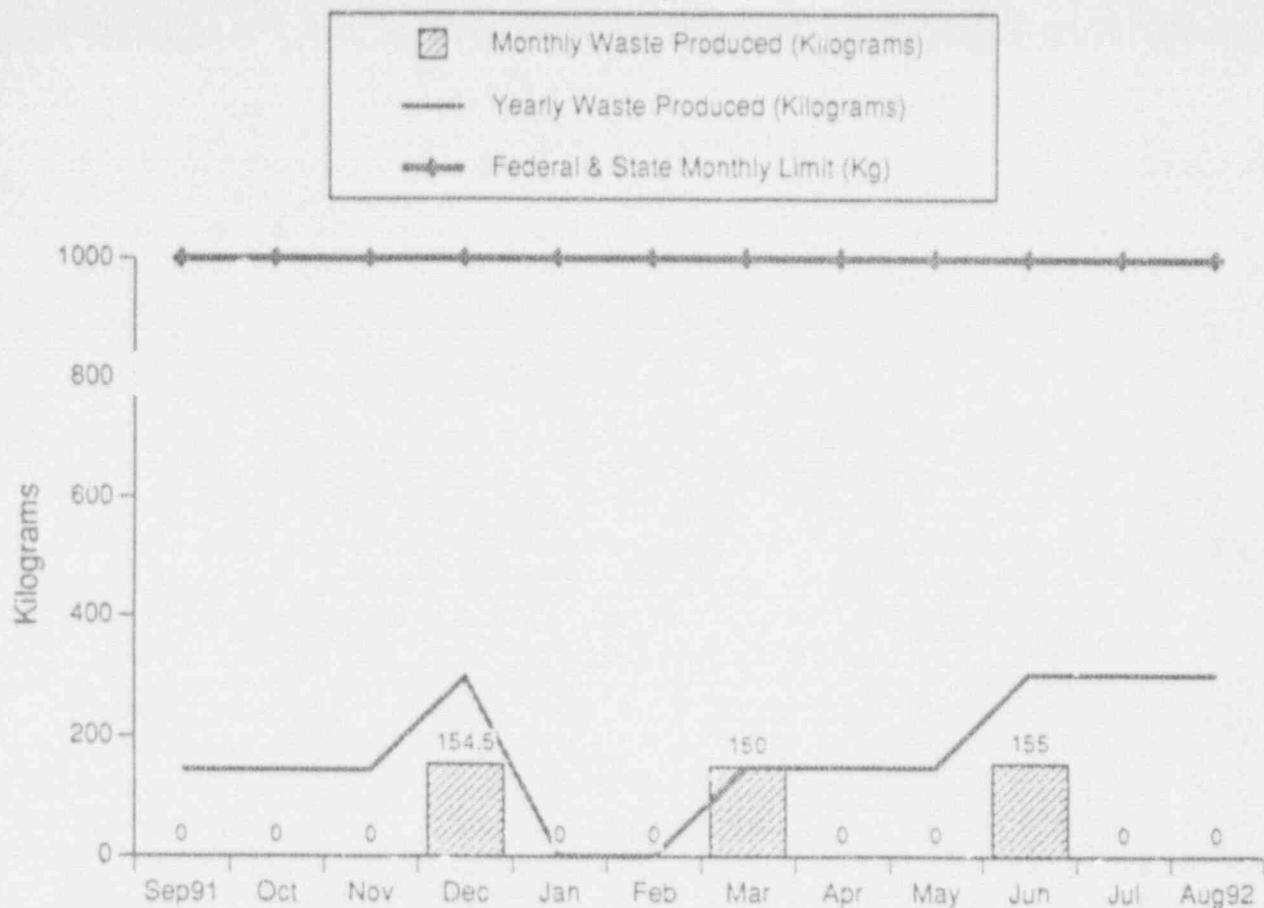
The increase that occurred after November 1991 in the number of Secondary instruments out of service is due to a new method of determining if an instrument is out of service. The entire instrument channel is considered inoperative if: 1) the instrument is inoperative, 2) the chart recorder associated with the instrument is inoperative, 3) the alarm function associated with the instrument is inoperative. This change was made because if any of the functions named above are not operational, then the instrument is not performing its intended function.

The 1992 Fort Calhoun goal for the number of in-line chemistry system instruments that are out-of-service has been set at 6. Six out-of-service chemistry instruments make up 10% of all the chemistry instruments that are counted for this indicator.

Data Source: Patterson/Renaud (Manager/Source)

Accountability: Patterson/Jaworski

Adverse Trend: None



### HAZARDOUS WASTE PRODUCED

This indicator shows the total amount of hazardous waste produced by Fort Calhoun each month. This hazardous waste consists of non-halogenated hazardous waste, halogenated hazardous waste, and other hazardous waste produced.

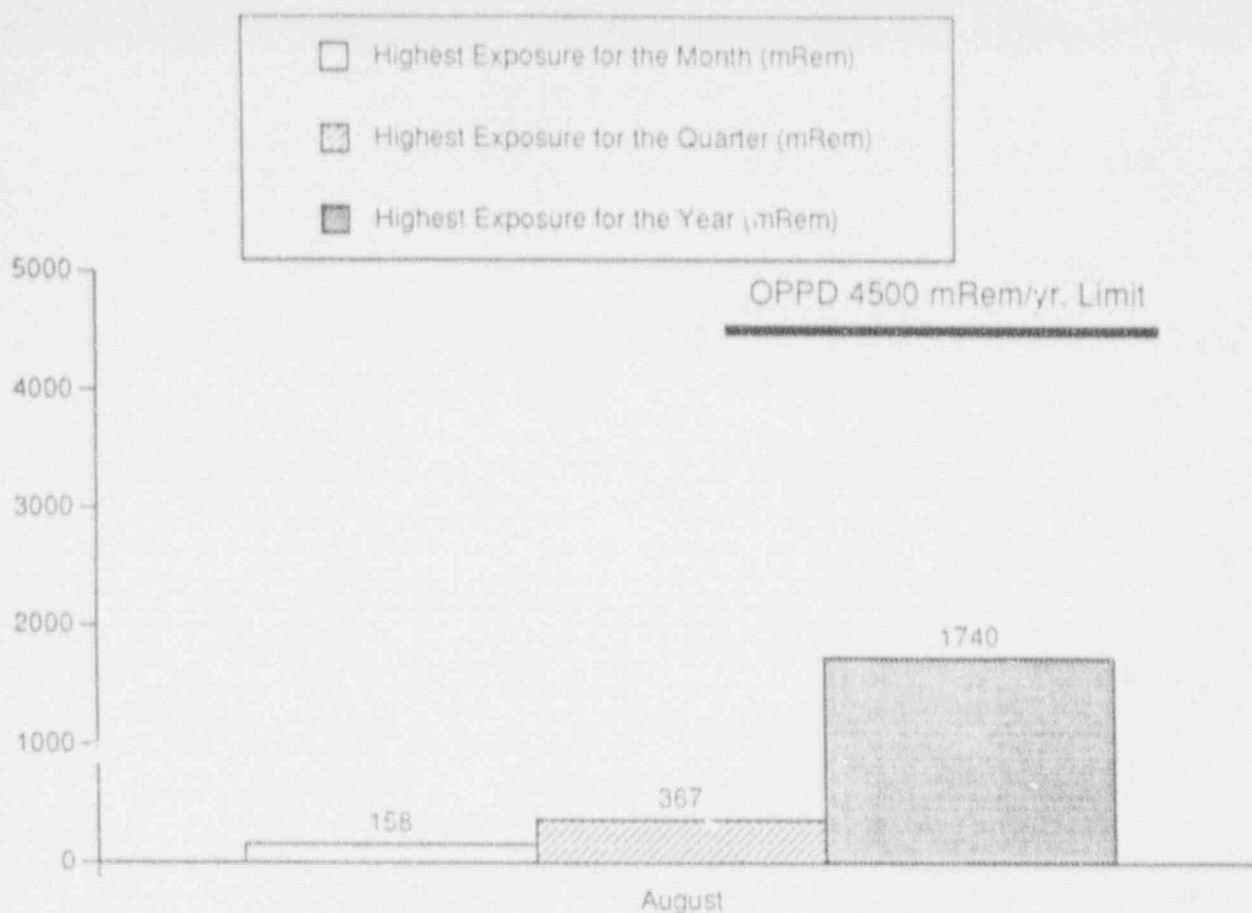
During the month of August 1992, 0 kilograms of non-halogenated hazardous waste was produced, 0 kilograms of halogenated hazardous waste was produced, and 0 kilograms of other hazardous waste was produced. The yearly total for hazardous waste produced is 305 kilograms.

The monthly total for the amount of halogenated hazardous waste increased in December 1991 because of a change in the method of record keeping. Hazardous waste is no longer counted on a monthly basis. It is counted based upon a full drum of waste.

Date Source: Patterson/Henning (Manager/Source)

Accountability: Patterson/Henning

Adverse Trend: None



#### MAXIMUM INDIVIDUAL RADIATION EXPOSURE

During August 1992, an individual accumulated 158 mRem which was the highest individual exposure for the month.

The maximum individual exposure to date for the third quarter of 1992 was 367 mRem.

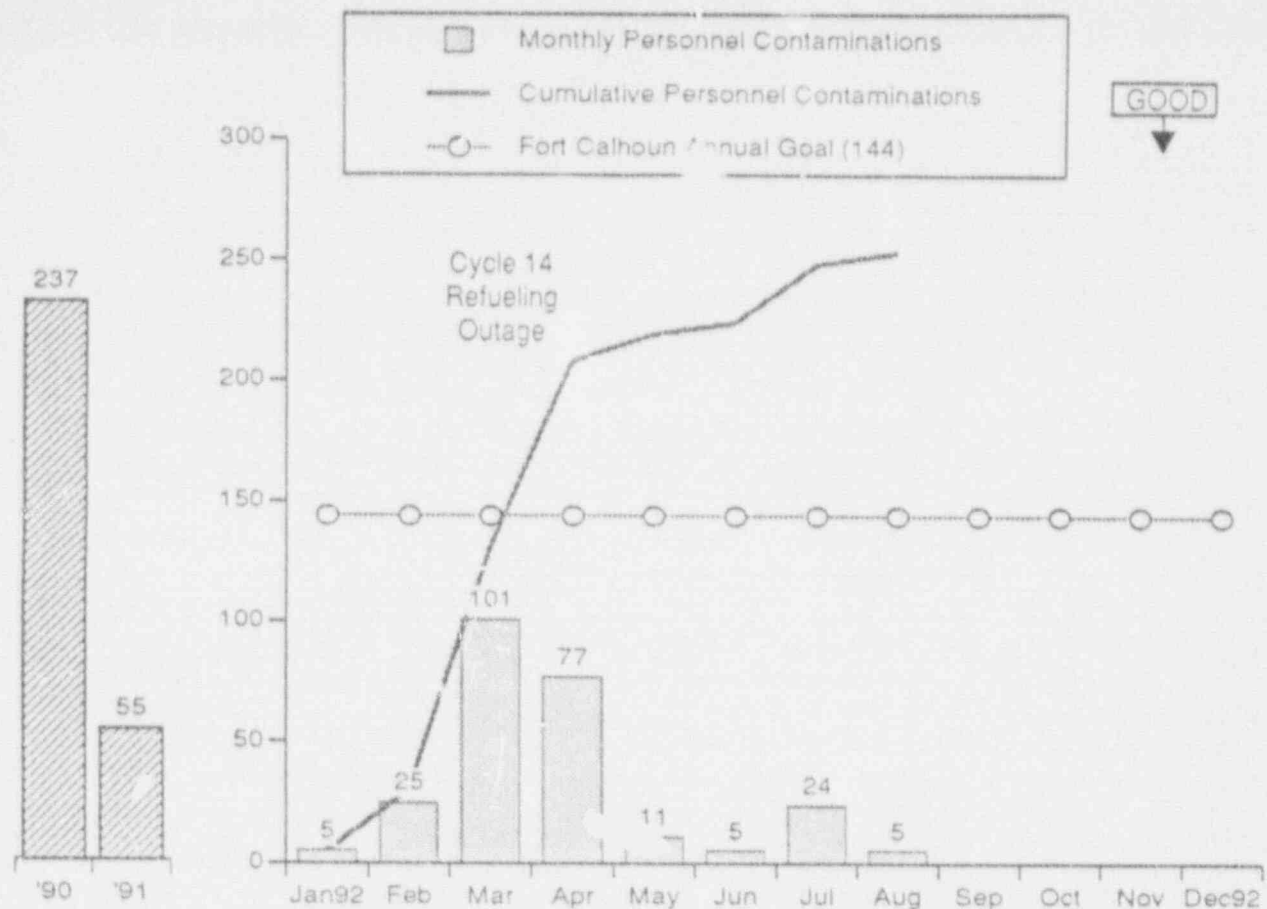
The maximum individual exposure reported for the year 1992 was 1,740 mRem.

The OPPD limit for the maximum yearly individual radiation exposure is 4,500 mRem/year. The 1992 Fort Calhoun goal is 1,500 mRem/year.

Date Source: Patterson/Williams (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None



### TOTAL SKIN AND CLOTHING CONTAMINATIONS

This indicator shows the number of skin and clothing contaminations for the reporting month. A total of 253 contaminations have occurred during 1992. There were 5 contaminations during August 1992.

There was a total of 55 skin and clothing contaminations in 1991.

There was a total of 237 skin and clothing contaminations in 1990.

The 1992 goal for skin and clothing contaminations is 144.

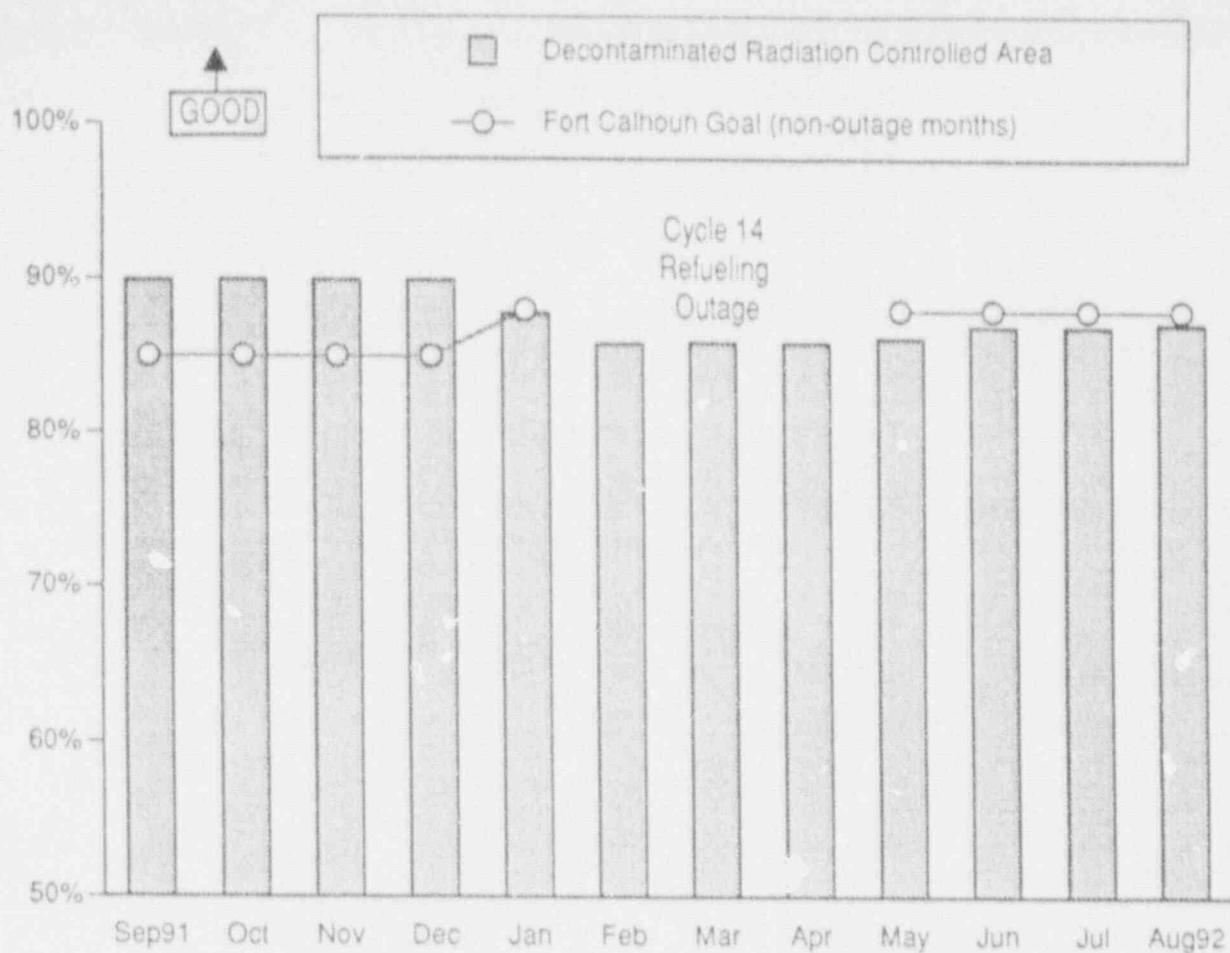
Data Source: Patterson/Williams (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None

SEP 15 & 54





### DECONTAMINATED RADIATION CONTROLLED AREA

This indicator shows the percentage of the RCA that is decontaminated (clean) based on the total square footage, a 1991 Fort Calhoun goal of 85% decontaminated RCA for non-outage months and a 1992 goal of 88% decontaminated RCA for non-outage months.

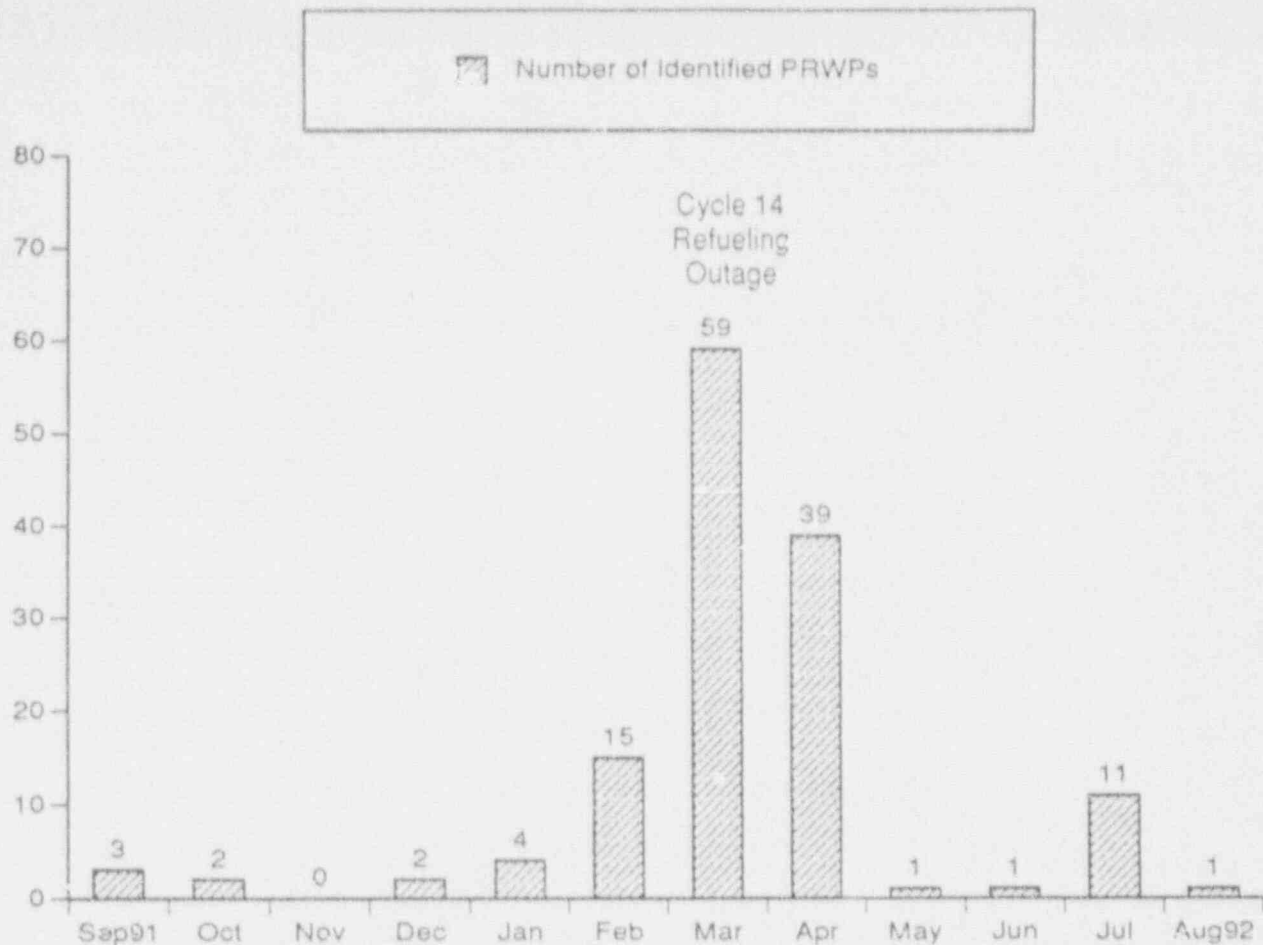
At the end of the reporting month, 87.2% of the total square footage of the RCA was decontaminated.

Date Source: Patterson/Gundal (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None

SEP 54



### RADIOLOGICAL WORK PRACTICES PROGRAM

The Radiological Work Practices Program Indicator shows the number of Poor Radiological Work Practices (PRWPs) which were identified during the reporting month. The PRWPs are identified through a review of the monthly Radiological Occurrence Reports and Personnel Contamination Reports.

The number of PRWPs which are identified each month should indirectly provide a means to qualitatively assess supervisor accountability for their workers' radiological performance.

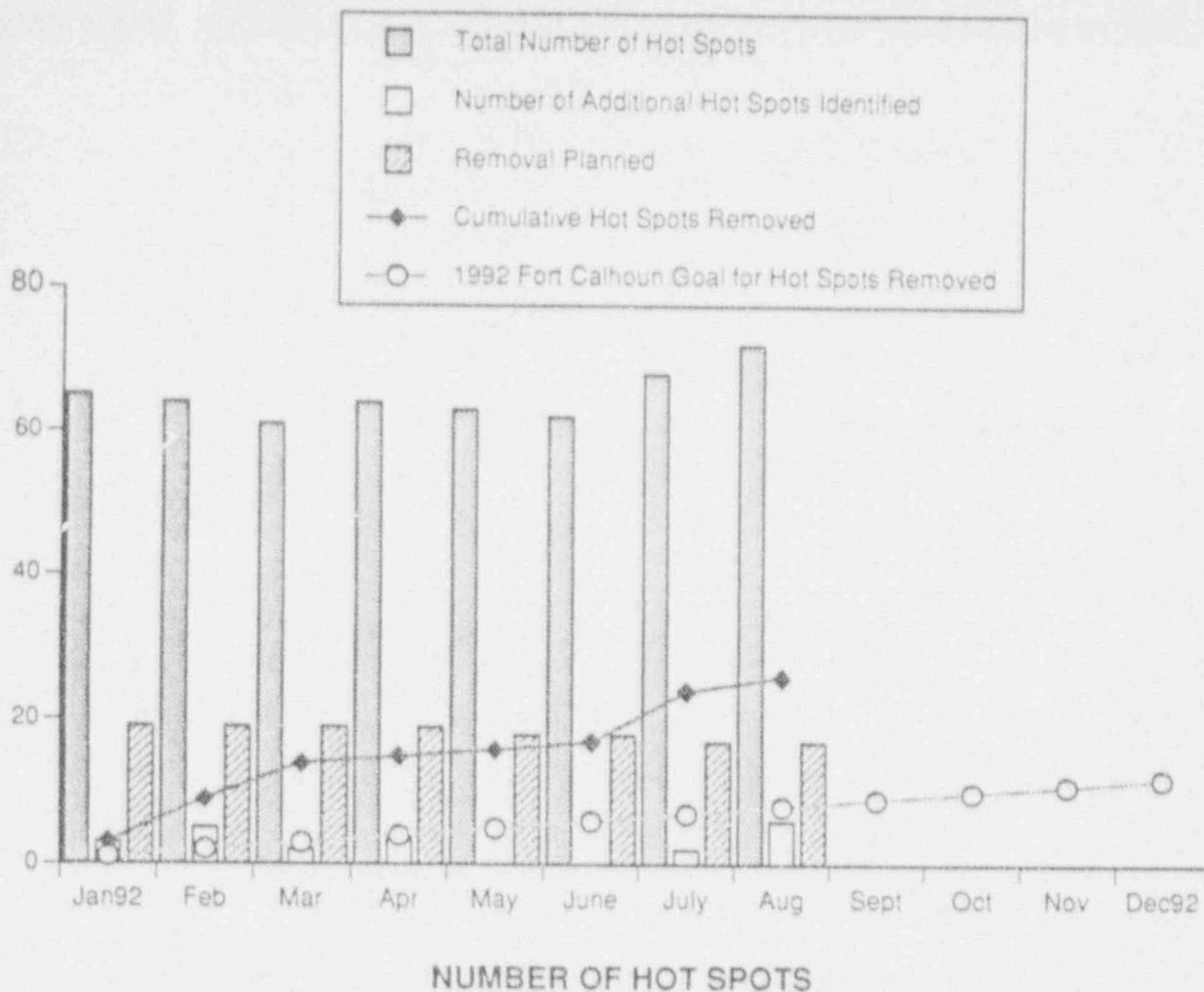
During the month of August 1992, one PRWP was identified. The number of PRWPs for the month of July is high due to the forced outage from 7/3 through 7/23. The numbers of PRWPs for the months of February, March and April are higher than the numbers reported for previous months due to the Cycle 14 Refueling Outage.

Data Source: Patterson/Williams (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None

SEP 52



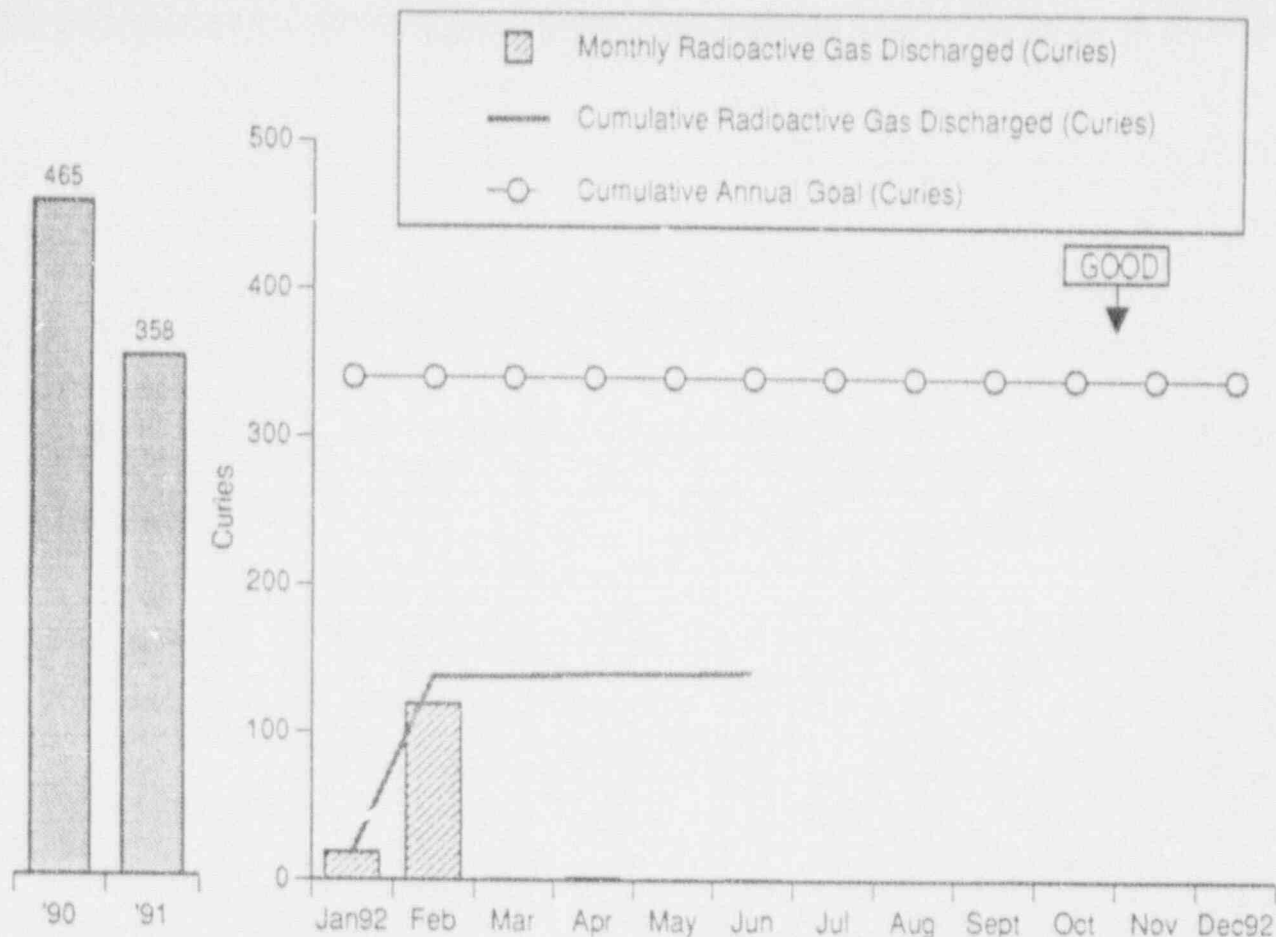
This indicator shows the total number of hot spots which have been identified to exist in the Fort Calhoun Station and have been documented through the use of a hot spot identification sheet. A hot spot is defined as a small localized source of high radiation. A hot spot occurs when the contact dose rate of an item or piece of equipment is at least 5 times the General Area dose rate and the item or piece of equipment's dose rate is equal to or greater than 100 mRem/hour.

At the end of August, there were 72 hot spots identified. 2 hot spots were removed during the month. 6 new hot spots were identified during the month.

Removal is planned for 17 hot spots. 12 hot spots are still under evaluation.

The 1992 Fort Calhoun goal is to remove one hot spot per month.

Data Source: Patterson/Williams (Manager/Source)  
 Accountability: Patterson/Lovett  
 Adverse Trend: None



### GASEOUS RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT.

The gaseous radioactive waste being discharged to the environment is shown for January 1, 1992 through June 30, 1992. A total of 140.7 curies have been released to the environment during this time.

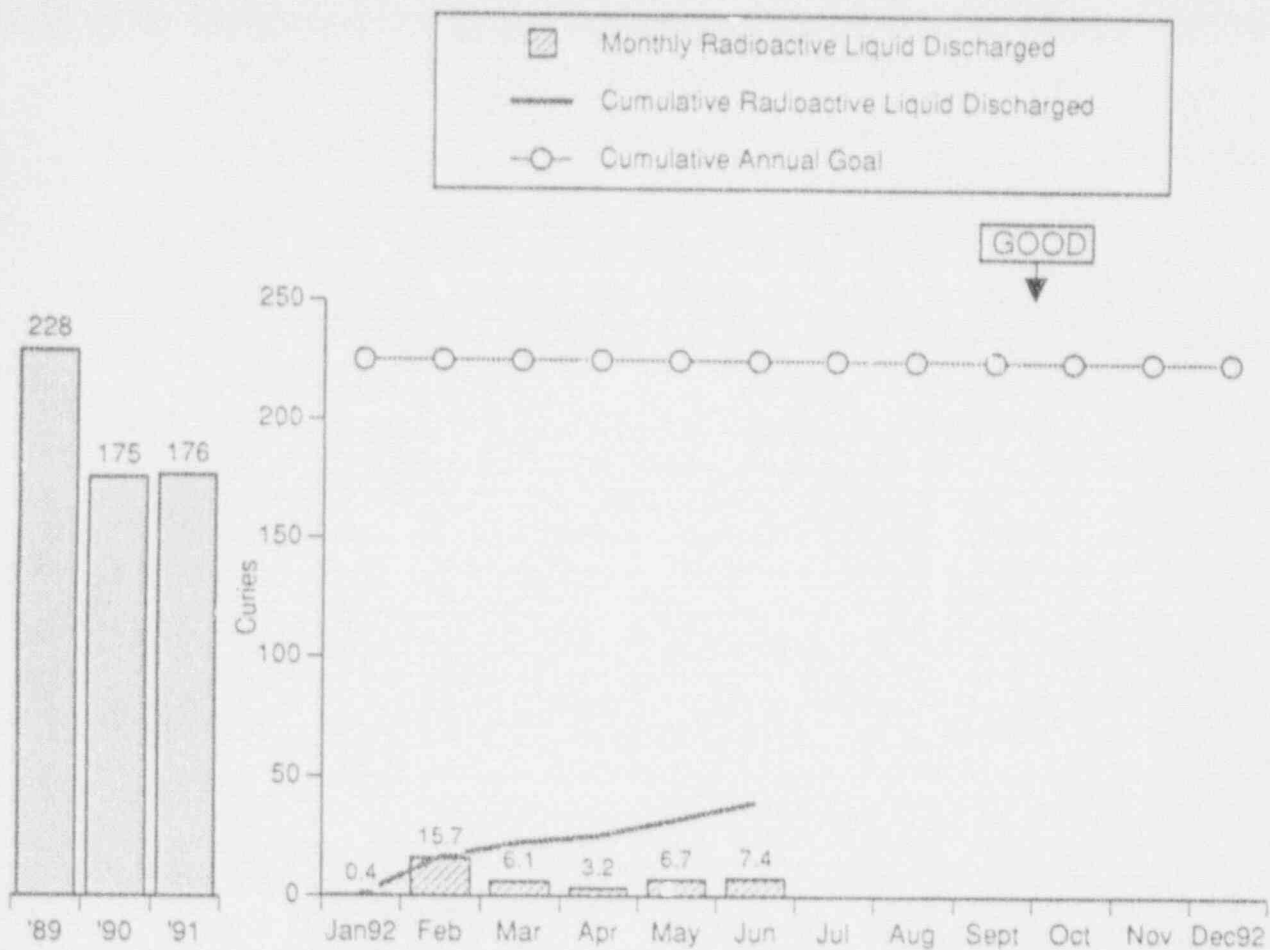
The Fort Calhoun Station cumulative annual goal for 1992 is 340 curies for this indicator.

The gaseous radioactive waste being discharged to the environment is calculated every six months.

Data Source: Franco/Krist (Manager/Source)

Accountability: Patterson/Trausch

Adverse Trend: None



### LIQUID RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT

The liquid radioactive waste being discharged to the environment is shown for January 1, 1992 through June 30, 1992. The liquid radioactive waste that was discharged to the environment from all sources totaled 39.5 curies during this time.

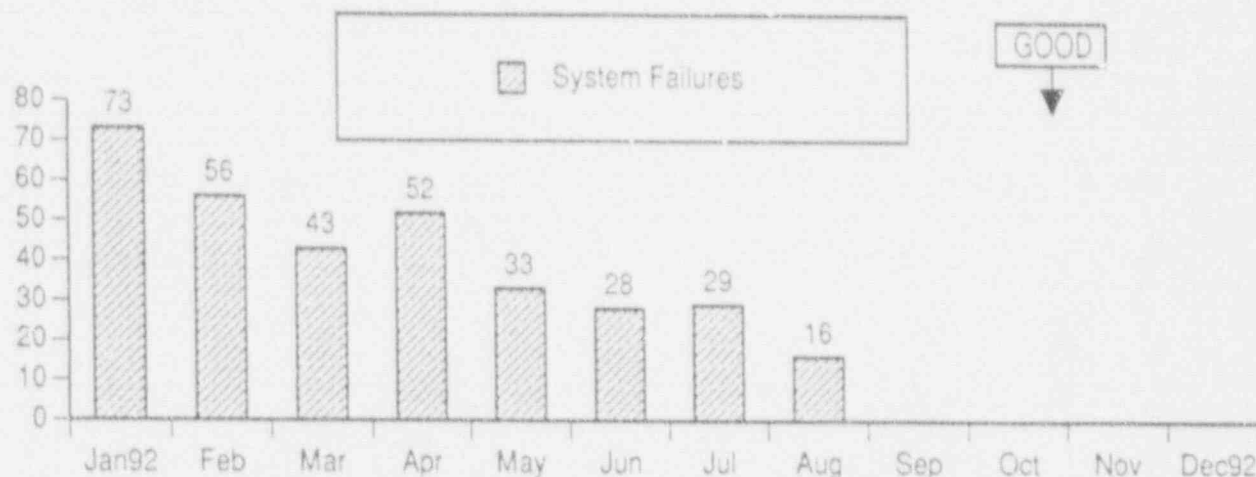
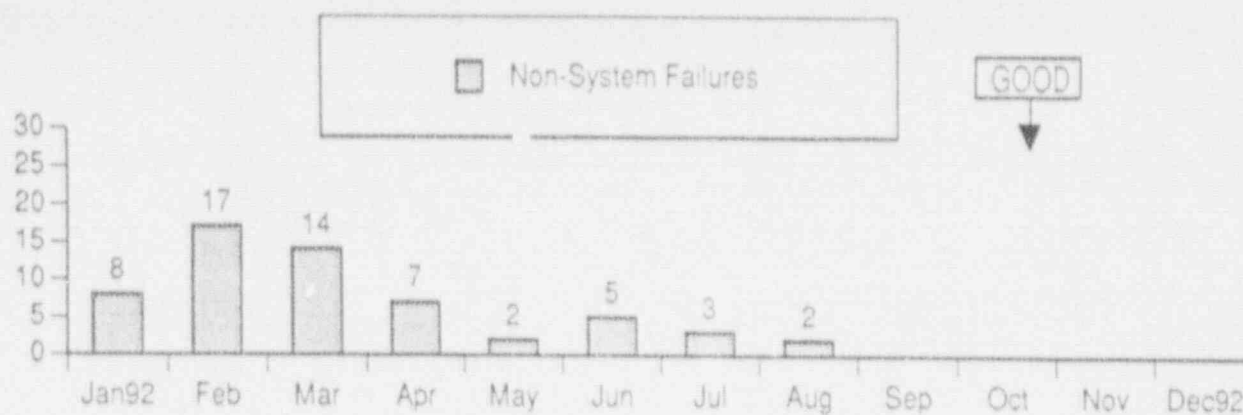
The Fort Calhoun Station cumulative annual goal for 1992 is 225 curies.

The liquid radioactive waste being discharged to the environment is calculated every six months.

Data Source: Franco/Krist (Manager/Source)

Accountability: Patterson/Lovett

Adverse Trend: None



### LOGGABLE/REPORTABLE INCIDENTS (SECURITY)

The Loggable/Reportable Incidents (Security) Indicator is depicted in two separate graphs. The top graph depicts the total number of loggable/reportable non-system failures concerning Security Badges, Access Control and Authorization, and Security Force Error, and Unsecured Doors. The bottom graph shows the total number of loggable/reportable incidents concerning system failures which occurred during the reporting month.

During the month of August 1992, there were 18 loggable/reportable incidents identified. System failures accounted for 16 (89%) of the loggable/reportable incidents, and 7 (44%) of these were environmental failures. Increased maintenance support, to include excellent preventive maintenance from all crafts involved, have made this the best reporting month to date.

Data Source: Sefick/Woerner (Manager/Source)

Accountability: Sefick

Positive Trend

SEP 58





### SECURITY NON-SYSTEM FAILURES

This indicator shows the number of loggable/reportable non-system failures for the reporting month. These items include: Security Badges, Access Control and Authorization, Security Force Error, and Unsecured Doors.

#### Non-System Failures

#### Number of Incidents

	<u>August '92</u>	<u>July '92</u>
Security Badges	1	2
Access Control and Authorization	0	1
Security Force Error	0	0
Unsecured Doors	1	0
Total	2	3

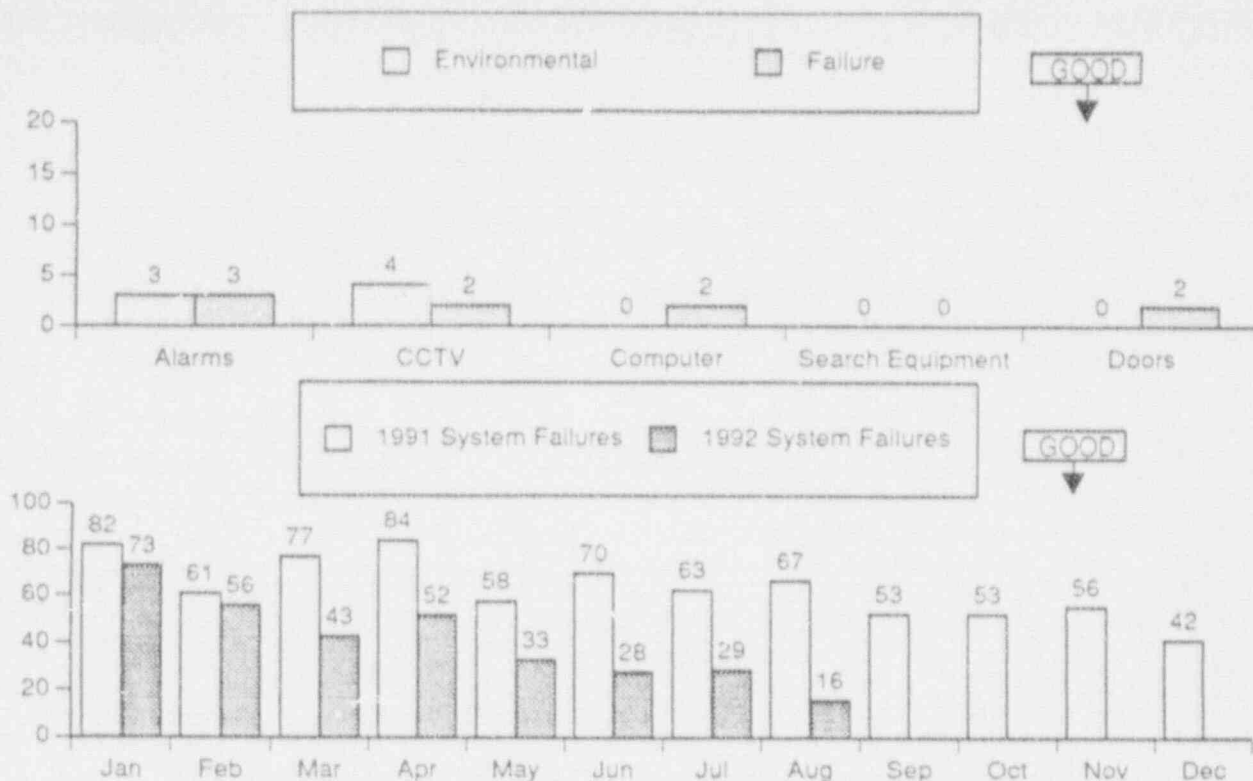
Data Source: Sefick/Woerner (Manager/Source)

Accountability: Sefick

Adverse Trend: None

SEP 58





### SECURITY SYSTEM FAILURES

This indicator shows the number of loggable/reportable system failures for the reporting month. These items include: Alarm System Failures, CCTV failures, Security Computer Failures, Search Equipment Failures and Door Hardware Failures. Alarm systems and CCTV failures will be divided into two categories: environmental failures and failures as defined in the performance indicator definitions. Also, the 1991 and 1992 System Failures will be compared on a monthly basis.

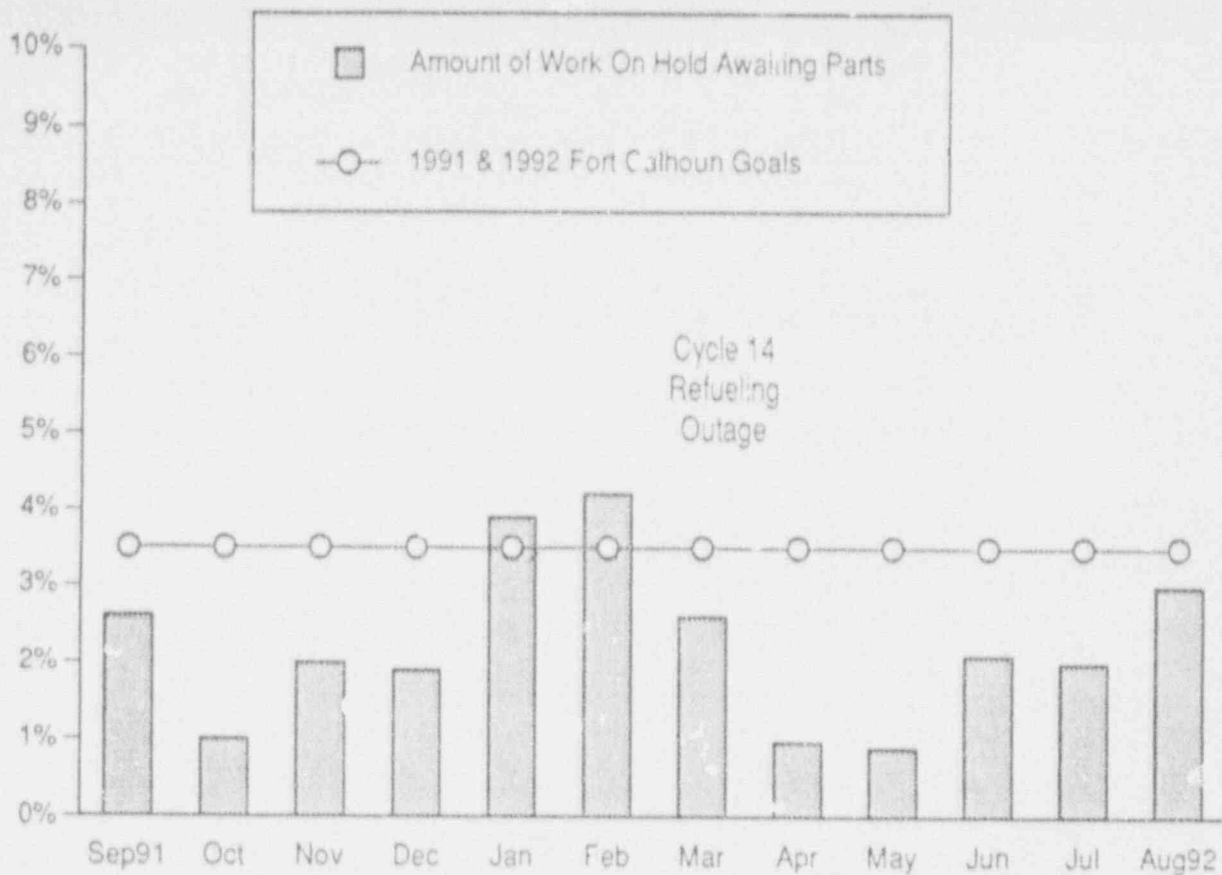
System	Number of Incidents			
	August '92		July '92	
	Environ	Failures	Environ	Failures
Alarms	3	3	7	5
CCTV	4	2	3	7
Computer	N/A	2	N/A	4
Search Equipment	N/A	0	N/A	1
Door Hardware	N/A	2	N/A	2
Totals	7	9	10	19

Data Source: Sefick/Woerner (Manager/Source)

Accountability: Sefick/Patterson

Adverse Trend: None

SEP 58



#### AMOUNT OF WORK ON HOLD AWAITING PARTS (NON-OUTAGE)

This procurement indicator displays the percentage of open, non-outage maintenance items that are on hold awaiting parts, to the total amount of open, non-outage maintenance items.

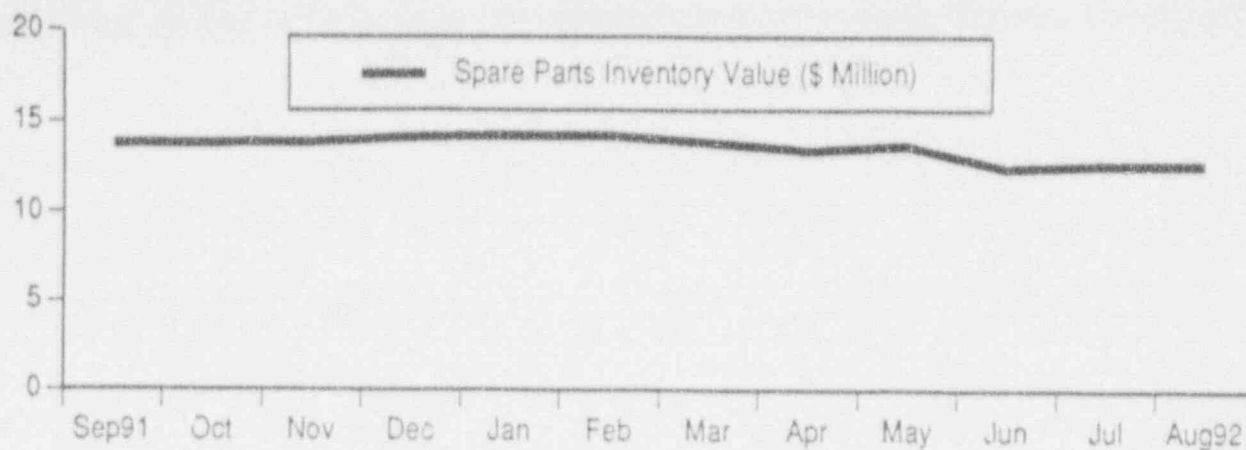
There was a total of 867 open, non-outage maintenance work orders (MWOs) with 26 (3.0%) of these MWOs on hold awaiting parts at the end of the reporting month.

The 1991 and 1992 Fort Calhoun Goals for this indicator are to have less than 3.5% of the total number of open, non-outage MWOs awaiting parts.

Data Source: Willrett/CHAMPS (Manager/Source)

Accountability: Willrett/Fraser

Adverse Trend: None



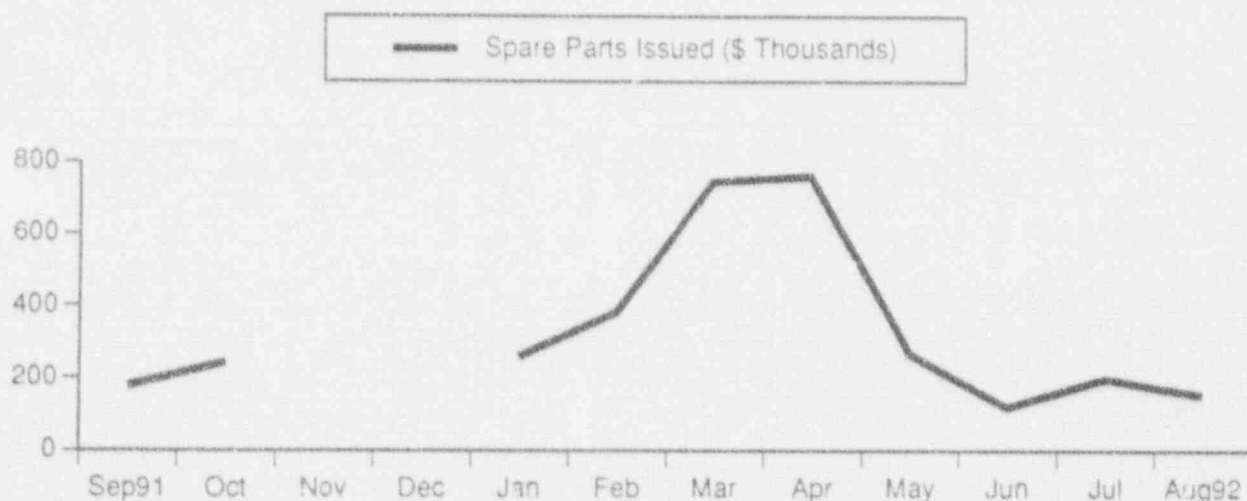
### SPARE PARTS INVENTORY VALUE

The spare parts inventory value at the Fort Calhoun Station at the end of August 1992 was reported as \$12,601,364.

Data Source: Steele/Huliska (Manager/Source)

Accountability: Willrett/McCormick

Adverse Trend: None



### SPARE PARTS ISSUED

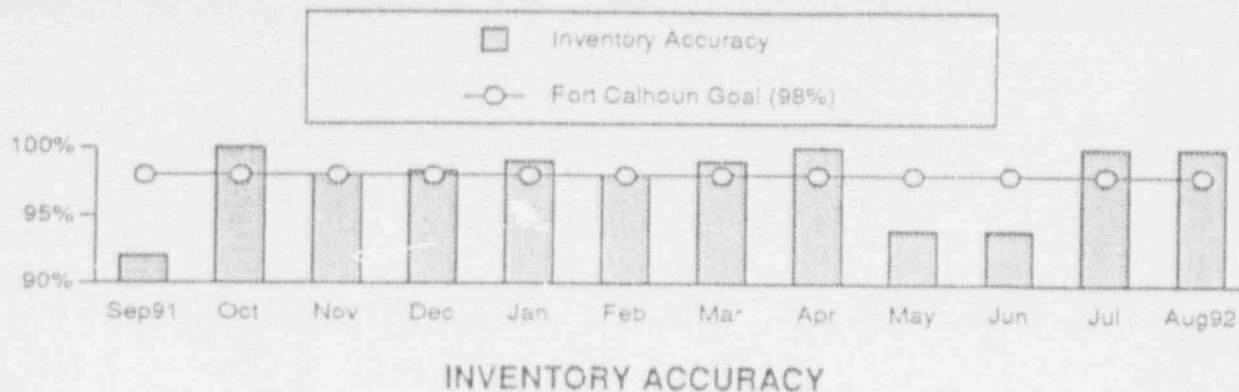
Data for the month of August was not available at the printing of the draft of this report.

The value of the spare parts issued during August 1992 totaled \$154,068.49. The value of the spare parts issued for November and December 1991 was not available due to a printer problem.

Data Source: Steele/Miser (Manager/Source)

Accountability: Willrett/McCormick

Adverse Trend: None



This indicator shows the accuracy of the actual parts count for the warehouse compared to the counts contained in the MMIS computer system for the reporting month.

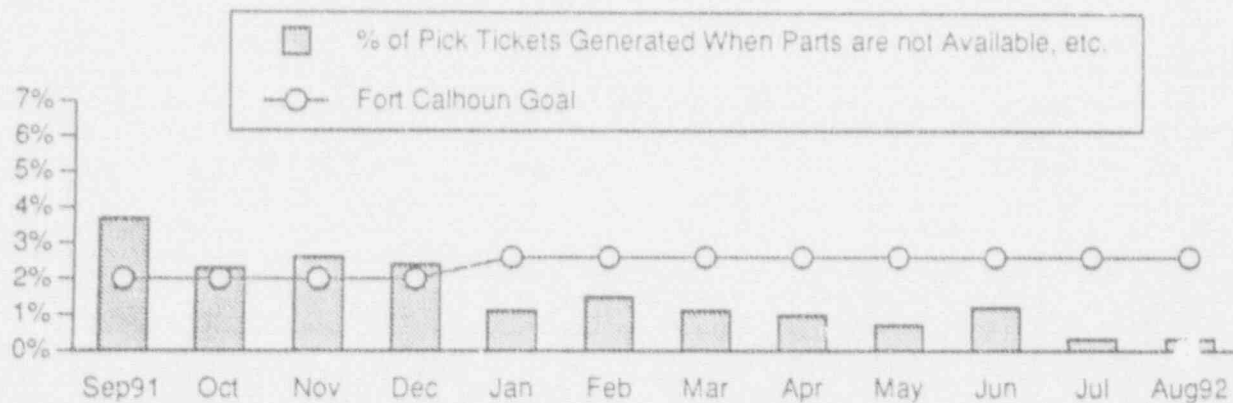
During August, 694 different line items were counted in the warehouse. Of the 694 line items counted, 6 items needed count adjustments. The inventory accuracy for the month of August was reported as 100%. The Fort Calhoun 1991 & 1992 goals for this indicator are 98%.

Data Source: Willrett/McCormick (Manager/Source)

Accountability: Willrett/McCormick

Adverse Trend: None

### STOCKOUT RATE



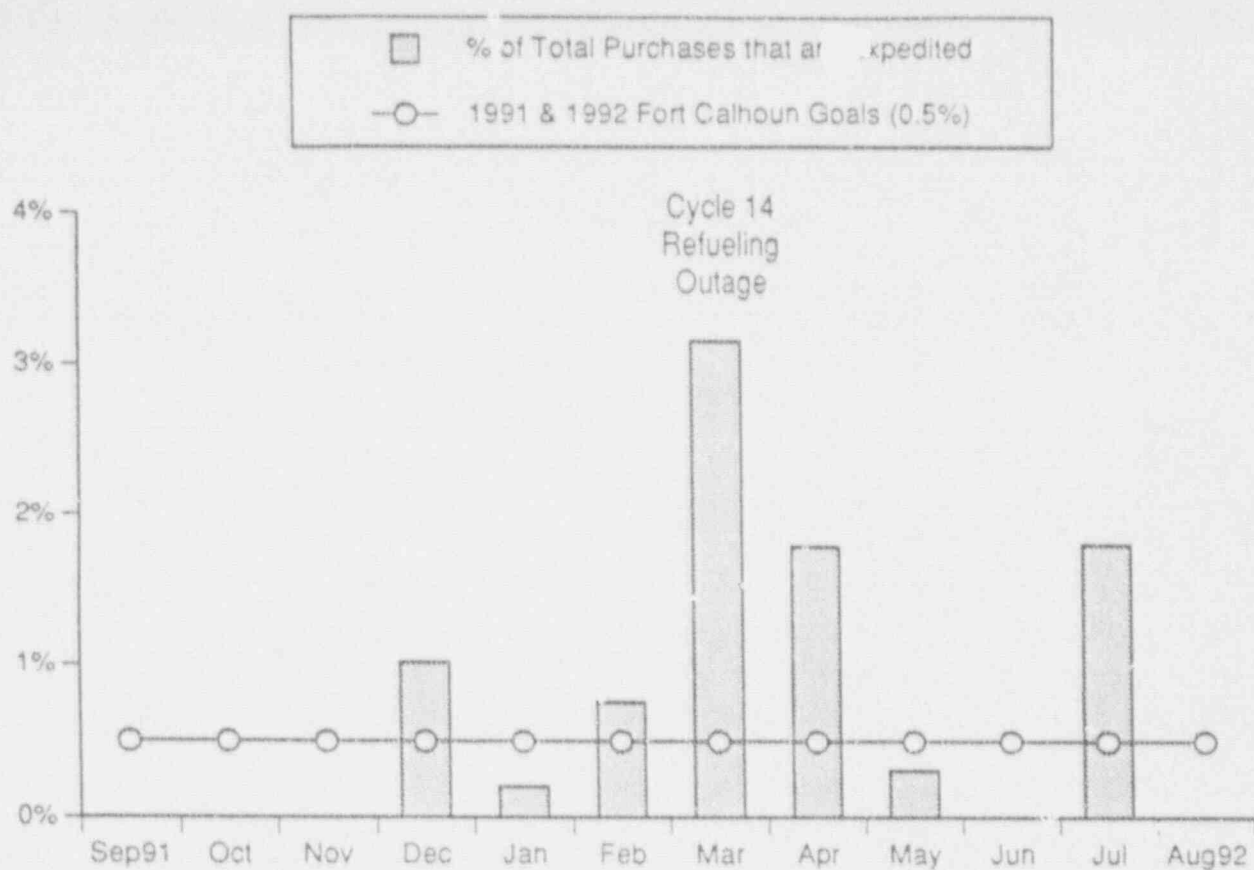
This indicator shows the percentage of the number of Pick Tickets generated when the amount of parts requested is equal to or less than the minimum stocking level and parts are not available.

During August 1992, a total of 1,245 Pick Tickets were generated. Of the 1,245 Pick Tickets generated, 4 Pick Tickets (0.32%) were generated when the amount of parts requested was equal to or less than the minimum stocking level and parts were not available. The Fort Calhoun 1992 goal for this indicator is a maximum of 2.6% and the 1991 goal was a maximum of 2.0%.

Data Source: Willrett/McCormick (Manager/Source)

Accountability: Willrett/McCormick

Adverse Trend: None



### EXPEDITED PURCHASES

This indicator shows the percentage of expedited purchases compared to the total number of purchase orders generated during the reporting month.

During August, there was a total of 268 purchase orders generated. There were no (zero) expedited purchases.

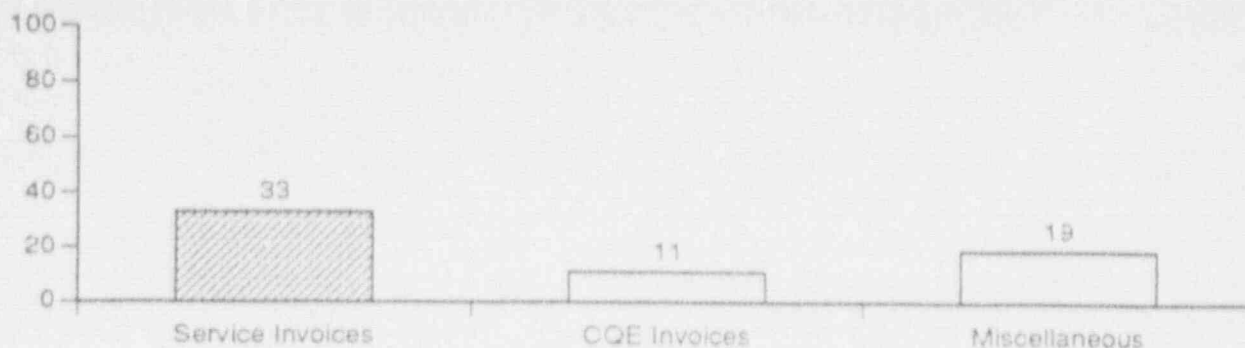
The 1992 Fort Calhoun goal for this indicator is 0.5%. The 1991 goal was 0.5%.

The number of expedited purchases was above the Fort Calhoun goal during the months of February, March and April 1992 due to the ordering of items related to the Cycle 14 Refueling Outage.

Date Source: Willrett/Fraser (Manager/Source)

Accountability: Willrett/Fraser

Adverse Trend: None



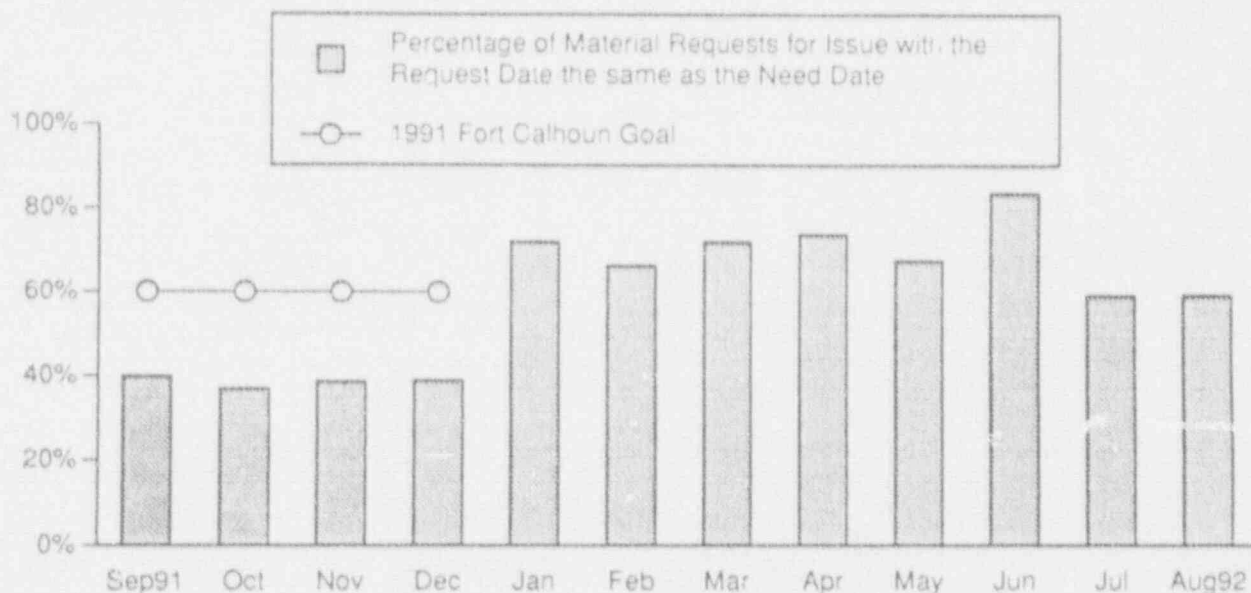
### INVOICE BREAKDOWN

This indicator shows the number of service invoices, CQE invoices, and miscellaneous invoices for the month of August 1992.

Date Source: Willrett/Fraser (Manager/Source)

Accountability: Willrett/Fraser

Adverse Trend: None



### MATERIAL REQUEST PLANNING

This indicator shows the percentage of material requests (MRs) for issue with their request date the same as their need date compared to the total number of MRs for issue for the reporting month. The 1991 goal of 60% is also shown.

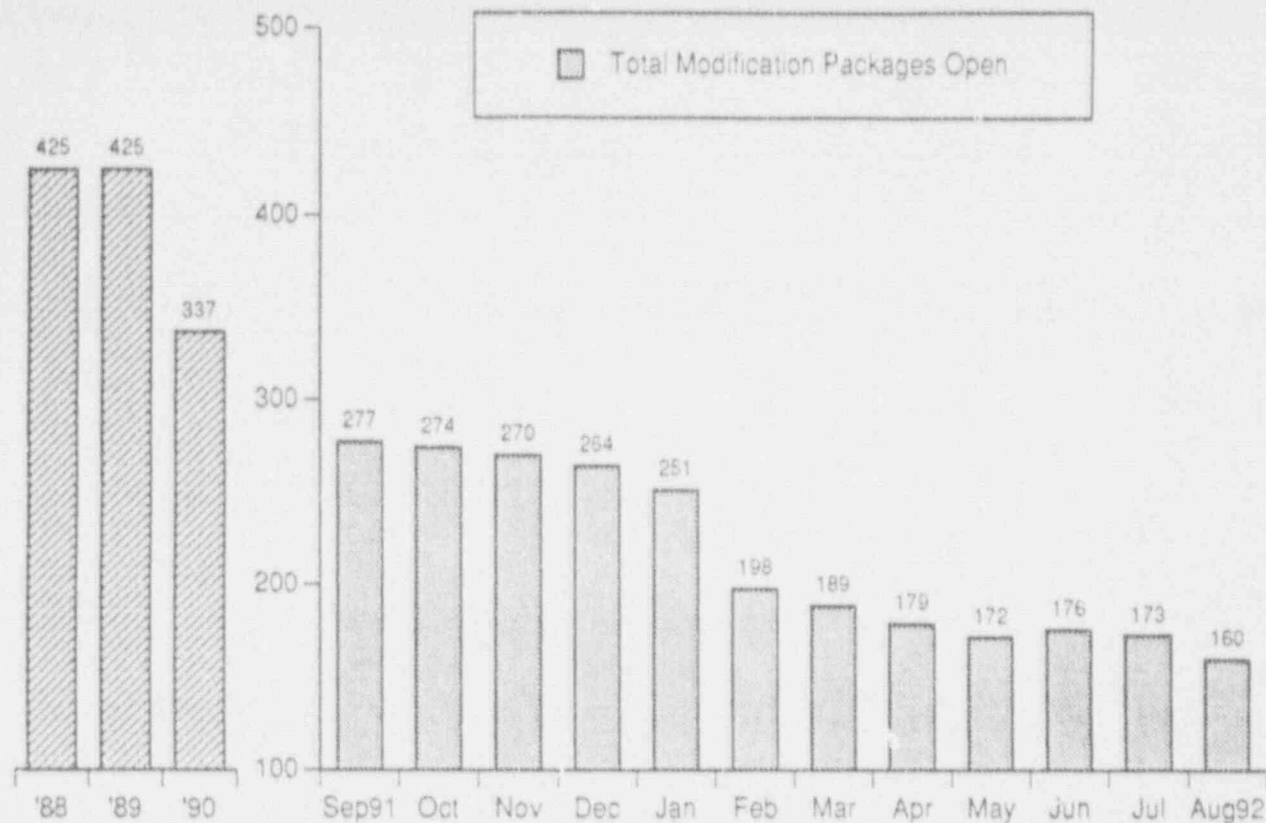
During the month of August, a total of 1,245 MRs were received by the warehouse. Of the 1,245 total MRs received by the warehouse, 100% of the MRs (738) were for issue with their request date the same as their need date.

Data Source: Willrett/McCormick (Manager/Source)

Accountability: Willrett/McCormick

Adverse Trend: None





### OUTSTANDING MODIFICATIONS

This indicator shows the total number of outstanding modifications (excluding outstanding modifications which are proposed to be cancelled).

Category	Reporting Month
Form FC-1133 Backlog/In Progress	19
Mod. Requests Being Reviewed	19
Design Engr. Backlog/In Progress	65
Construction Backlog/In Progress	28
Design Engr. Update Backlog/In Progress	29
Total	160

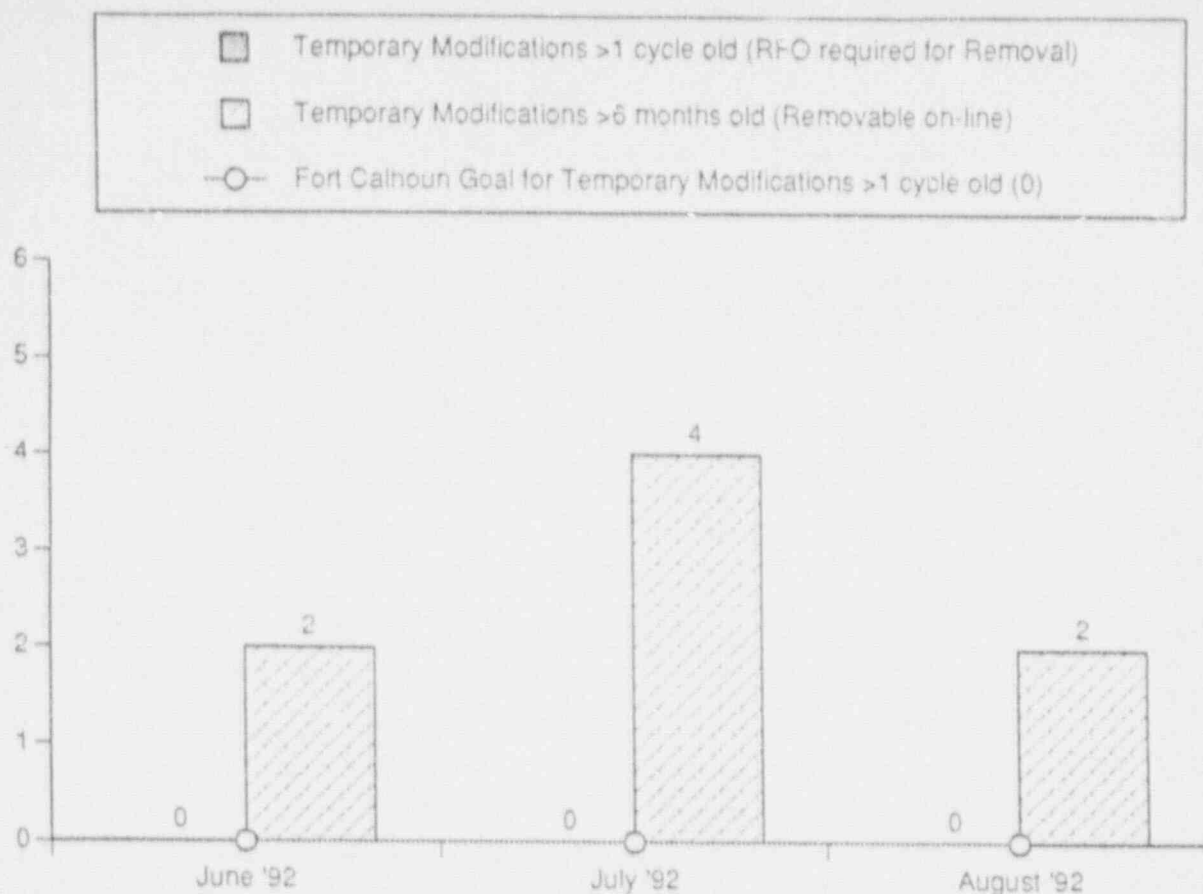
At the end of August, 37 additional modification requests had been issued this year and 20 modification requests had been cancelled. The Nuclear Projects Review Committee (NPRC) had completed 121 backlog modification request reviews this year. The Nuclear Projects Committee (NPC) had completed 90 backlog modification request reviews this year.

Data Source: Jaworski/Turner (Manager/Source)  
Scofield/Lounsbery (Manager/Source)

Accountability: Scofield/Phelps

Adverse Trend: None





#### TEMPORARY MODIFICATIONS (EXCLUDING SCAFFOLDING)

This indicator provides information on the number of temporary modifications greater than one fuel cycle old requiring a refueling outage (RFO) for removal and the number of temporary modifications removable on-line that are greater than six months old. Also provided is the Fort Calhoun goal for temporary modifications.

There are currently no temporary modifications that are greater than one fuel cycle old requiring a refueling outage to remove. In addition, at the end of August there were 2 temporary modifications installed that were greater than six months old that can be removed on-line. These were: handjack close of CCW/RW valves, in which OPS is reviewing a system engineering suggestion for closure; potable water supply piping temporary repair, which is awaiting completion of MWOs 894520 and 92718.

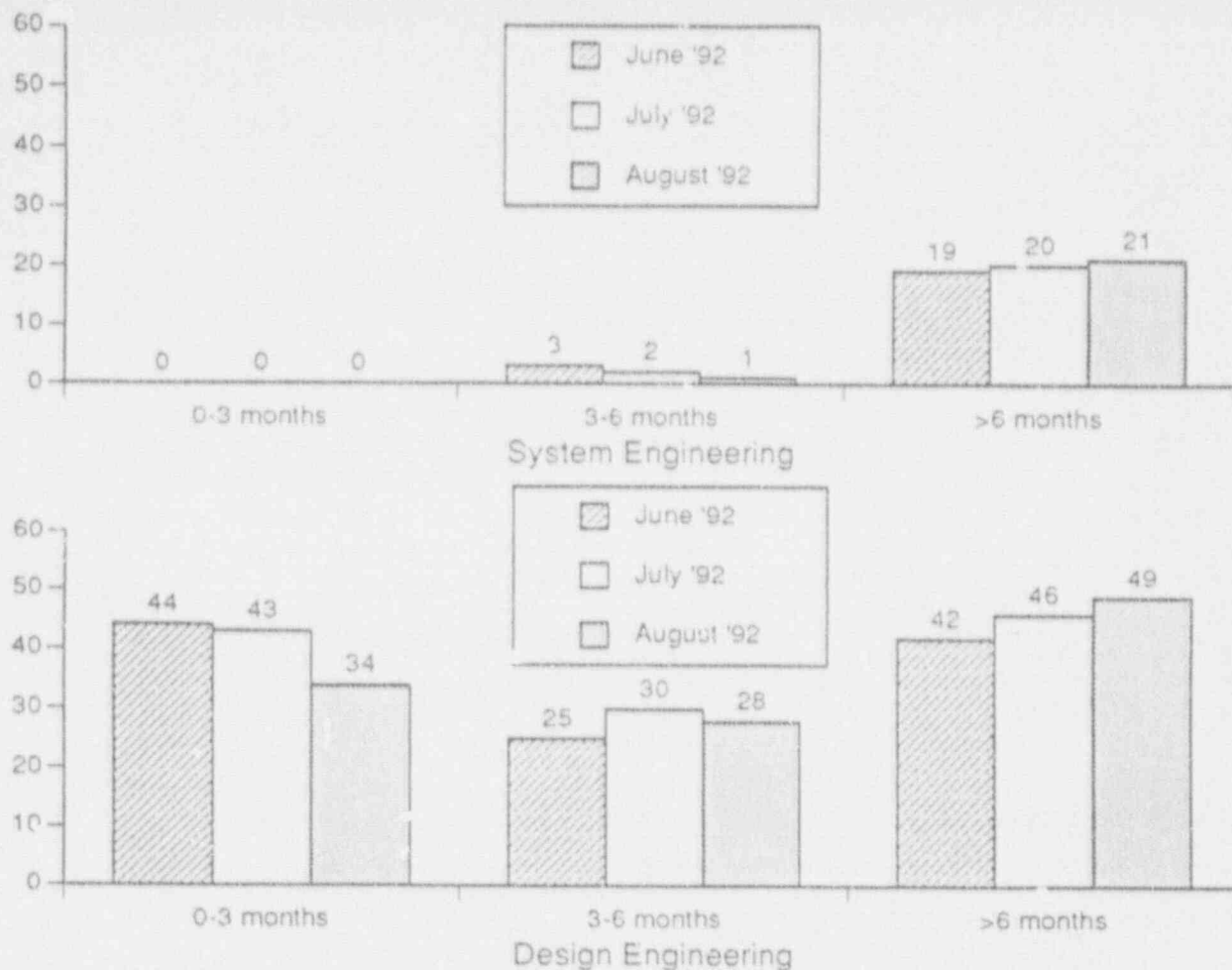
At the end of August, there was a total of 18 TMs installed in the Fort Calhoun Station. 11 of the 18 installed TMs require an outage for removal and 7 are removable on-line. In 1992 a total of 56 temporary modifications have been installed.

Data Source: Jaworski/Turner (Manager/Source)

Accountability: Jaworski/Gorence

Adverse Trend: None

SEP 62 & 71



### ENGINEERING ASSISTANCE REQUEST (EAR) BREAKDOWN

This indicator shows a breakdown of the number of EARs assigned to Design Engineering and System Engineering awaiting a technical response from engineering.

At the end of August 1992, 48 EARs had been resolved and were going through the closeout process. There were 3 EARs awaiting a technical response from Nuclear Projects.

Total EAR breakdown is as follows:

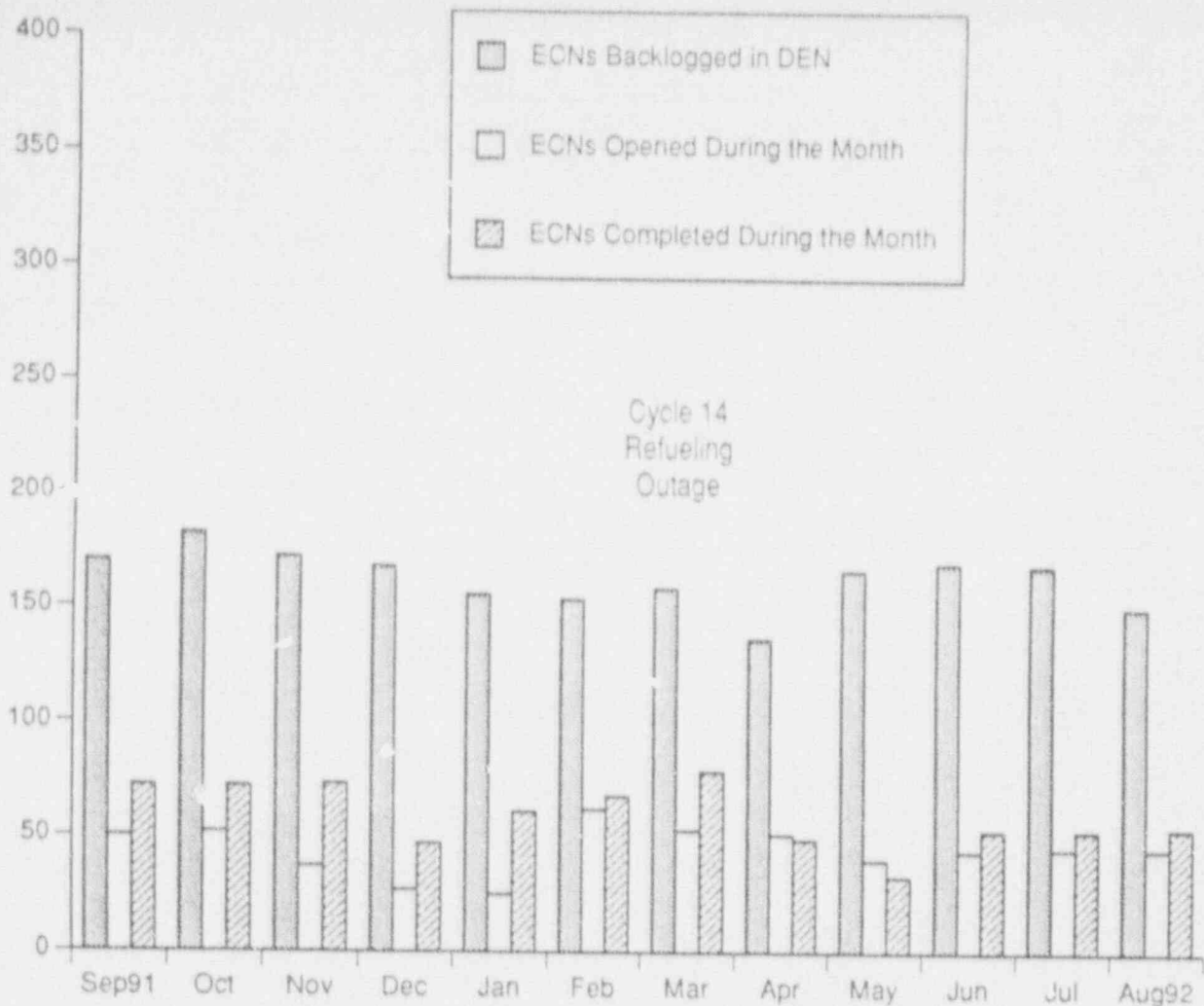
EARs opened during the month	8
EARs closed during the month	15
Total EARs open as of the end of the month	133

Data Source: Phelps/Pulverenti (Manager/Source)

Accountability: Jaworski/Phelps

Adverse Trend: None

SEP 62



### ENGINEERING CHANGE NOTICE STATUS

This indicator shows the number of Engineering Change Notices (ECNs) awaiting completion by DEN, the number of ECNs opened during the reporting month, and the number of ECNs completed by DEN during the reporting month.

At the end of August 1992, there was a total of 151 DEN backlogged open ECNs. There were 45 ECNs opened, and 54 ECNs completed during the month.

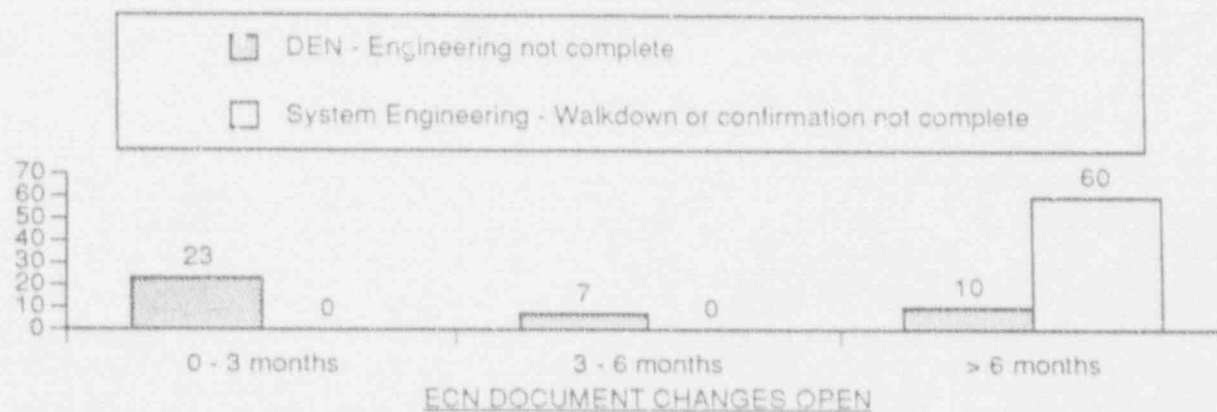
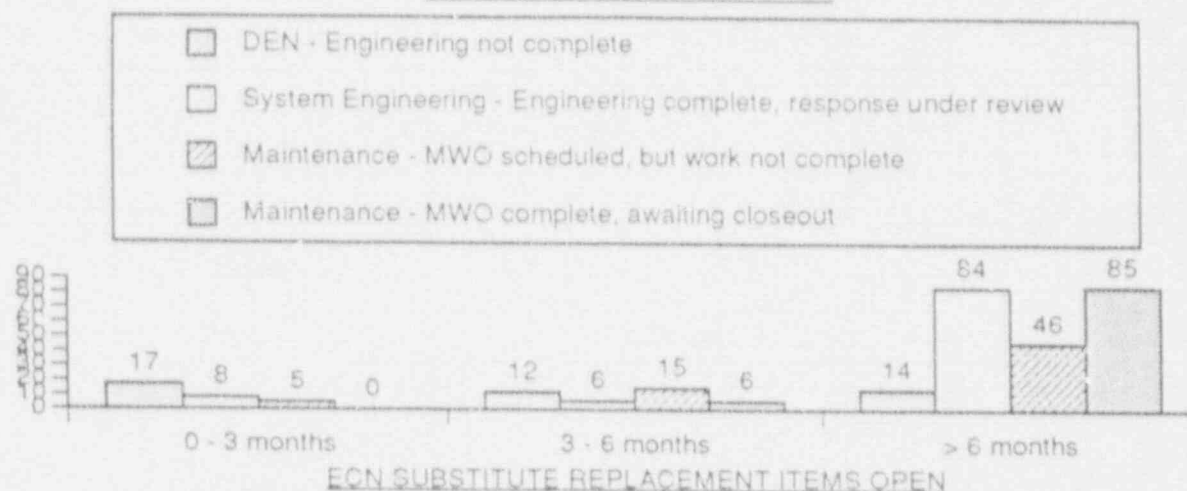
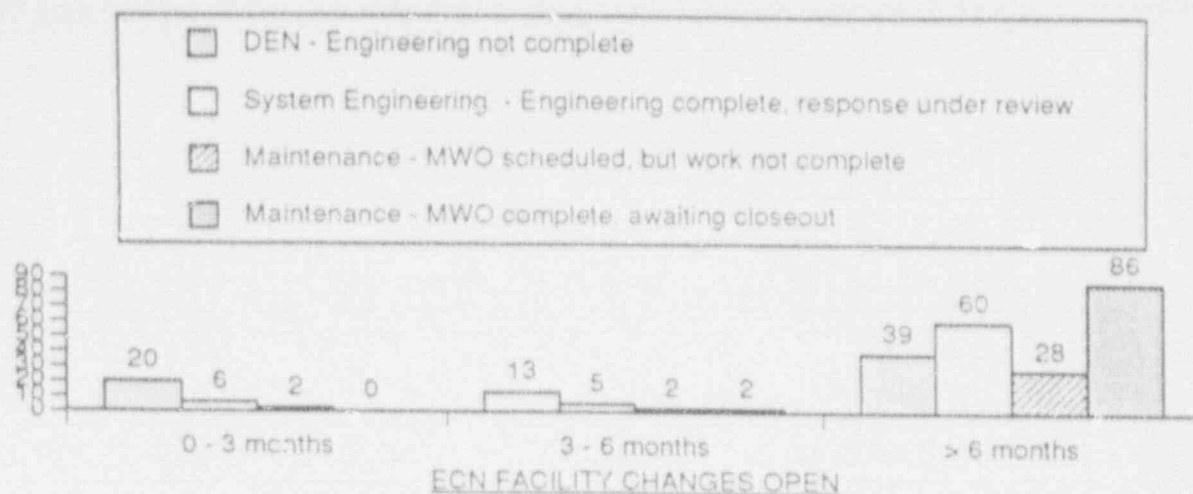
Although the number of open ECNs is currently high, activities are in progress to reduce the backlog of open ECNs. It is expected that the number of open ECNs will continue to decrease.

Data Source: Phelps/Pulverenti (Manager/Source)

Accountability: Phelps/Jaworski

Adverse Trend: None

SEP 62



### ENGINEERING CHANGE NOTICE BREAKDOWN

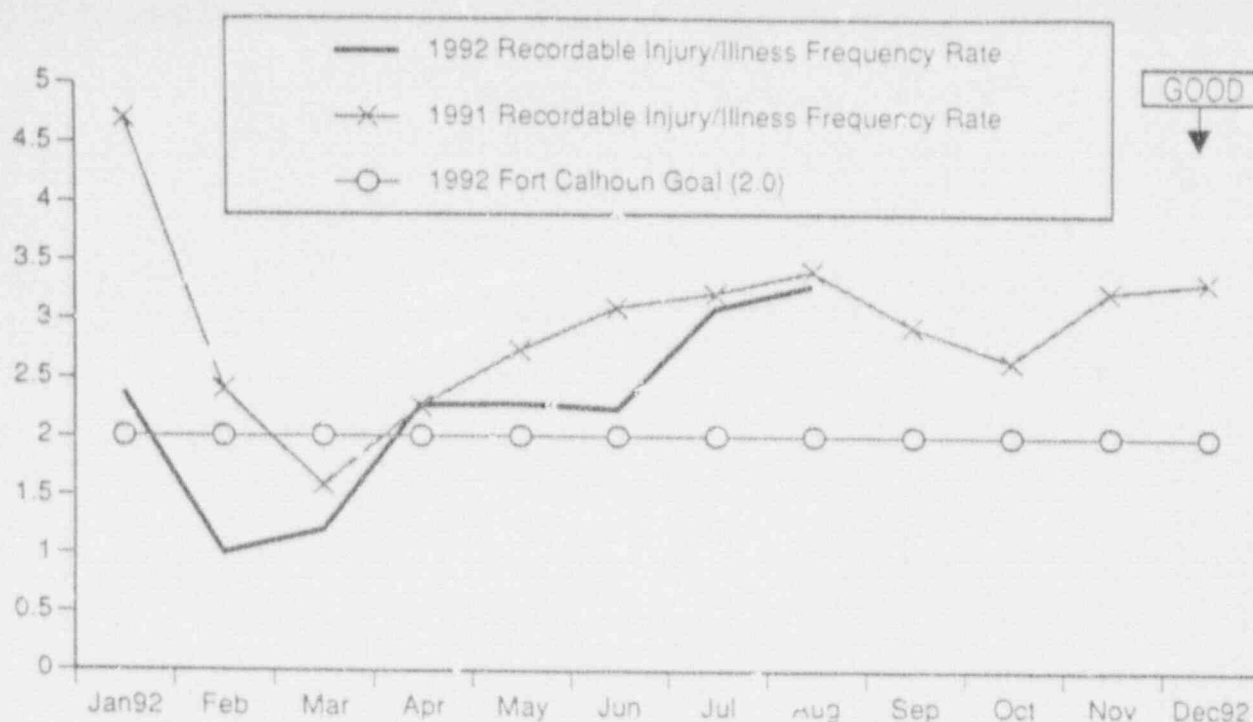
This indicator shows a breakdown of the number of Engineering Change Notices (ECNs) that are assigned to Design Engineering Nuclear (DEN), System Engineering, and Maintenance for the reporting month. The graphs provide data on ECN Facility Changes Open, ECN Substitute Replacement Items Open, and ECN Document Changes Open.

Data Source: Phelps/Pulverenti (Manager/Source)

Accountability: Phelps/Jaworski

Adverse Trend: None

SEP 62



#### RECORDABLE INJURY/ILLNESS CASES FREQUENCY RATE

This indicator shows the 1992 recordable injury/illness cases frequency rate. The 1991 recordable injury/illness cases frequency rate is also shown.

A recordable injury/illness case is reported if Nuclear Operations Division personnel are injured on the job and require corrective medical treatment beyond first aid. The recordable injury/illness cases frequency rate is computed on a year-to-date basis.

The recordable injury/illness rate for January through August 1992 was reported as 3.28. There were two recordable injury/illness cases reported during the month of August. There has been a total of 13 recordable injury/illness cases in 1992.

The recordable injury/illness rate for the past twelve months is 3.25.

The 1992 goal for this indicator is a maximum value of 2.0.

Year	Recordable Cases	Year-End Rate
1989	11	2.2
1990	11	2.1
1991	18	3.3

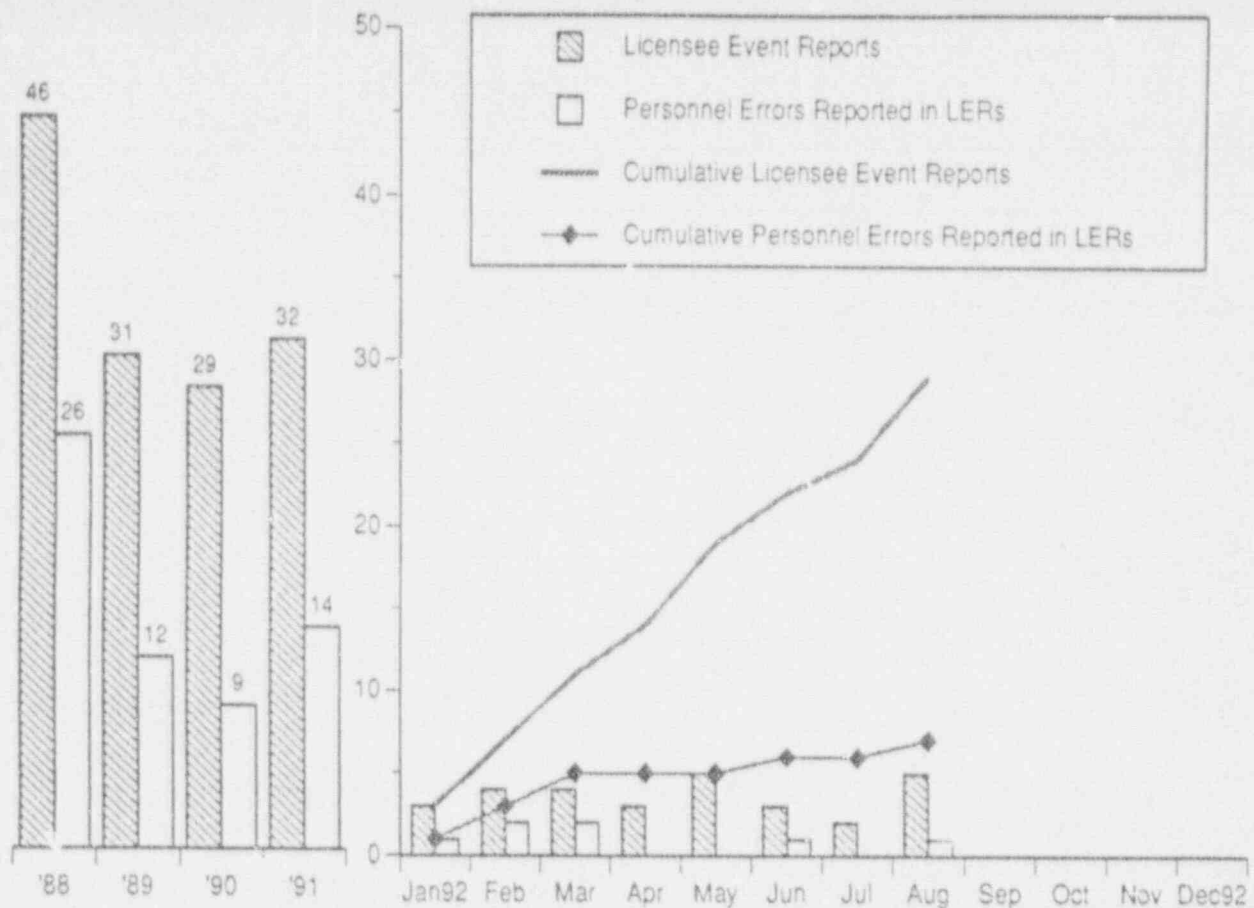
Data Source: Sorenson/Skaggs (Manager/Source)

Accountability: Richard

Adverse Trend: The manager of the Safety Department has stated that, based on this indicator's 1992 values being above the 5 year average values, an adverse trend is indicated.

SEP 15, 25 & 26





### NUMBER OF PERSONNEL ERRORS REPORTED IN LERS

This indicator shows the number of Licensee Event Reports (LERs) submitted during each month of 1992, the LERs attributed to personnel errors for each month, and the cumulative totals of both. The year-end totals for the four previous years are also shown.

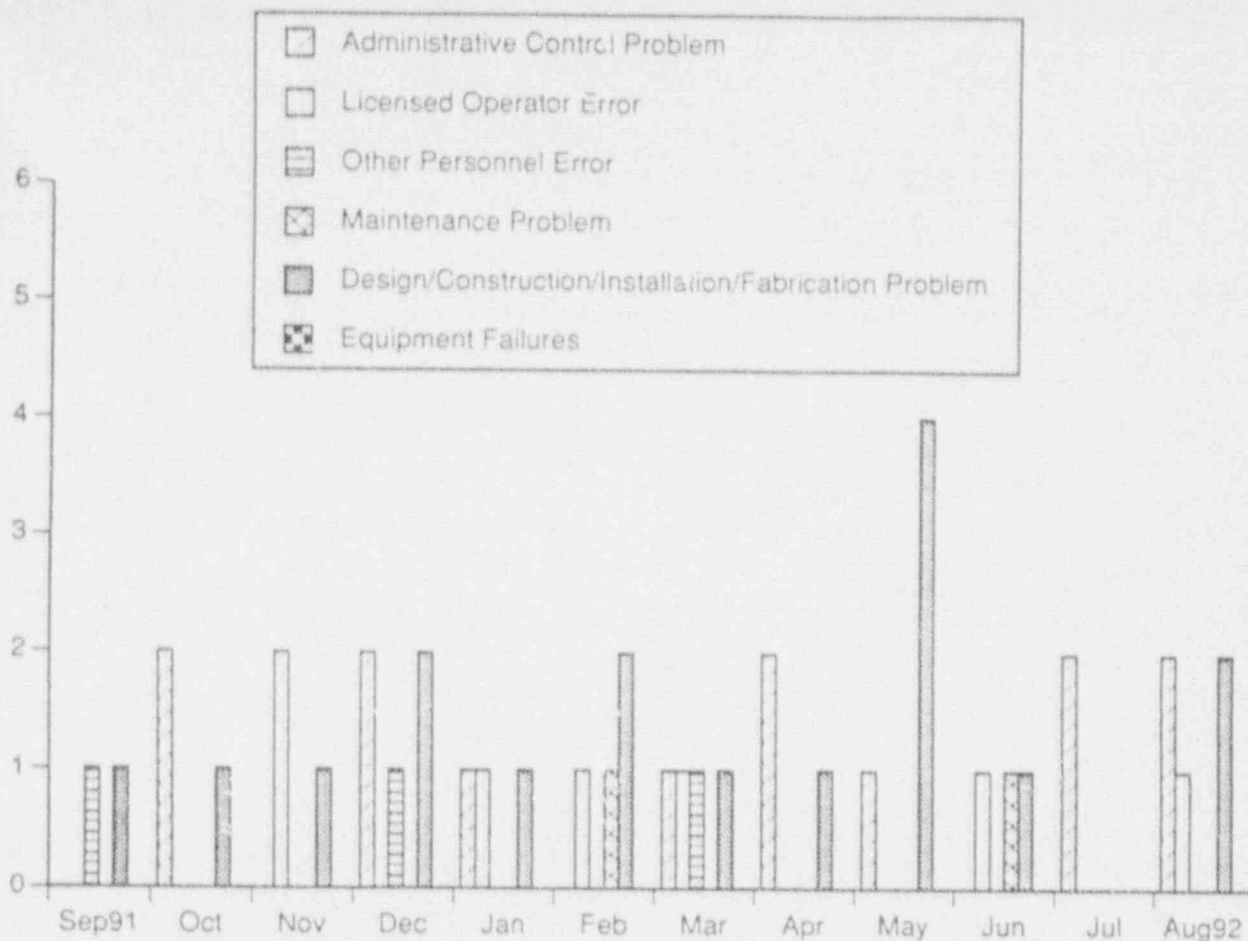
In August, there was a total of 5 LERs reported; one of which was attributed to licensed personnel error. The single licensed personnel error was reported in LER 92-025, "Inadvertent Manual Start of Emergency Diesel Generator at Local Control Panel."

Data Source: Short/Lippy (Manager/Source)

Accountability: Patterson

Adverse Trend: None

SEP 15



#### LICENSEE EVENT REPORT (LER) ROOT CAUSE BREAKDOWN

This indicator shows the LERs by report date broken down by Root Cause Code for each of the past twelve months from September 1, 1991 through August 31, 1992.

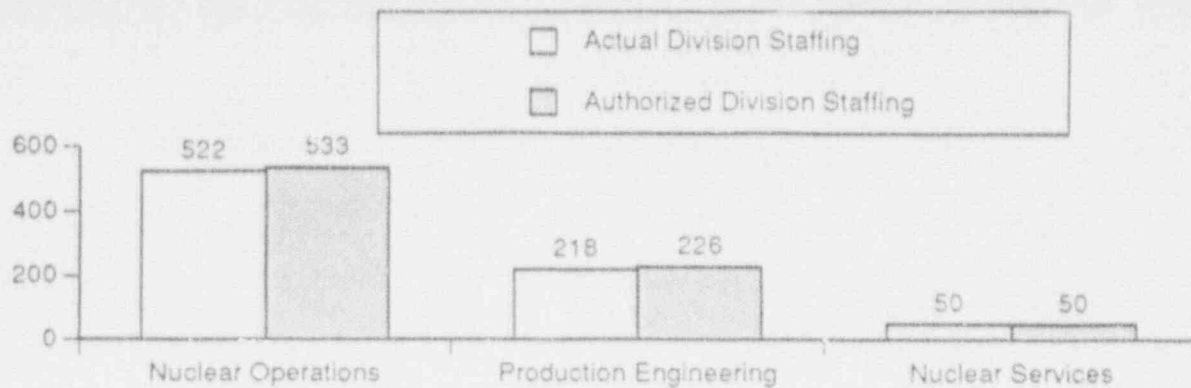
The cause codes are intended to identify possible programmatic deficiencies. In order to be consistent with industry reporting, the Root Cause Codes have been revised to reflect the NRC's sequence coding. For detailed descriptions of these codes, see the "Performance Indicator Definitions" section of this report.

Data Source: Short/Lippy (Manager/Source)

Accountability: Patterson

Adverse Trend: None





### STAFFING LEVEL

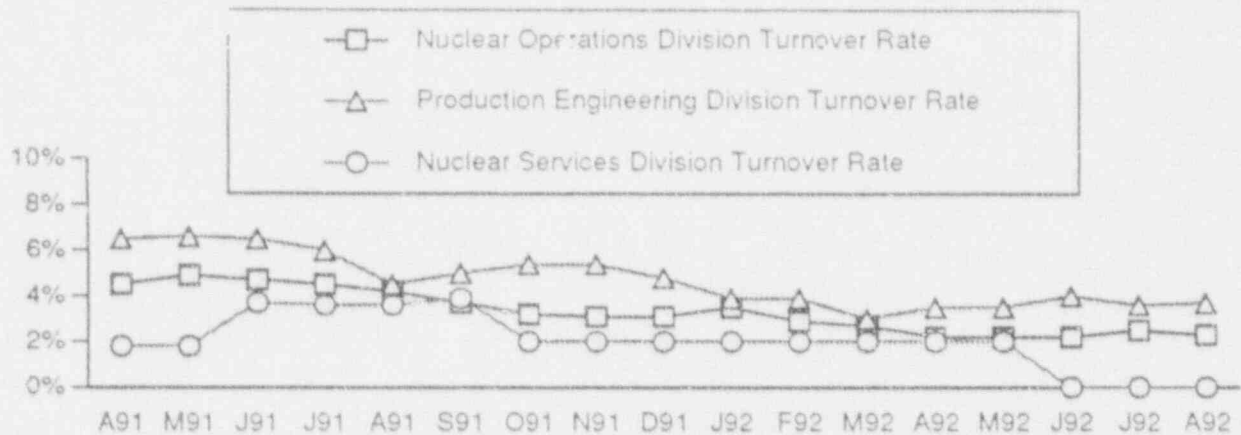
The authorized and actual staffing levels are shown for the three Nuclear Divisions.

Data Source: Sorenson/Burke (Manager/Source)

Accountability: Waszak

Adverse Trend: None

SEP 24



### PERSONNEL TURNOVER RATE

The turnover rates for the three Divisions are calculated using only resignations from OPPD.

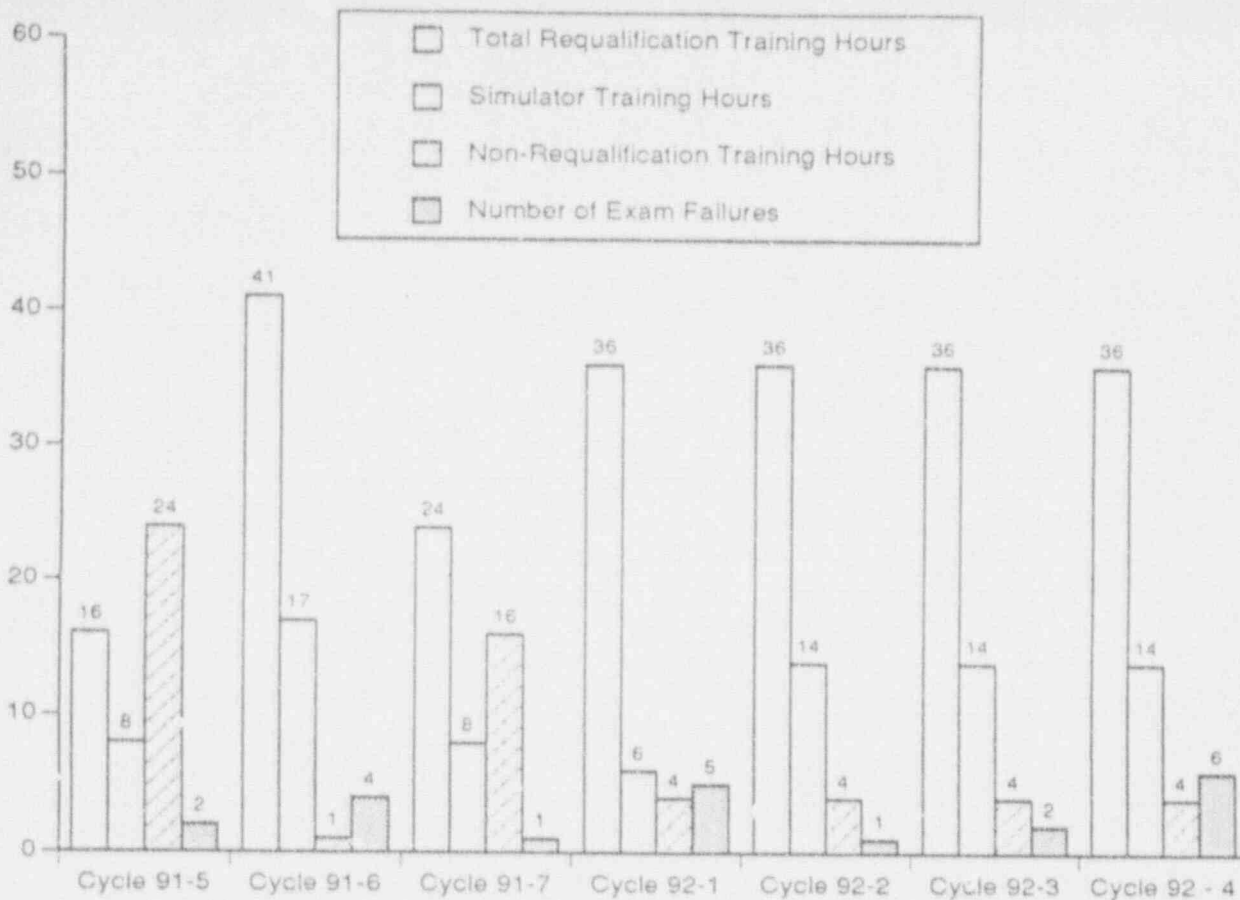
<u>Division</u>	<u>Turnover Rate</u>
NOD	2.3%
PED	3.7%
NSD	0.0%

Currently, the OPPD corporate turnover rate is being reported as approximately 2.5%. This OPPD corporate turnover rate is based on the turnover rate over the last four years.

Data Source: Sorenson/Burke (Manager/Source)

Accountability: Waszak

Adverse Trend: None



### LICENSED OPERATOR REQUALIFICATION TRAINING

This indicator provides information on the total number of hours of training given to each crew during each cycle. The Simulator training hours shown on the graph are a subset of the total training hours. Non-Requalification Training Hours are used for AOP/EOP verification & validation, INPO commitments, GET, Fire Brigade, Safety Meetings, and Division Manager lunches.

Exam failures are defined as failures in the written, simulator, and Job Performance Measures (JPMs) segments of the Licensed Operator Requalification Training.

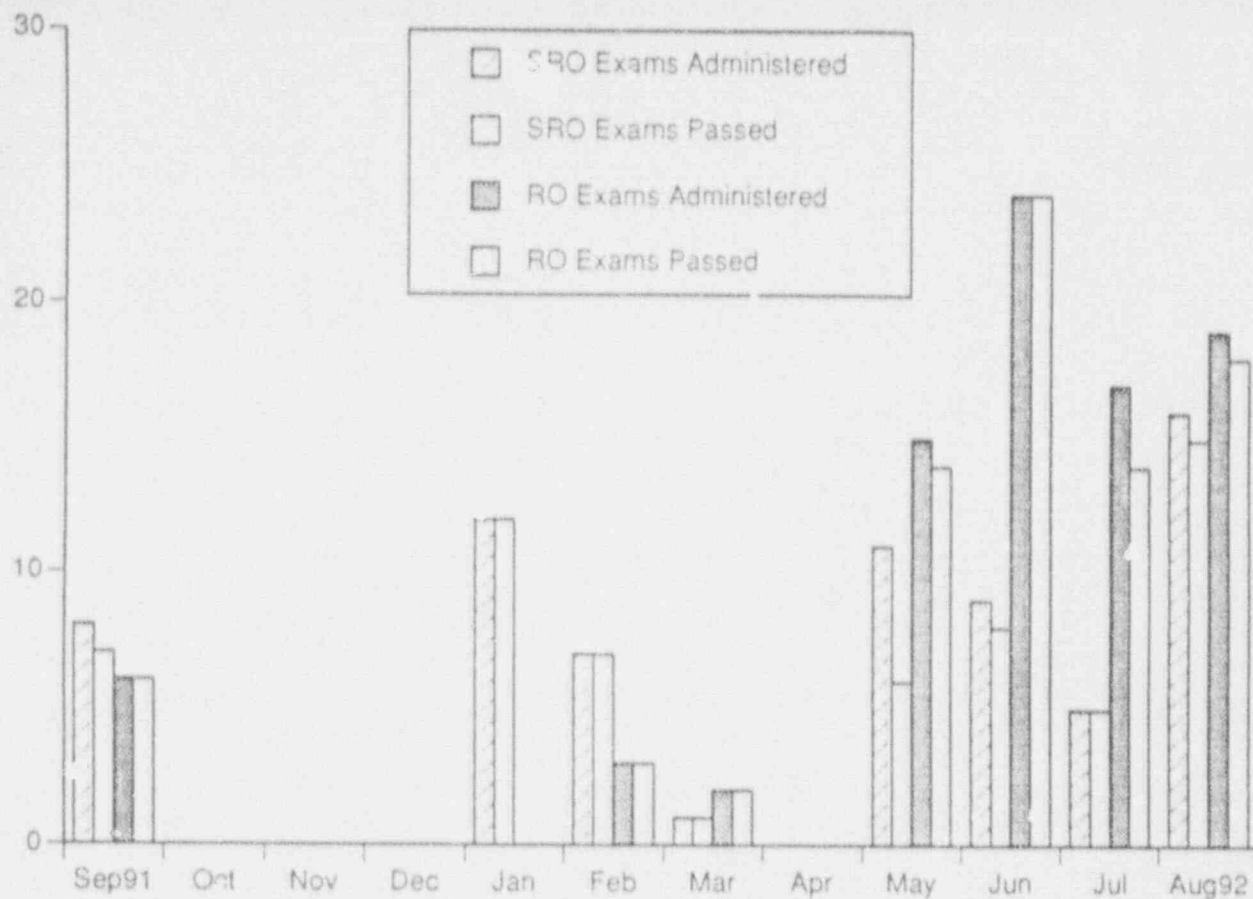
The 6 exam failures in Cycle 92-4 are rotational written quizzes. Additionally, one crew failed a weekly simulator evaluation. The individuals who failed the simulator scenario were remediated and returned to shift by the end of the requalification week. All of the individuals who failed a written quiz have been remediated, with one exception. That individual is considered acceptable for continued shift operations, but is being remediated in exam taking skills.

Data Source: Gasper/Guliani (Manager/Source)

Accountability: Gasper/Guliani

Adverse Trend: None

SEP 68



### LICENSE CANDIDATE EXAMS

This indicator shows the number of Senior Reactor Operator (SRO) and Reactor Operator (RO) quizzes and exams taken and passed each month. These internally administered quizzes and exams are used to plot the SRO and RO candidates' monthly progress.

During the month of August 1992, there were 16 internally administered SRO exams taken and 15 of these exams were passed.

Also during August, there were 19 internally administered RO exams given and 18 of these exams were passed.

There were no NRC administered SRO or RO exams during August.

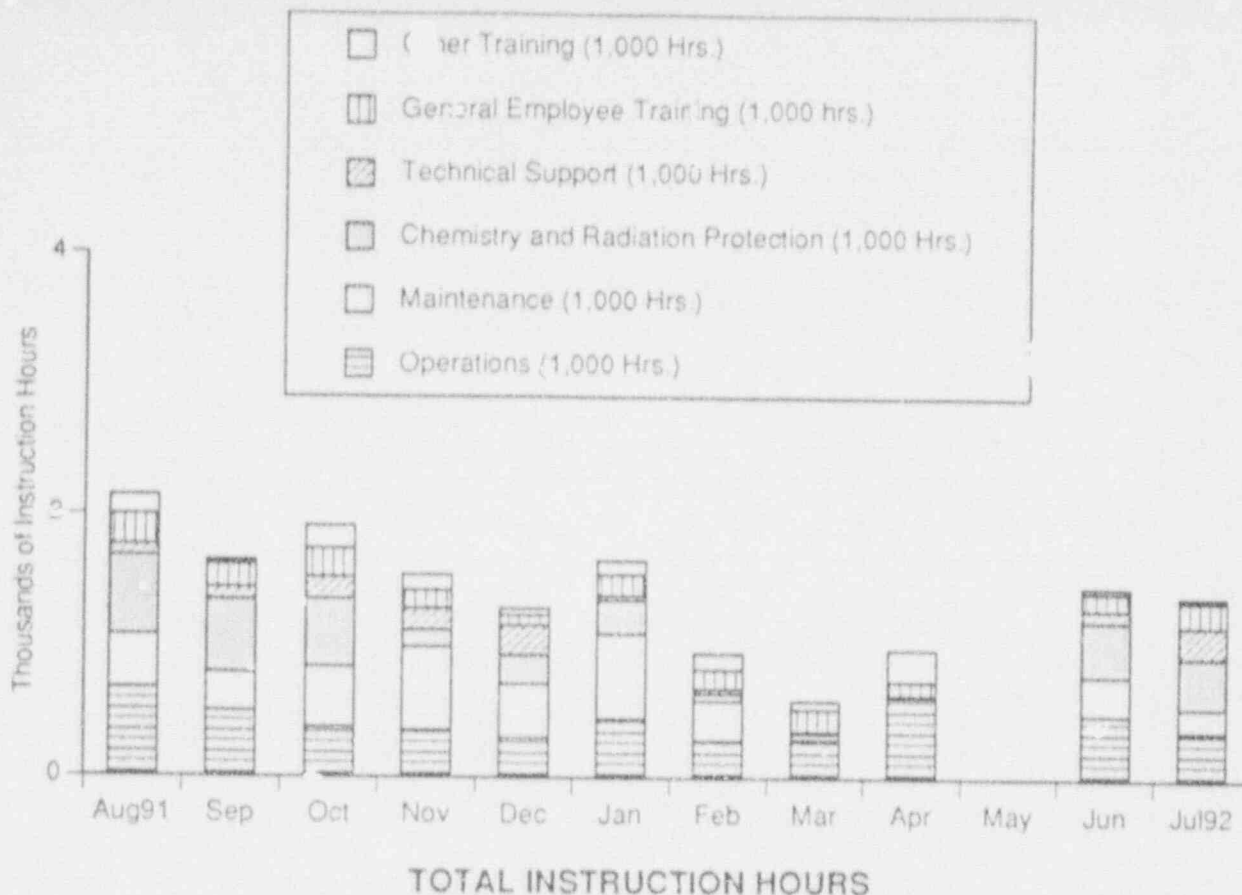
During the month of June 1992, there were 3 RO and 7 SRO exams administered by the NRC. OPPD was notified in July that all 3 ROs and all 7 SROs passed these exams.

Data Source: Gasper/Herman (Manager/Source)

Accountability: Gasper/Guliani

Adverse Trend: None

SEP 68



This indicator shows the total number of instruction hours for Operations, Maintenance, Chemistry and Radiation Protection, Technical Support, General Employee Training, and Other Training conducted for the Fort Calhoun Station.

Due to the transition of responsibilities for training performance indicators, data for the month of May was unavailable for this indicator.

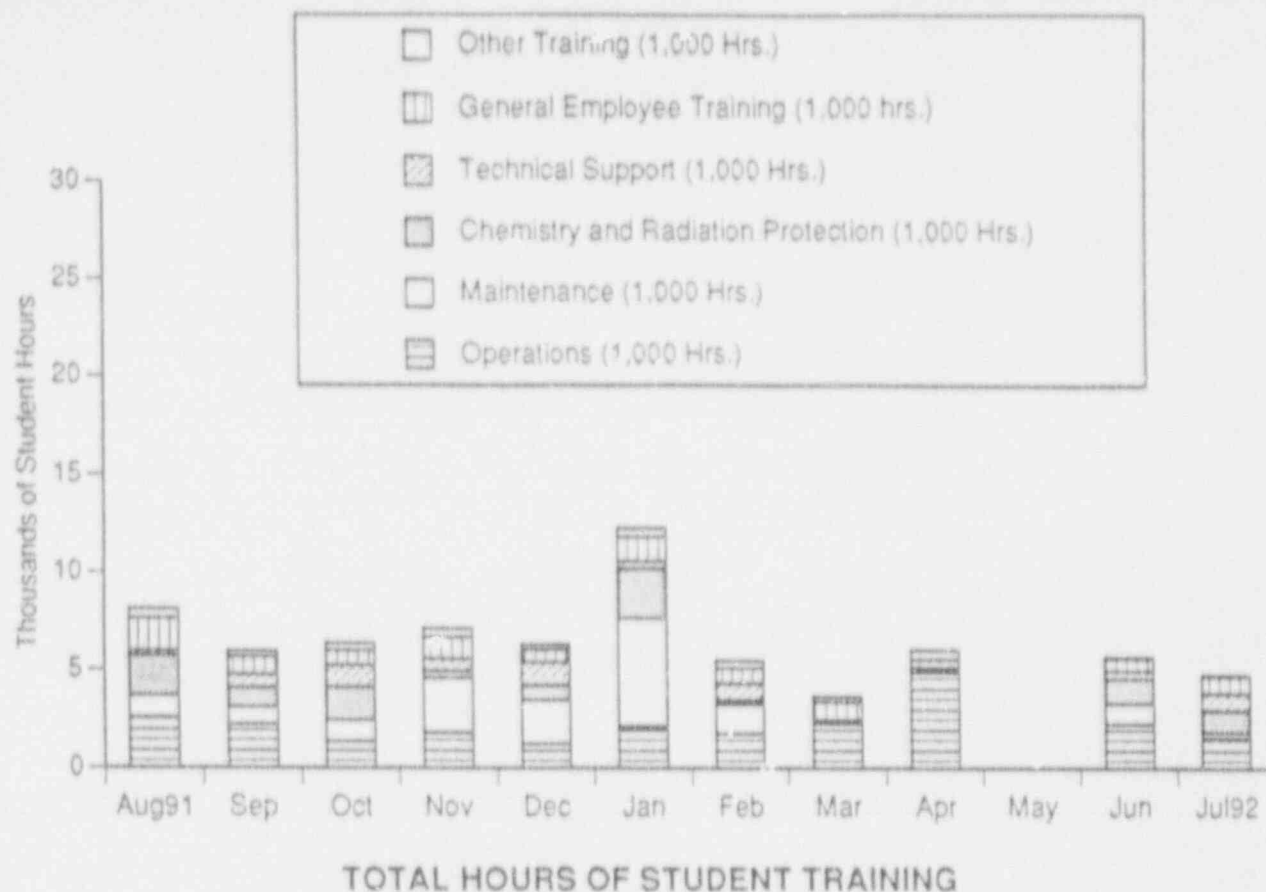
This indicator is normally one month behind the reporting month due to the time required for data collection and processing.

DEPARTMENT	July '92
Operations	366
Maintenance	179
Chemistry and Radiation Protection	386
Technical Support	239
General Employee Training	195
Other	30
Total	1,395

Data Source: Gasper/Podoll (Manager/Source)

Accountability: Gasper

Adverse Trend: None



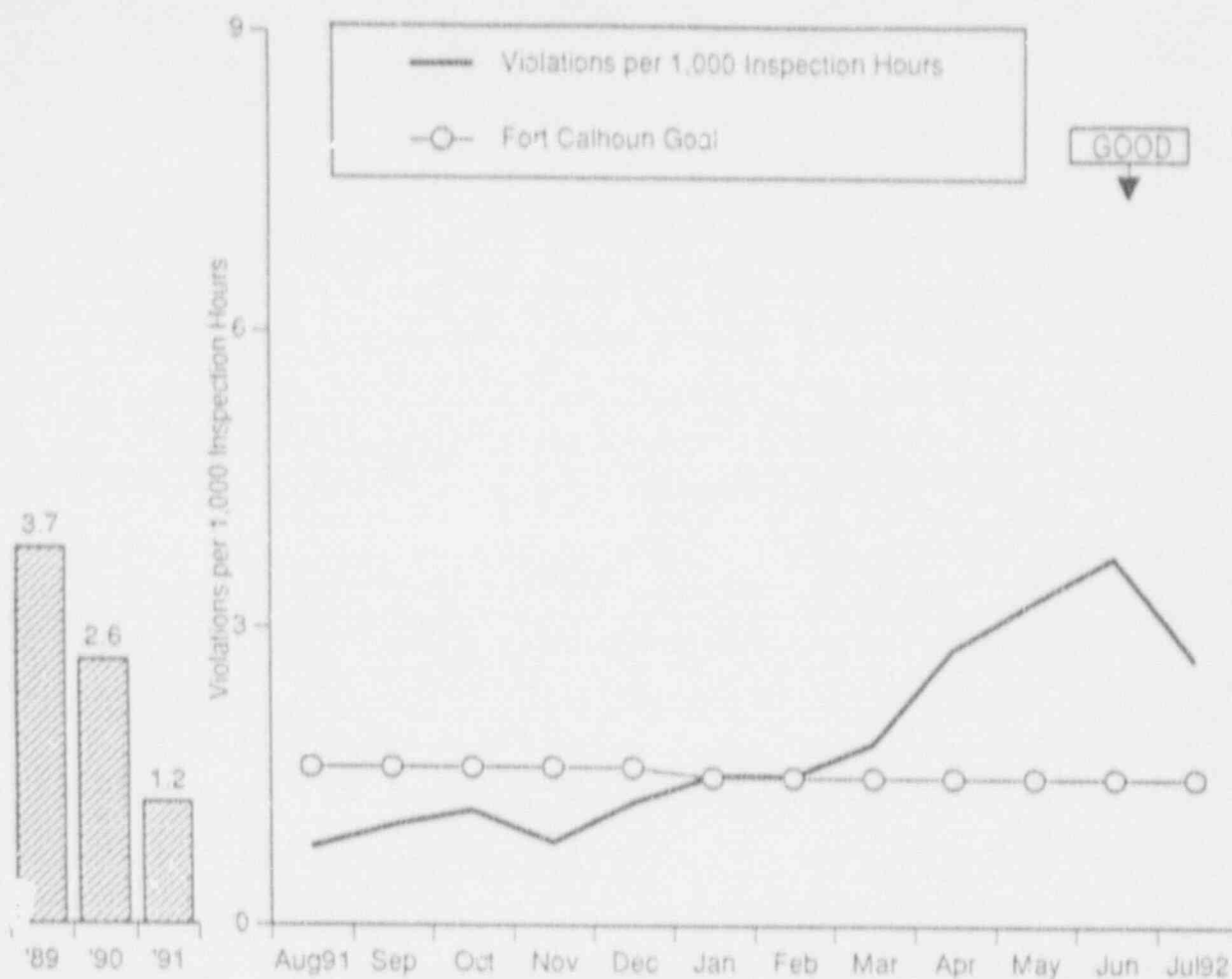
This indicator shows the total number of student hours for Operations, Maintenance, Chemistry and Radiation Protection, Technical Support, General Employee Training, and Other Training conducted for the Fort Calhoun Station.

Due to the transition of responsibilities for training performance indicators, data for the month of May was unavailable for this indicator.

This indicator is normally one month behind the reporting month due to the time needed to collect and evaluate the data.

DEPARTMENT	July '92
Operations	1,573
Maintenance	259
Chemistry and Radiation Protection	1,164
Technical Support	845
General Employee Training	888
Other	39
Total	4,768

Data Source: Gasper/Podoll (Manager/Source)  
 Accountability: Gasper  
 Adverse Trend: None



### VIOLATIONS PER 1,000 INSPECTION HOURS

This indicator displays the number of NRC violations cited in inspection reports per 1,000 NRC inspection hours. This indicator is one month behind the reporting month due to the time involved with collecting and processing the data.

The violations per 1,000 inspection hours indicator was reported as 2.70 for the twelve months from August 1, 1991 through July 31, 1992. This is due to the number of violations issued during this time period in comparison to the relatively low number of inspection hours for this same time period.

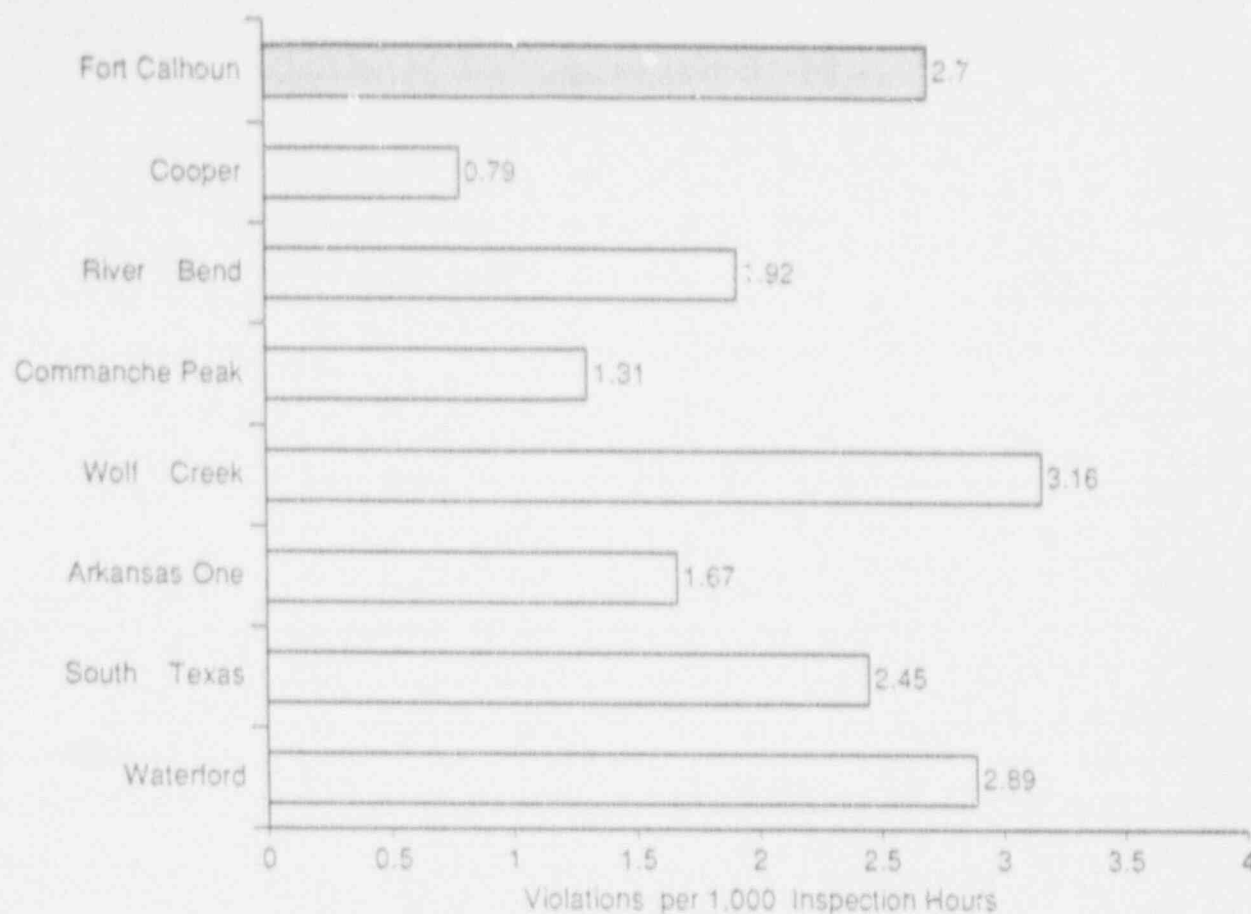
The 1992 Fort Calhoun goal is a maximum of 1.5 violations per 1,000 inspection hours. The goal was a maximum of 1.6 violations per 1,000 inspection hours for 1991.

Data Source: Short/Lippy (Manager/Source)

Accountability: Short

Adverse Trend: None





#### COMPARISON OF VIOLATIONS AMONG REGION IV PLANTS

This indicator provides a comparison of violations per 1,000 inspection hours among Region IV nuclear power plants. The data is compiled for a twelve month period from August 1, 1991 through July 31, 1992.

The Fort Calhoun goal for 1992 is a maximum of 1.5 violations per 1,000 inspection hours. The goal for 1991 was a maximum of 1.6 violations per 1,000 inspection hours.

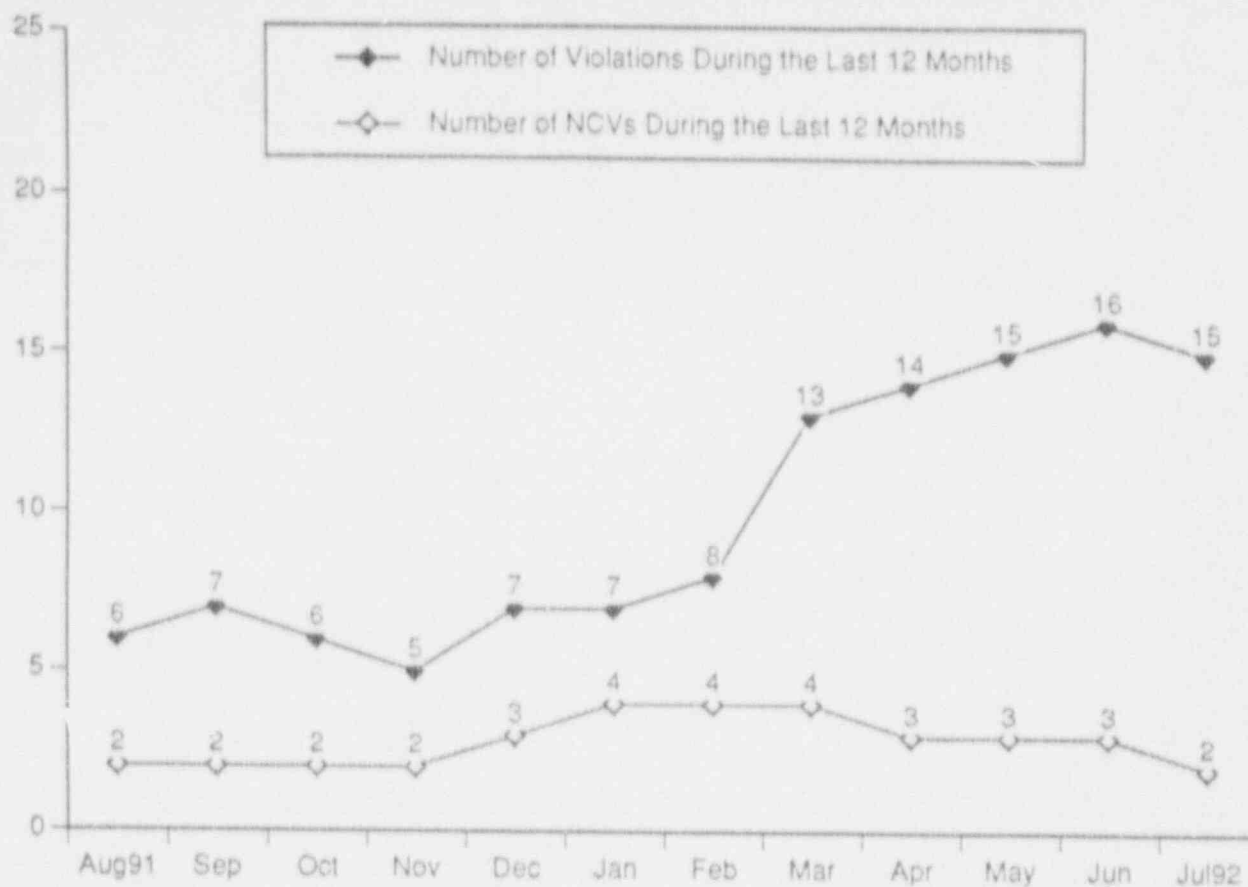
This indicator is one month behind the reporting month due to the time involved with collecting and processing the data.

Data Source: Short/Lippy (Manager/Source)

Accountability: Short

Adverse Trend: None





#### CUMULATIVE VIOLATIONS AND NCVs (TWELVE-MONTH RUNNING TOTAL)

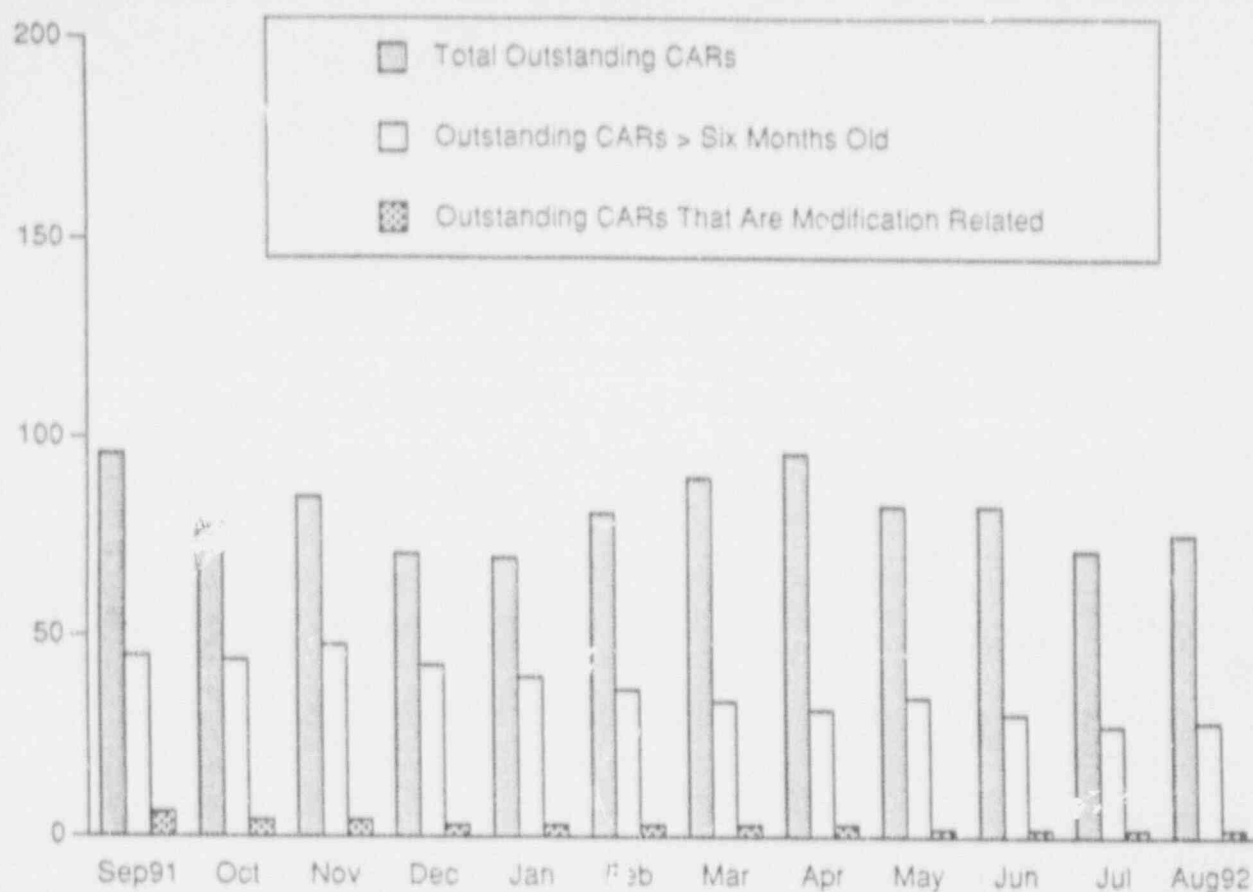
The Cumulative Violations and Non-Cited Violations (NCVs) indicator shows the cumulative number of violations and the cumulative number of NCVs for the last twelve months.

This indicator is one month behind the reporting month due to the time involved with collecting and processing the data for this indicator.

Data Source: Short/Lippy (Manager/Source)

Accountability: Short

Adverse Trend: None



### OUTSTANDING CORRECTIVE ACTION REPORTS

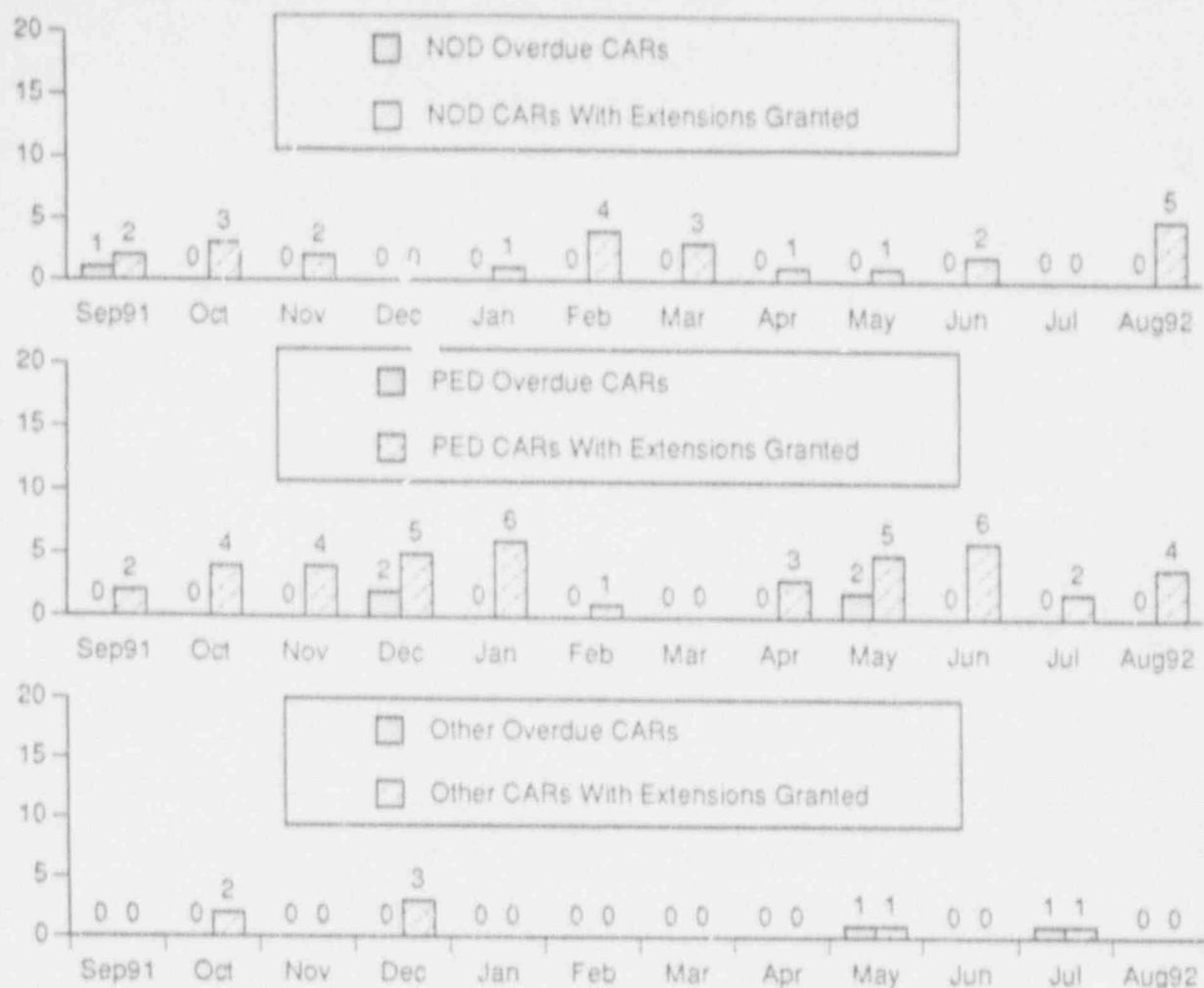
This indicator shows the total number of outstanding Corrective Action Reports (CARs), the number of outstanding CARs that are greater than six months old, and the number of outstanding CARs that are modification related.

At the end of August 1992, there were 76 outstanding CARs, 29 CARs that were greater than six months old, and 2 CARs that were modification related.

Data Source: Orr/Gurtis (Manager/Source)

Accountability: Andrews/Gamphir/Gates

Adverse Trend: None



### OVERDUE AND EXTENDED CORRECTIVE ACTION REPORTS

This indicator shows the number of overdue CARs and the number of CARs which received extensions broken down by organization.

#### Overdue CARs

Overdue CARs	June '92	July '92	August '92
NOD	0	0	0
PED	0	0	0
Others	0	1	0
Total	0	1	0

#### Extended CARs

Extended CARs	June '92	July '92	August '92
NOD	2	0	5
PED	6	2	4
Others	0	1	0
Total	8	3	9

Data Source: Orr/Gurtis (Manager/Source)

Accountability: Andrews/Gambhir/Gates

Adverse Trend: None

1991 SALP Funct. Area	CARs	Signif. CARs	NRC Viola.	LERs
A) Plant Operations	30	1	1	6
B) Radiolog. Controls	12	0	3	0
C) Maint./Surveill.	66	0		9
D) Emergency Preparedness	16	0	0	0
E) Security	5	0	1	3
F) Engr/Tech Support	93	3	1	12
G) Safety Assess/ Qual. Verif.	27	1	1	2
H) Other	0	0	0	0
Total	249	5	9	32

1992 SALP Funct. Area	CARs	Signif. CARs	NRC Viola.	LERs
A) Plant Operations	14	0	0	7 (1)
B) Radiolog. Controls	11	0	0	0
C) Maint./Surveill.	94 (6)	1	3	11 (2)
D) Emergency Preparedness	4	1	1	0
E) Security	8	0	1 (1)	0
F) Engr/Tech Support	24 (3)	0	1	11 (2)
G) Safety Assess/ Qual. Verif.	25 (9)	0	0	0
H) Other	0	0	0	0
Total	180 (18)	2	12 (1)	29 (5)

Note: ( ) Indicate values for the reporting month.

### CARs ISSUED vs. SIGNIFICANT CARs vs NRC VIOLATIONS ISSUED vs. LERs REPORTED

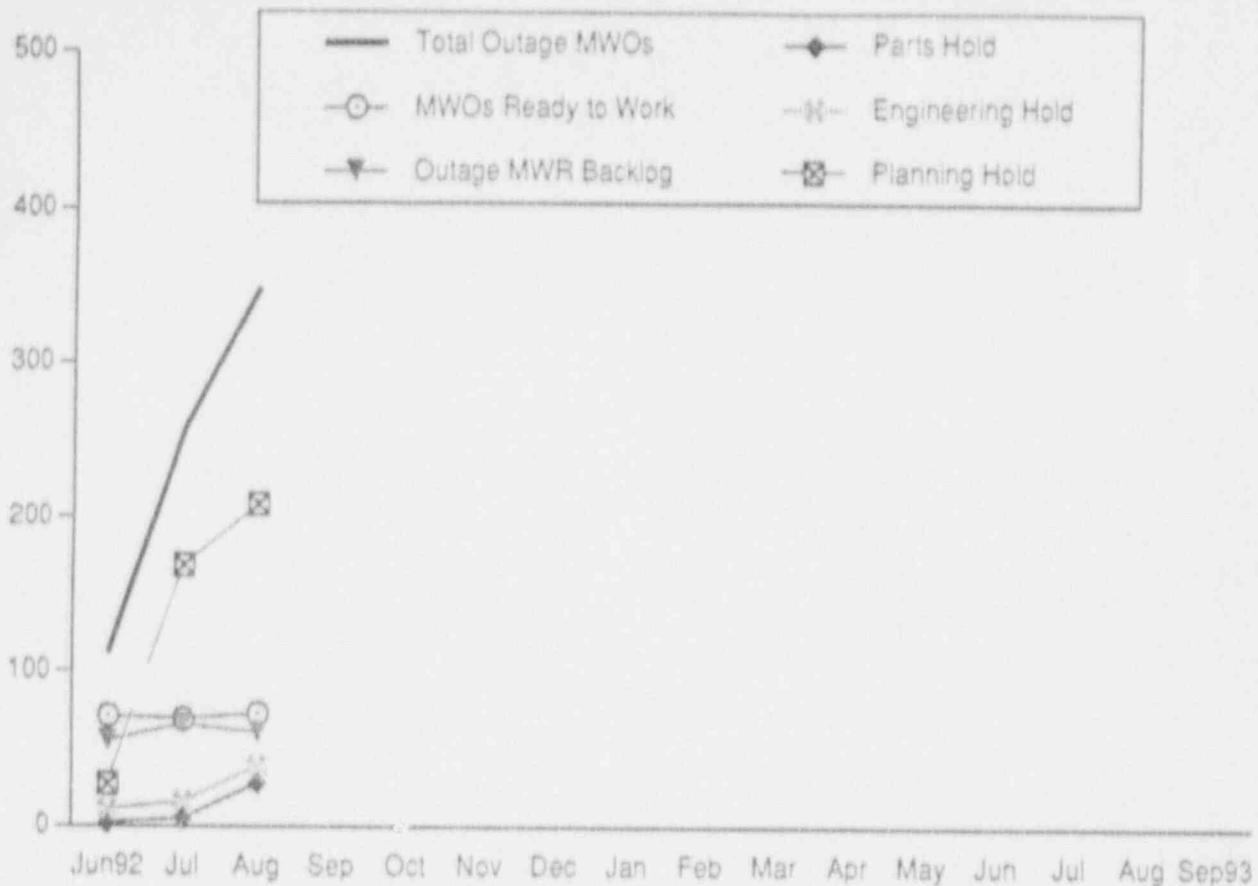
The above matrix shows the number of Corrective Action Reports (CARs) issued by the Nuclear Services Division (NSD) vs. the number of Significant CARs issued by NSD vs. the number of violations issued by the NRC for the Fort Calhoun Station in 1991 and 1992. Included in this table is the number of Licensee Event Reports (LERs) identified by the Station each year. The number of NRC violations reported is one month behind the reporting month due to the time involved in collecting and processing the violations.

Data Source: Orr/Gurtis (Manager/Source)  
Short/Lippy (Manager/Source)

Accountability: Andrews/Gambhir/Gates

Adverse Trend: None

SEP 15, 20, 21



#### MWO PLANNING STATUS (CYCLE 15 REFUELING OUTAGE)

This indicator shows the total number of Maintenance Work Orders (MWOs) that have been approved for inclusion in the Cycle 15 Refueling Outage and the number of MWOs that are ready to work (parts staged, planning complete, and all other paperwork ready for field use). Also included is the number of MWOs that have engineering holds (ECNs, procedures and other miscellaneous engineering holds), parts hold, (parts staged, not yet inspected, parts not yet arrived) and planning hold (job scope not yet completed). Maintenance Work Requests (MWRs) will also be shown that have been identified for the Cycle 15 Refueling Outage and have not yet been converted to MWOs.

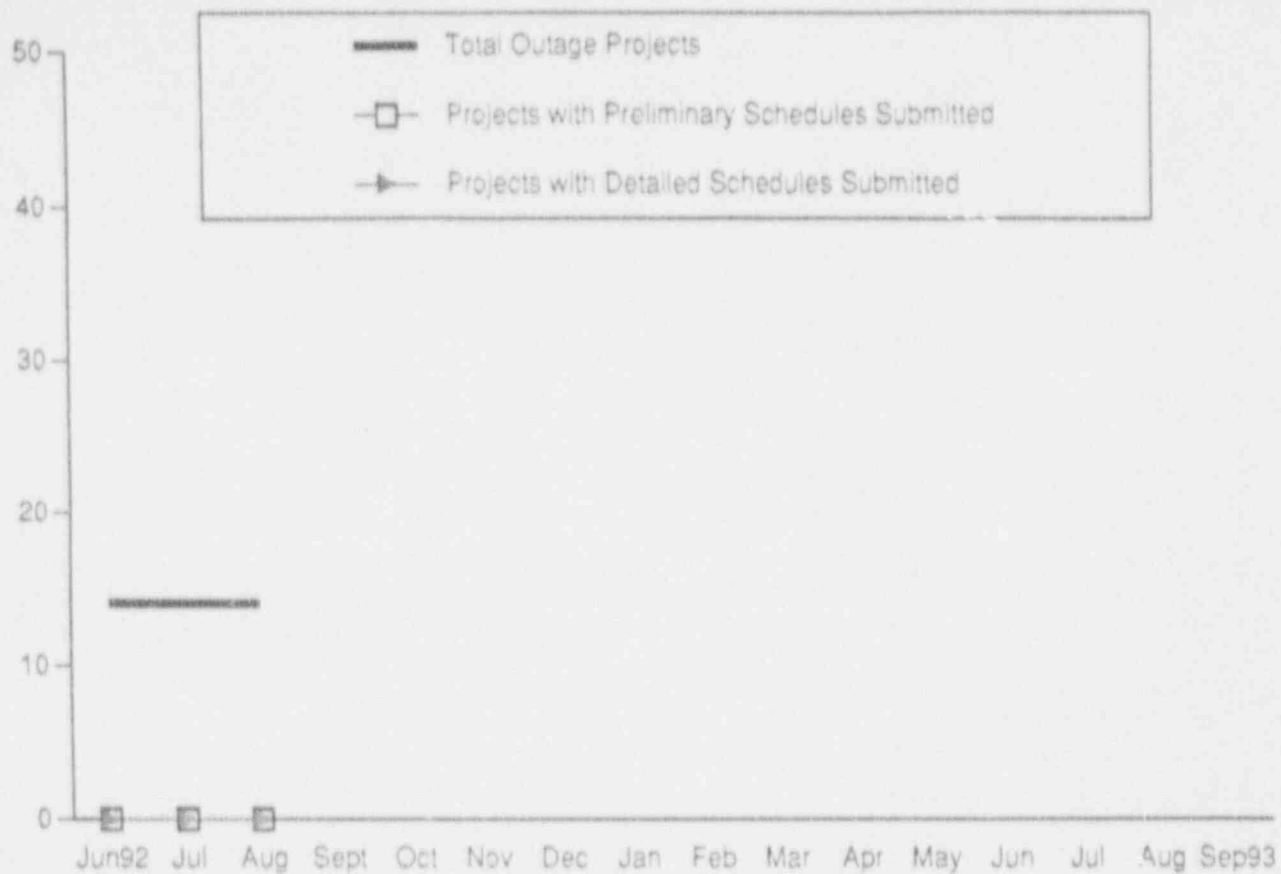
Approximately 2,176 Maintenance Work Orders were completed during the Cycle 14 Refueling Outage.

Data Source: Patterson/Clemens (Manager/Source)

Accountability: Patterson/Johansen

Adverse Trend: None

SEP 31



#### OVERALL PROJECT STATUS (CYCLE 15 REFUELING OUTAGE)

This indicator shows the status of the projects which are in the scope of the Cycle 15 Refueling Outage. There are currently 14 approved outage projects.

Additional data points will be added to this indicator as information becomes available.

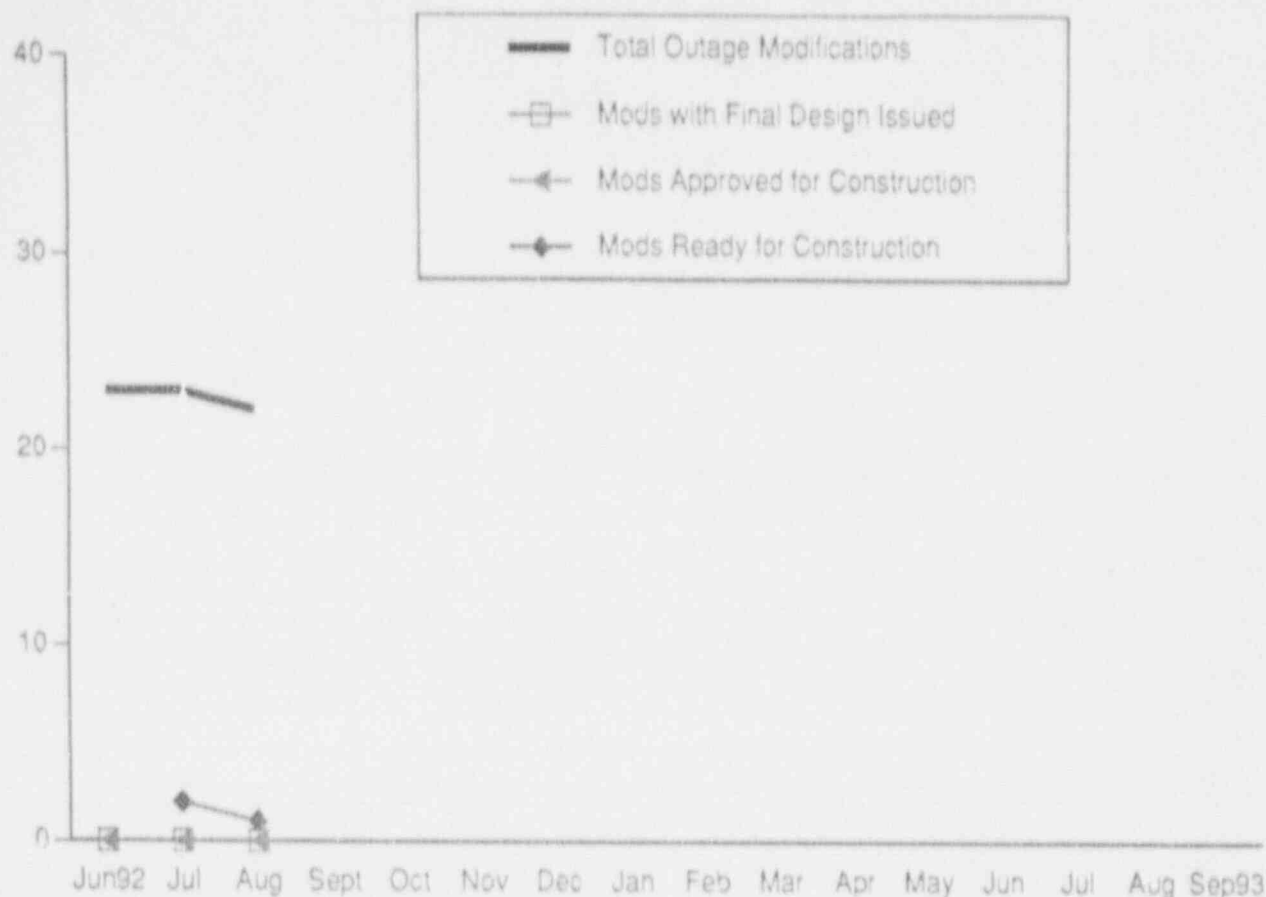
Data Source: Patterson/Clemens (Manager/Source)

Accountability: Jaworski/Boughter

Adverse Trend: None

SEP 31





#### PROGRESS OF CYCLE 15 OUTAGE MODIFICATION PLANNING

This indicator shows the status of modifications approved for completion during the Cycle 15 Refueling Outage.

The "Mods with Final Design Issued" status indicates that DEN's work on the modification is 98% complete. The "Mods Approved for Construction" status indicates that the PRC has approved the final design and DEN's work on the modification is 100% complete. The "Mods Ready for Construction" status indicates that the CWOs and procedures are complete, and the material is ready (Construction Management Group's action).

Additional data points will be added to this indicator as information becomes available.

Data Source: Patterson/Clemens (Manager/Source)

Accountability: Gambhir/Phelps/Faulhaber

Adverse Trend: None

SEP 31

## PERFORMANCE INDICATOR DEFINITIONS

### AGE OF OUTSTANDING MAINTENANCE WORK ORDERS

This indicator tracks the total number of outstanding corrective non-outage Maintenance Work Orders at the Fort Calhoun Station versus their age in months.

### AMOUNT OF WORK ON HOLD AWAITING PARTS

This indicator is defined as the percentage of open, non-outage, maintenance work orders that are on hold awaiting parts, to the total number of open, non-outage, maintenance work orders.

### AUXILIARY FEEDWATER SYSTEM SAFETY SYSTEM PERFORMANCE

The sum of the known (planned and unplanned) unavailable hours and the estimated unavailable hours for the auxiliary feedwater system for the reporting period divided by the critical hours for the reporting period multiplied by the number of trains in the auxiliary feedwater system.

### AUXILIARY SYSTEMS CHEMISTRY PERCENT OF HOURS OUTSIDE STATION LIMITS

The cumulative hours that the Component Cooling Water system is outside the station chemistry limit. The hours are accumulated from the first sample exceeding the limit until additional sampling shows the parameter to be back within limits.

### CARs ISSUED vs. SIGNIFICANT CARs vs. NRC VIOLATIONS vs. LERs REPORTED

Provides a comparison of CARs issued, NRC violations, and LERs reported. This indicator tracks performance for SEP #15, 20, & 21.

### CHECK VALVE FAILURE RATE

Compares the Fort Calhoun check valve failure rate to the industry check valve failure rate (failures per 1 million component hours). The data for the industry failure rate is three months behind the PI Report reporting month. This indicator tracks performance for SEP #43.

### COLLECTIVE RADIATION EXPOSURE

Collective radiation exposure is the total external whole-body dose received by all on-site personnel (including contractors and visitors) during a time period, as measured by the thermoluminescent dosimeter (TLD). Collective radiation exposure is reported in units of person-rem. This indicator tracks radiological work performance for SEP #54.

### COMPARISON OF VIOLATIONS AMONG REGION IV PLANTS

Provides data on violations per 1,000 inspection hours for Region IV nuclear power plants.

### COMPONENT FAILURE ANALYSIS REPORT (CFAR) SUMMARY

The number of INPO categories for Fort Calhoun Station with significantly higher (1.645 standard deviations) failure rates than the rest of the industry for an eighteen-month time period. Failures are reported as component (i.e. pumps, motors, valves, etc.) and application (i.e. charging pumps, main steam stop valves, control element drive motors, etc.) categories.

Failure Cause Categories are:

Wear Out/Aging - a failure thought to be the consequence of expected wear or aging.

Manufacturing Defect - a failure attributable to inadequate assembly or initial quality of the responsible component or system.

Engineering/Design - a failure attributable to the inadequate design of the responsible component or system.

Other Devices - a failure attributable to a failure or misoperation of another component or system, including associated devices.

Maintenance/Testing - a failure that is a result of improper maintenance or testing, lack of maintenance, or personnel errors that occur during maintenance or testing activities performed on the responsible component or system, including failure to follow procedures.

Errors - failures attributable to incorrect procedures that were followed as written, improper installation of equipment, and personnel errors (including failure to follow procedures properly). Also included in this category are failures for which the cause is unknown or cannot be assigned to any of the preceding categories.

### CORRECTIVE MAINTENANCE BACKLOG GREATER THAN 3 MONTHS OLD

The percentage of total outstanding corrective maintenance items, not requiring an outage, that are greater than three months old at the end of the period reported.

### CUMULATIVE VIOLATIONS & NON-CITED VIOLATIONS (12 MONTH RUNNING TOTAL)

The cumulative number of violations and Non-Cited Violations for the last 12 months.

### DAILY THERMAL OUTPUT

This indicator shows the daily core thermal output as measured from computer point XC105 (in thermal megawatts). The 1500 MW Tech Spec limit, and the unmet portion of the 1495 MW FCS daily goal for the reporting month are also shown.

### DIESEL GENERATOR RELIABILITY (25 DEMANDS)

This indicator shows the number of failures occurring for each emergency diesel generator during the last 25 start demands and the last 25 load-run demands.

### DIESEL GENERATOR UNAVAILABILITY

This indicator provides monthly data on the number of hours of diesel generator planned and unplanned unavailability.

## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### DECONTAMINATED RADIATION CONTROLLED AREA

The percentage of the Radiation Controlled Area, which includes the auxiliary building, the radwaste building, and areas of the C/RP building, that is decontaminated based on the total square footage. This indicator tracks performance for SEP # 54.

### DISABLING INJURY FREQUENCY RATE (LOST TIME ACCIDENT RATE)

This indicator is defined as the number of accidents for all utility personnel permanently assigned to the station, involving days away from work per 200,000 man-hours worked (100 man-years). This does not include contractor personnel. This indicator tracks personnel performance for SEP #25 & 26.

### DOCUMENT REVIEW (BIENNIAL)

The Document Review Indicator shows the number of documents reviewed, the number of documents scheduled for review, and the number of document reviews that are overdue for the reporting month. A document review is considered overdue if the review is not complete within 6 months of the assigned due date. This indicator tracks performance for SEP #46.

### EMERGENCY AC POWER SYSTEM SAFETY SYSTEM PERFORMANCE

The sum of the known (planned and unplanned) unavailable and the estimated unavailable hours for the emergency AC power system for the reporting period divided by the number of hours in the reporting period multiplied by the number of trains in the emergency AC power system.

### EMERGENCY DIESEL GENERATOR UNIT RELIABILITY

This indicator shows the number of failures that were reported during the last 20, 50, and 100 emergency diesel generator demands at the Fort Calhoun Station. Also shown are trigger values which correlate to a high level of confidence that a unit's diesel generators have obtained a reliability of greater than or equal to 95% when the demand failures are less than the trigger values.

1) Number of Start Demands: All valid and inadvertent start demands, including all start-only demands and all start demands that are followed by load-run demands, whether by automatic or manual initiation. A start-only demand is a demand in which the emergency generator is started, but no attempt is made to load the generator.

2) Number of Start Failures: Any failure within the emergency generator system that prevents the generator from achieving specified frequency and voltage is classified as a valid start failure. This includes any condition identified in the course of maintenance inspections (with the emergency generator in standby mode) that definitely would have resulted in a start failure if a demand had occurred.

3) Number of Load-Run Demands: For a valid load-run demand to be counted the load-run attempt must meet one or more of the following criteria:

A) A load-run of any duration that results from a real automatic or manual initiation.

B) A load-run test to satisfy the plant's load and duration as stated in each test's specifications.

C) Other special tests in which the emergency generator is expected to be operated for at least one hour while loaded with at least 50% of its design load.

4) Number of Load-Run Failures: A load-run failure should be counted for any reason in which the emergency generator does not pick up load and run as predicted. Failures are counted during any valid load-run demands.

5) Exceptions: Unsuccessful attempts to start or load-run should not be counted as valid demands or failures when they can be attributed to any of the following:

A) Spurious trips that would be bypassed in the event of an emergency.

B) Malfunction of equipment that is not required during an emergency.

C) Intentional termination of a test because of abnormal conditions that would not have resulted in major diesel generator damage or repair.

D) Malfunctions or operating errors which would have not prevented the emergency generator from being restarted and brought to load within a few minutes.

E) A failure to start because a portion of the starting system was disabled for test purpose, if followed by a successful start with the starting system in its normal alignment.

Each emergency generator failure that results in the generator being declared inoperable should be counted as one demand and one failure. Exploratory tests during corrective maintenance and the successful test that follows repair to verify operability should not be counted as demands or failures when the EDG has not been declared operable again.

### ENGINEERING ASSISTANCE REQUEST (EAR) BREAKDOWN

This indicator shows a breakdown, by age of the EAR, of the number of EARs assigned to Design Engineering Nuclear and System Engineering. This indicator tracks performance for SEP #62.

### ENGINEERING CHANGE NOTICE (ECN) BREAKDOWN

This indicator breaks down the number of Engineering Change Notices (ECNs) that are assigned to Design Engineering Nuclear (DEN), System Engineering, and Maintenance. The graphs provide data on ECN Facility Changes open, ECN Substitute Replacement Parts open, and ECN Document Changes open. This indicator tracks performance for SEP #62.

### ENGINEERING CHANGE NOTICE (ECN) STATUS

The number of ECNs that were opened, ECNs that were completed, and open backlog ECNs awaiting completion by DEN for the reporting month. This indicator tracks performance for SEP #62.

## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### EQUIPMENT FORCED OUTAGES PER 1,000 CRITICAL HOURS

Equipment forced outages per 1000 critical hours is the inverse of the mean time between forced outages caused by equipment failures. The mean time is equal to the number of hours the reactor is critical in a period (1000 hours) divided by the number of forced outages caused by equipment failures in that period.

### EQUIVALENT AVAILABILITY FACTOR

This indicator is defined as the ratio of gross available generation to gross maximum generation, expressed as a percentage. Available generation is the energy that can be produced if the unit is operated at the maximum power level permitted by equipment and regulatory limitations. Maximum generation is the energy that can be produced by a unit in a given period if operated continuously at maximum capacity.

### EXPEDITED PURCHASES

The percentage of expedited purchases occurring during the reporting month compared to the total number of purchase orders generated.

### FORCED OUTAGE RATE

This indicator is defined as the percentage of time that the unit was unavailable due to forced events compared to the time planned for electrical generation. Forced events are failures or other unplanned conditions that require removing the unit from service before the end of the next weekend. Forced events include start-up failures and events initiated while the unit is in reserve shut-down (i.e., the unit is available but not in service).

### FUEL RELIABILITY INDICATOR

This indicator is defined as the steady-state primary coolant I-131 activity, corrected for the tramp uranium contribution and normalized to a common purification rate. Tramp uranium is fuel which has been deposited on reactor core internals from previous defective fuel or is present on the surface of fuel elements from the manufacturing process. Steady state is defined as continuous operation for at least three days at a power level that does not vary more than + or - 5%. Plants should collect data for this indicator at a power level above 85%, when possible. Plants that did not operate at steady-state power above 85% should collect data for this indicator at the highest steady-state power level attained during the month.

The density correction factor is the ratio of the specific volume of coolant at the RCS operating temperature (540 degrees F.,  $V_f = 0.02146$ ) divided by the specific volume of coolant at normal letdown temperature (120 degrees F at outlet of the letdown cooling heat exchanger,  $V_f = 0.016204$ ), which results in a density correction factor for FCS equal to 1.32.

### GASEOUS RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT

This indicator displays the total number of Curies of all gaseous radioactive nuclides released from FCS.

### GROSS HEAT RATE

Gross heat rate is defined as the ratio of total thermal energy in British Thermal Units (BTU) produced by the reactor to the total gross electrical energy produced by the generator in kilowatt-hours (KWH).

### HAZARDOUS WASTE PRODUCED

The total amount (in Kilograms) of non-halogenated hazardous waste, halogenated hazardous waste, and other hazardous waste produced by FCS each month.

### HIGH PRESSURE SAFETY INJECTION SYSTEM SAFETY SYSTEM PERFORMANCE

The sum of the known (planned and unplanned) unavailable hours and the estimated unavailable hours for the high pressure safety injection system for the reporting period divided by the critical hours for the reporting period multiplied by the number of trains in the high pressure safety injection system.

### IN-LINE CHEMISTRY INSTRUMENTS OUT OF SERVICE

Total number of in-line chemistry instruments that are out-of-service in the Secondary System and the Post Accident Sampling System (PASS).

### INVENTORY ACCURACY

The percentage of line items that are counted each month by the warehouse which need count adjustments.

### INVOICE BREAKDOWN

The number of invoices that are on hold due to shelf life, CQE, and miscellaneous reasons.

### LICENSE CANDIDATE EXAMS

This indicator shows the number of SRO and/or RO quizzes and exams that are administered and passed each month. This indicator tracks training performance for SEP #68.

### LICENSED OPERATOR REQUALIFICATION TRAINING

The total number of hours of training given to each crew during each cycle. Also provided are the simulator training hours (which are a subset of the total training hours), the number of non-requalification training hours and the number of exam failures. This indicator tracks training performance for SEP #68.



## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### LICENSEE EVENT REPORT (LER) ROOT CAUSE BREAKDOWN

This indicator shows the number and root cause code for Licensee Event Reports. The root cause codes are as follows:

- 1) Administrative Control Problem - Management and supervisory deficiencies that affect plant programs or activities (i.e., poor planning, breakdown or lack of adequate management or supervisory control, incorrect procedures, etc.)
- 2) Licensed Operator Error - This cause code captures errors of omission/commission by licensed reactor operators during plant activities.
- 3) Other Personnel Error - Errors of omission/commission committed by non-licensed personnel involved in plant activities.
- 4) Maintenance Problem - The intent of this cause code is to capture the full range of problems which can be attributed in any way to programmatic deficiencies in the maintenance functional organization. Activities included in this category are maintenance, testing, surveillance, calibration and radiation protection.
- 5) Design/Construction/Installation/Fabrication Problem - This cause code covers a full range of programmatic deficiencies in the areas of design, construction, installation, and fabrication (i.e., loss of control power due to underrated fuse, equipment not qualified for the environment, etc.).
- 6) Equipment Failures (Electronic Piece-Parts or Environmental-Related Failures) - This code is used for spurious failures of electronic piece-parts and failures due to meteorological conditions such as lightning, ice, high winds, etc. Generally, it includes spurious or one-time failures. Electric components included in this category are circuit cards, rectifiers, bistables, fuses, capacitors, diodes, resistors, etc.

### LIQUID RADIOACTIVE WASTE BEING DISCHARGED TO THE ENVIRONMENT

This indicator displays the total number of curies from all liquid releases from FCS to the Missouri River.

### LOGGABLE/REPORTABLE INCIDENTS (SECURITY)

The total number of security incidents for the reporting month depicted in two graphs. This indicator tracks security performance for SEP #58.

### MAINTENANCE EFFECTIVENESS

The number of Nuclear Plant Reliability Data System (NPRDS) components with more than 1 failure and the number of NPRDS components with more than 2 failures for the last eighteen months.

### MAINTENANCE WORK ORDER BREAKDOWN

This indicator is a breakdown of corrective non-outage maintenance work orders by several categories that remain at the end of the reporting month. This indicator tracks maintenance performance for SEP #36.

### MAINTENANCE OVERTIME

The % of overtime hours compared to normal hours for maintenance. This includes OPPD personnel as well as contract personnel.

### MATERIAL REQUEST PLANNING

The percent of material requests (MRs) for issues with their request date the same as their need date compared to the total number of MRs.

### MAXIMUM INDIVIDUAL RADIATION EXPOSURE

The total maximum amount of radiation received by an individual person working at FCS on a monthly, quarterly, and annual basis.

### MWO PLANNING STATUS (CYCLE 15 REFUELING OUTAGE)

The total number of Maintenance Work Orders that have been approved for inclusion in the Cycle 15 Refueling Outage and the number that are ready to work (parts staged, planning complete, and all other paperwork ready for field use). Also included is the number of MWOs that have engineering holds (ECNs, procedures and other miscellaneous engineering holds), parts hold (parts staged, not yet inspected, parts not yet arrived) and planning hold (job scope not yet completed). Maintenance Work Requests (MWRs) are also shown that have been identified for the Cycle 15 Refueling Outage and have not yet been converted to MWOs.

### NUMBER OF HOT SPOTS

The number of radiological hot spots which have been identified and documented to exist at FCS at the end of the reporting month. A hot spot is a small localized source of radiation. A hot spot occurs when the contact dose rate of an item is at least 5 times the General Area dose rate and the item's dose rate is equal to or greater than 100 mRem/hour.

### NUMBER OF NPRDS MULTIPLE FAILURES

The number of NPRDS reportable failures over the preceding eighteen months sorted by component manufacturer and model number.

### NUMBER OF OUT-OF-SERVICE CONTROL ROOM INSTRUMENTS

A control room instrument that cannot perform its design function is considered as out-of-service. A control room instrument which has had a Maintenance Work Order (MWO) written for it and has not been repaired by the end of the reporting period is considered out-of-service and will be counted. The duration of the out-of-service condition is not considered. Computer CRTs are not considered as control room instruments.

### NUMBER OF PERSONNEL ERRORS REPORTED IN LERS

The number of Licensee Event Reports (LERs) attributed to personnel error on the original LER submittal. This indicator trends personnel performance for SEP #15.

## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### NUMBER OF MISSED SURVEILLANCE TESTS RESULTING IN LICENSEE EVENT REPORTS

The number of Surveillance Tests (STs) that result in Licensee Event Reports (LERs) during the reporting month. This indicator tracks missed STs for SEP #60 & 61.

### OPERATIONS AND MAINTENANCE BUDGET

The year-to-date budget compared to the actual expenditures for Operations and Maintenance departments.

### OUTSTANDING CORRECTIVE ACTION REPORTS

This indicator displays the total number of outstanding Corrective Action Reports (CARs), the number of CARs that are older than six months and the number of modification related CARs.

### OUTSTANDING MODIFICATIONS

The number of Modification Requests (MRs) in any state between the issuance of a Modification Number and the completion of the drawing update.

1) Form FC-1133 Backlog/In Progress. This number represents modification requests that have not been plant approved during the reporting month.

2) Modification Requests Being Reviewed. This category includes:

- A.) Modification Requests that are not yet reviewed.
- B.) Modification Requests being reviewed by the Nuclear Projects Review Committee (NPRC).
- C.) Modification Requests being reviewed by the Nuclear Projects Committee (NPC).

These Modification Requests may be reviewed several times before they are approved for accomplishment or cancelled. Some of these Modification Requests are returned to Engineering for more information, some approved for evaluation, some approved for study, and some approved for planning. Once planning is completed and the scope of the work is clearly defined, these Modification Requests may be approved for accomplishment with a year assigned for construction or they may be cancelled. All of these different phases require review.

3) Design Engineering Backlog/In Progress. Nuclear Planning has assigned a year in which construction will be completed and design work may be in progress.

4) Construction Backlog/In Progress. The Construction Package has been issued or construction has begun but the modification has not been accepted by the System Acceptance Committee (SAC).

5) Design Engineering Update Backlog/In Progress. PED has received the Modification Completion Report but the drawings have not been updated.

The above mentioned outstanding modifications do not include modifications which are proposed for cancellation.

### OVERALL PROJECT STATUS

This indicator shows the status of the projects which are in the scope of the Cycle 15 Refueling Outage.

### OVERDUE AND EXTENDED CORRECTIVE ACTION REPORTS

The number of overdue Corrective Action Reports (CARs) and the number of CARs which received extensions broken down by organization for the last 6 months.

### PERCENT OF COMPLETED SCHEDULED MAINTENANCE ACTIVITIES

The % of the number of completed maintenance activities as compared to the number of scheduled maintenance activities each week. This % is shown for each maintenance craft. Maintenance activities include MWRs, MWOs, STs, PMOs, calibrations, and other miscellaneous activities. These indicators track Maintenance performance for SEP #33.

### PERSONNEL TURNOVER RATE

The ratio of the number of turnovers to average employment. A turnover is a vacancy created by voluntary resignation from the company. Retirement, death, termination, transfers within the company, and part-time employees are not considered in turnover.

### PLANNED CAPABILITY LOSS FACTOR

The ratio of the planned energy losses during a given period of time, to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions), expressed as a percentage.

### PREVENTIVE MAINTENANCE ITEMS OVERDUE

This indicator is defined as the % of preventive maintenance items in the month that were not completed by the scheduled date plus a grace period equal to 25 % of the scheduled interval. This indicator tracks preventive maintenance activities for SEP #41.

### PROGRESS OF CYCLE 15 OUTAGE MODIFICATION PLANNING

This indicator shows the status of modifications approved for completion during the Cycle 15 Refueling Outage.

### PRIMARY SYSTEM CHEMISTRY % OF HOURS OUT OF LIMIT

The % of hours out of limit are for six primary chemistry parameters divided by the total number of hours possible for the month. The key parameters used are: Lithium, Chloride, Hydrogen, Dissolved Oxygen, Fluoride, and Suspended Solids. EPRI limits are used.

### PROCEDURAL NONCOMPLIANCE INCIDENTS (MAINTENANCE)

The number of identified incidents concerning maintenance procedural problems, the number of closed IRs related to the use of procedures (includes the number of closed IRs caused by procedural noncompliance), and the number of closed procedural noncompliance IRs. This indicator trends personnel performance for SEP #15, 41 & 44.



## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### RADIOLOGICAL WORK PRACTICES PROGRAM

The number of identified poor radiological work practices (PRWP) for the reporting month. This indicator tracks radiological work performance for SEP #52.

### RATIO OF PREVENTIVE TO TOTAL MAINTENANCE

The ratio of preventive maintenance (including surveillance testing and calibration procedures) to the sum of non-outage corrective maintenance and preventive maintenance completed over the reporting period. The ratio, expressed as a percentage, is calculated based on man-hours. This indicator tracks preventive maintenance activities for SEP #41.

### RECORDABLE INJURY/ILLNESS CASES FREQUENCY RATE

The number of injuries requiring more than normal first aid per 200,000 man-hours worked. This indicator trends personnel performance for SEP #15, 25 & 26.

### SECONDARY SYSTEM CHEMISTRY PERFORMANCE INDEX

The Chemistry Performance Index (CPI) is a calculation based on the concentration of key impurities in the secondary side of the plant. These key impurities are the most likely cause of deterioration of the steam generators. The chemistry parameters are reported only for the period of time greater than 30 percent power.

The CPI is calculated using the following equation:  $CPI = (Ka/0.8) + (Na/20) + (O_2/10) / 3$  where the following are monthly averages of: Ka = average blowdown cation conductivity, Na = average blowdown sodium concentration,  $O_2$  = average condensate pump discharge dissolved oxygen concentration.

### SECURITY NON-SYSTEM FAILURES

The following components are the types of loggable/reportable non-system failures represented in this indicator. Incidents in this category include security badges, access control and authorization, security force error, and unsecured doors.

- 1) Security Badges - Incidents associated with improper use and handling of security badges. Incidents include security badges that are lost, taken out of the protected area, out of control on-site, or inadvertently destroyed or broken.
- 2) Access Control and Authorization - Administrative and procedural errors associated with the use of the card-access system such as tailgating, incorrect security badge issued, and improper escort procedures. This also includes incidents that were caused by incorrect access authorization information entered into the security system computer.
- 3) Security Force Error - Events caused by members of the security force that are found to be inattentive to their duties or who neglected to properly perform assigned functions (e.g., required search procedure or patrol).
- 4) Unsecured Doors - Doors which are found to be unsecured with no compensatory officer posted or where the individual causing the alarm did not remain at the alarmed door until a security officer responded. Events

where an unsecured door is caused by air pressure are included in this category unless there is an indication that an adjustment was made to the door.

This indicator tracks security performance for SEP #58.

### SECURITY SYSTEM FAILURES

The following components are the types of loggable/reportable SECURITY SYSTEM FAILURES represented in this indicator. Incidents in this category include alarm system failures, CCTV failures, security computer failures, search equipment failures, and door hardware failures. These system failures are further categorized as follows:

- 1) Alarm System Failure - Detection system events involving false nuisance alarms and mechanical failures.
- 2) Alarm System Environs - Degradations to detection system performance as a result of environmental conditions (i.e., rain, snow, frost).
- 3) CCTV Failures - Mechanical failures to all CCTV hardware components.
- 4) CCTV Environs - Degradations to CCTV performance as a result of environmental conditions (i.e., rain, snow, frost, fog, sunspots, shade).
- 5) Security Computer Failures - Failure of the multiplexer, central processing unit, and other computer hardware and software. This category does not include software problems caused by operator error in using the software.
- 6) Search Equipment Failures - Failures of x-ray, metal, or explosive detectors and other equipment used to search for contraband. This also includes incidents where the search equipment is found to be defective or did not function properly during testing.
- 7) Door Hardware Failures - Failure of the door alarm and other door hardware such as latches, electric strikes, doorknobs, locks, etc.
- 8) 1991 versus 1992 System Failures - Statistics from 1991 will be compared on a monthly basis with 1992 loggable/reportable system failures. This indicator tracks security performance for SEP #58.

### SPARE PARTS INVENTORY VALUE

The dollar value of the spare parts inventory for FCS during the reporting period.

### SPARE PARTS ISSUED

The dollar value of the spare parts issued for FCS during the reporting period.

### STAFFING LEVEL

The actual staffing level and the authorized staffing level for the Nuclear Operations Division, the Production Engineering Division, and the Nuclear Services Division. This indicator tracks performance for SEP #24.

### STATION NET GENERATION

The net generation (sum) produced by the FCS during the reporting month.

## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

### STOCKOUT RATE

The total number of Pick Tickets that were generated during the reporting month and the total number of Pick Tickets that were generated during the reporting month when the amount of parts requested is equal to or less than the minimum stocking level and parts are not available.

### TEMPORARY MODIFICATIONS

The number of temporary mechanical and electrical configurations to the plant's systems.

- 1) Temporary configurations are defined as electrical jumpers, electrical blocks, mechanical jumpers, or mechanical blocks which are installed in the plant operating systems and are not shown on the latest revision of the P&ID, schematic, connection, wiring, or flow diagrams.
- 2) Jumpers and blocks which are installed for Surveillance Tests, Maintenance Procedures, Calibration Procedures, Special Procedures, or Operating Procedures are not considered as temporary modifications unless the jumper or block remains in place after the test or procedure is complete. Jumpers and blocks installed in test or lab instruments are not considered as temporary modifications.
- 3) Scaffolding is not considered a temporary modification. Jumpers and blocks which are installed and for which MRs have been submitted will be considered as temporary modifications until final resolution of the MR and the jumper or block is removed or is permanently recorded on the drawings. This indicator tracks temporary modifications for SEP #62 & 71.

### THERMAL PERFORMANCE

The ratio of the design gross heat rate (corrected) to the adjusted actual gross heat rate, expressed as a percentage.

### TOTAL HOURS OF STUDENT TRAINING

The total number of student hours of training for Operations, Maintenance, Chemistry/Radiation Protection, Technical Support, General Employee Training, and Other Training conducted for FCS.

### TOTAL INSTRUCTION HOURS

The total number and department breakdown of training instruction hours administered by the Training Center.

### TOTAL SKIN AND CLOTHING CONTAMINATIONS

Reportable skin and clothing contaminations above background levels greater than 5000 dpm/100 cm squared. This indicator trends personnel performance for SEP #15 & 54.

### UNIT CAPABILITY FACTOR

The ratio of the available energy generation over a given time period to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions) over the same time period, expressed as a percentage.

### UNPLANNED AUTOMATIC REACTOR SCRAMS WHILE CRITICAL

This indicator is defined as the number of unplanned automatic scrams (reactor protection system logic actuations) that occur per 7,000 hours of critical operation. The value for this indicator is calculated by multiplying the total number of unplanned automatic reactor scrams in a specific time period by 7,000 hours, then dividing that number by the total number of hours critical in the same time period. The indicator is further defined as follows:

- 1) Unplanned means that the scram was not an anticipated part of a planned test.
- 2) Scram means the automatic shutdown of the reactor by a rapid insertion of negative reactivity (e.g., by control rods, liquid injection system, etc.) that is caused by actuation of the reactor protection system. The scram signal may have resulted from exceeding a setpoint or may have been spurious.
- 3) Automatic means that the initial signal that caused actuation of the reactor protection system logic was provided from one of the sensors monitoring plant parameters and conditions, rather than the manual scram switches or, in manual turbine trip switches (or push-buttons) provided in the main control room.
- 4) Critical means that during the steady-state condition of the reactor prior to the scram, the effective multiplication factor ( $k_{eff}$ ) was essentially equal to one.

### UNPLANNED CAPABILITY LOSS FACTOR

The ratio of the unplanned energy losses during a given period of time, to the reference energy generation (the energy that could be produced if the unit were operated continuously at full power under reference ambient conditions) over the same time period, expressed as a percentage.

### UNPLANNED SAFETY SYSTEM ACTUATIONS - (INPO DEFINITION)

This indicator is defined as the sum of the following safety system actuations:

- 1) The number of unplanned Emergency Core Cooling System (ECCS) actuations that result from reaching an ECCS actuation setpoint or from a spurious/inadvertent ECCS signal.
- 2) The number of unplanned emergency AC power system actuations that result from a loss of power to a safe-

## PERFORMANCE INDICATOR DEFINITIONS (cont'd)

guards bus. An unplanned safety system actuation occurs when an actuation setpoint for a safety system is reached or when a spurious or inadvertent signal is generated (ECCS only), and major equipment in the system is actuated. Unplanned means that the system actuation was not part of a planned test or evolution. The ECCS actuations to be counted are actuations of the high pressure injection system, the low pressure injection system, or the safety injection tanks.

### UNPLANNED SAFETY SYSTEM ACTUATIONS (NRC DEFINITION)

The number of safety system actuations which include (only) the High Pressure Safety Injection System, the Low Pressure Safety Injection System, the Safety Injection Tanks, and the Emergency Diesel Generators. The NRC classification of safety system actuations includes actuations when major equipment is operated and when the logic systems for the above safety systems are challenged.

### VIOLATIONS PER 1,000 INSPECTION HOURS

This indicator is defined as the number of violations cited in NRC inspection reports for FCS per 1,000 NRC inspection hours. The violations are reported in the year that the inspection was actually performed and not based on when the inspection report is received. The hours reported for each inspection report are used as the inspection hours.

### VOLUME OF LOW-LEVEL SOLID RADIOACTIVE WASTE

This indicator is defined as the volume of low-level solid radioactive waste actually shipped for burial. This indicator also shows the volume of low-level radioactive waste which is in temporary storage, the amount of radioactive oil that has been shipped off-site for processing, and the volume of solid dry radioactive waste which has been shipped off-site for processing. Low-level solid radioactive waste consists of dry active waste, sludges, resins, and evaporator bottoms generated as a result of nuclear power plant operation and maintenance. Dry radioactive waste includes contaminated rags, cleaning materials, disposable protective clothing, plastic containers, and any other material to be disposed of at a low-level radioactive waste disposal site, except resin, sludge, or evaporator bottoms. Low-level refers to all radioactive waste that is not spent fuel or a by-product of spent fuel processing. This indicator tracks radiological work performance for SEP #54.

## SAFETY ENHANCEMENT PROGRAM INDEX

The purpose of the Safety Enhancement Program (SEP) Performance Indicators Index is to list performance indicators related to SEP items with parameters that can be trended.

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## POSITIVE TREND REPORT

The Positive Trend Report highlights several Performance Indicators with data representing continued performance above the stated goal and indicators with data representing significant improvement in recent months.

The following indicators have been selected as exhibiting positive trends:

### Document Review

(Page 22)

There were no biennial document reviews overdue for the month of August. In addition, there were 383 document reviews completed during the month.

### Loggable/Reportable Incidents (Security)

(Page 50)

The number of loggable/reportable incidents concerning system failures has decreased from a total of 73 in January 1992 to a total of 16 in August.

End of Positive Trend Report.

## ADVERSE TREND REPORT

A Performance Indicator which has data representing three (3) consecutive months of declining performance constitutes an adverse trend. The Adverse Trend Report explains the conditions under which certain indicators are showing adverse trends. An explanation will be provided for indicators with data representing three months of declining performance that have been labeled as adverse trends.

The following indicators are exhibiting adverse trends for the reporting month:

### Forced Outage Rate

(Page 2)

The forced outage rate has increased for four consecutive months.

### Disabling Injury/Illness Rate

(Page 18)

The manager of the Safety Department has stated that an adverse trend is indicated based on a comparison of this indicator's 1992 values and the five year average values.

### Equipment Forced Outage Rate

(Page 20)

The equipment forced outage rate has increased for four consecutive months.

## ADVERSE TREND REPORT (Continued)

### Corrective Maintenance Backlog Greater Than 3 Months Old (Non-Outage)

(Page 28)

The percentage of open corrective non-outage maintenance work orders that are greater than 3 months old has increased for three consecutive months.

### Component Failure Analysis Report (CFAR) Summary

(Page 40)

The total number of component and application categories has increased for four consecutive months. This trend is due to failures found during the Cycle 14 Refueling Outage. The figures have increased for the last three reporting months because INPO requires approximately 3 months to audit and process these failures.

### Recordable Injury/Illness Cases Frequency Rate

(Page 69)

The manager of the Safety Department has stated that an adverse trend is indicated based on a comparison of this indicator's 1992 values and the five year average values.

End of Adverse Trend Report.

## INDICATORS NEEDING INCREASED MANAGEMENT ATTENTION REPORT

This section lists the indicators which show inadequacies as compared to the OPPD goal and indicators which show inadequacies as compared to the industry upper ten percentile. The indicators will be compared to the industry upper ten percentile as relevant to that indicator.

### Unplanned Automatic Reactor Scrams per 7,000 Hours Critical

(Page 3)

The number of unplanned automatic reactor scrams per 7,000 hours critical year-to-date value for the reporting month (7.08) exceeds the Fort Calhoun 1992 goal of zero (0).

### Maintenance Work Order Breakdown (Corrective Non-Outage)

(Page 27)

The number of total open corrective non-outage MWOs open at the end of the reporting month (376) exceeds the Fort Calhoun goal of a maximum of 350.

## INDICATORS NEEDING INCREASED MANAGEMENT ATTENTION REPORT (Continued)

### Ratio of Preventive to Total Maintenance (Non-Outage) (Page 29)

The ratio of preventive to total maintenance for the reporting month (55.1%) is lower than the Fort Calhoun goal of 65%.

### Secondary System Chemistry (Page 44)

The Chemistry Performance Index (CPI) value for the reporting month (0.561) exceeds the Fort Calhoun goal of 0.45.

### Primary System Chemistry Percent of Hours Out of Limit (Page 45)

The primary system chemistry percent of hours out of limit for the reporting month (2.13%) exceeds the Fort Calhoun goal of a maximum of 2%.

### In-Line Chemistry Instruments Out-of-Service (Page 47)

The number of in-line chemistry instruments out-of-service for the reporting month (23) exceeds the Fort Calhoun goal of a maximum of 6.

### Maximum Individual Radiation Exposure (Page 49)

The maximum individual radiation exposure for the year at the end of the reporting month (1,740 mRem) exceeds the Fort Calhoun goal of 1,500 mRem.

### Total Skin and Clothing Contaminations (Page 50)

The cumulative skin and clothing contaminations at the end of the reporting month (253) exceeds the Fort Calhoun goal of 144.

### Decontaminated Radiation Controlled Area (Page 51)

The percentage of the RCA that is decontaminated for the reporting month (87.2%) is less than the Fort Calhoun goal of 88%.

### Violations per 1,000 Inspection Hours (Page 77)

The number of NRC violations per 1,000 inspection hours value for the reporting month (2.70) exceeds the Fort Calhoun goal of a maximum of 1.5.

End of Management Attention Report.

## PERFORMANCE INDICATOR REPORT IMPROVEMENTS/CHANGES

This section lists significant changes made to the report and to specific indicators within the report since the previous month.

### Unplanned Safety System Actuations - (NRC Definition) (Page 5)

This indicator has been revised to include the July 23, 1992 inadvertent diesel generator start.

### Daily Thermal Output (Page 19)

The scale of the graph for this indicator has to illustrate performance relative to the Fort Calhoun goal of 1495 MW.

### Maintenance Work Order Breakdown (Corrective Non-Outage) (Page 27)

This indicator has been revised to include information formerly presented in the Maintenance Work Order Backlog indicator. The Maintenance Work Order Backlog indicator was deleted from the report.

### Component Failure Analysis Report (CFAR) Summary (Page 40)

This indicator has been revised to identify the figures presented as component categories with significantly higher failure rates than the industry. In past reports these figures were identified as "items with high failure rates".

### Hazardous Waste (Page 48)

The graph has been revised to include a yearly total for hazardous waste.

End of Performance Indicator Report Improvements/  
Changes Report

FORT CALHOUN STATION  
OPERATING CYCLES AND REFUELING OUTAGE DATES

Event	Date Range	Production (MWH)	Cumulative (MWH)
Cycle 1	09/26/73 - 02/01/75	3,299,639	3,299,639
1st Refueling	02/01/75 - 05/09/75	*	*
Cycle 2	05/09/75 - 10/01/76	3,853,322	7,152,961
2nd Refueling	10/01/76 - 12/13/76	*	*
Cycle 3	12/13/76 - 9/30/77	2,805,927	9,958,888
3rd Refueling	09/30/77 - 12/09/77	*	*
Cycle 4	12/09/77 - 10/14/78	3,026,832	12,985,720
4th Refueling	10/14/78 - 12/24/78	*	*
Cycle 5	12/24/78 - 01/18/80	3,882,734	16,868,454
5th Refueling	01/18/80 - 06/11/80	*	*
Cycle 6	06/11/80 - 09/18/81	3,899,714	20,768,168
6th Refueling	09/18/81 - 12/21/81	*	*
Cycle 7	12/21/81 - 12/06/82	3,561,866	24,330,034
7th Refueling	12/06/82 - 04/07/83	*	*
Cycle 8	04/07/83 - 03/03/84	3,406,371	27,736,405
8th Refueling	03/03/84 - 07/12/84	*	*
Cycle 9	07/12/84 - 09/28/85	4,741,488	32,477,893
9th Refueling	09/28/85 - 01/16/86	*	*
Cycle 10	01/16/86 - 03/07/87	4,356,753	36,834,646
10th Refueling	03/07/87 - 06/08/87	*	*
Cycle 11	06/08/87 - 09/27/88	4,936,859	41,771,505
11th Refueling	09/27/88 - 01/31/89	*	*
Cycle 12	01/31/89 - 02/17/90	3,817,954	45,589,459
12th Refueling	02/17/90 - 05/29/90	*	*
Cycle 13	05/29/90 - 02/01/92	5,451,069	51,040,528
13th Refueling	02/01/92 - 05/03/92	*	*
Cycle 14#	05/03/92 - 09/18/93	(Planned Dates)	*
14th Refueling	09/18/93 - 11/13/93	*	*
Cycle 15	11/13/93 - 03/11/95	*	*
15th Refueling	03/11/95 - 05/06/95	*	*

FORT CALHOUN STATION  
CURRENT PRODUCTION AND OPERATIONS "RECORDS"

First Sustained Reaction  
First Electricity Supplied to the System  
Commercial Operation (180,000 KWH)  
Achieved Full Power (100%)  
Longest Run (477 days)  
Highest Monthly Net Generation (364,468,800 KWH)  
Most Productive Fuel Cycle (5,451,069 MWH)(Cycle 13)

August 5, 1973 (5:47 p.m.)  
August 25, 1973  
September 26, 1973  
May 4, 1974  
June 8, 1987-Sept. 27, 1988  
October 1987  
May 29, 1990-Feb. 1, 1992

