

**NIAGARA
MOHAWK**

NINE MILE POINT—UNIT 2/P.O. BOX 63, LYCOMING, NY 13093/TELEPHONE (315) 343-2110

July 10, 1986
(NMP2L 0776)

Mr. R. W. Starostecki, Director
U.S. Nuclear Regulatory Commission
Region I
Division of Reactor Projects
.631-Park Avenue
King of Prussia, PA 19406

Re: Nine Mile Point Unit 2
Docket No. 50-410

Dear Mr. Starostecki:

Per our November 14, 1985 letter, please find attached the schedule information for the Nine Mile Point Unit #2 Readiness for Fuel Load program. This information represents the status as of July 1, 1986.

If you have questions, please contact Mr. Matlock or Mr. Ray on (315) 349-7446 or 4566, respectively.

Very truly yours,

C. V. Mangano
C. V. Mangano
Senior Vice President

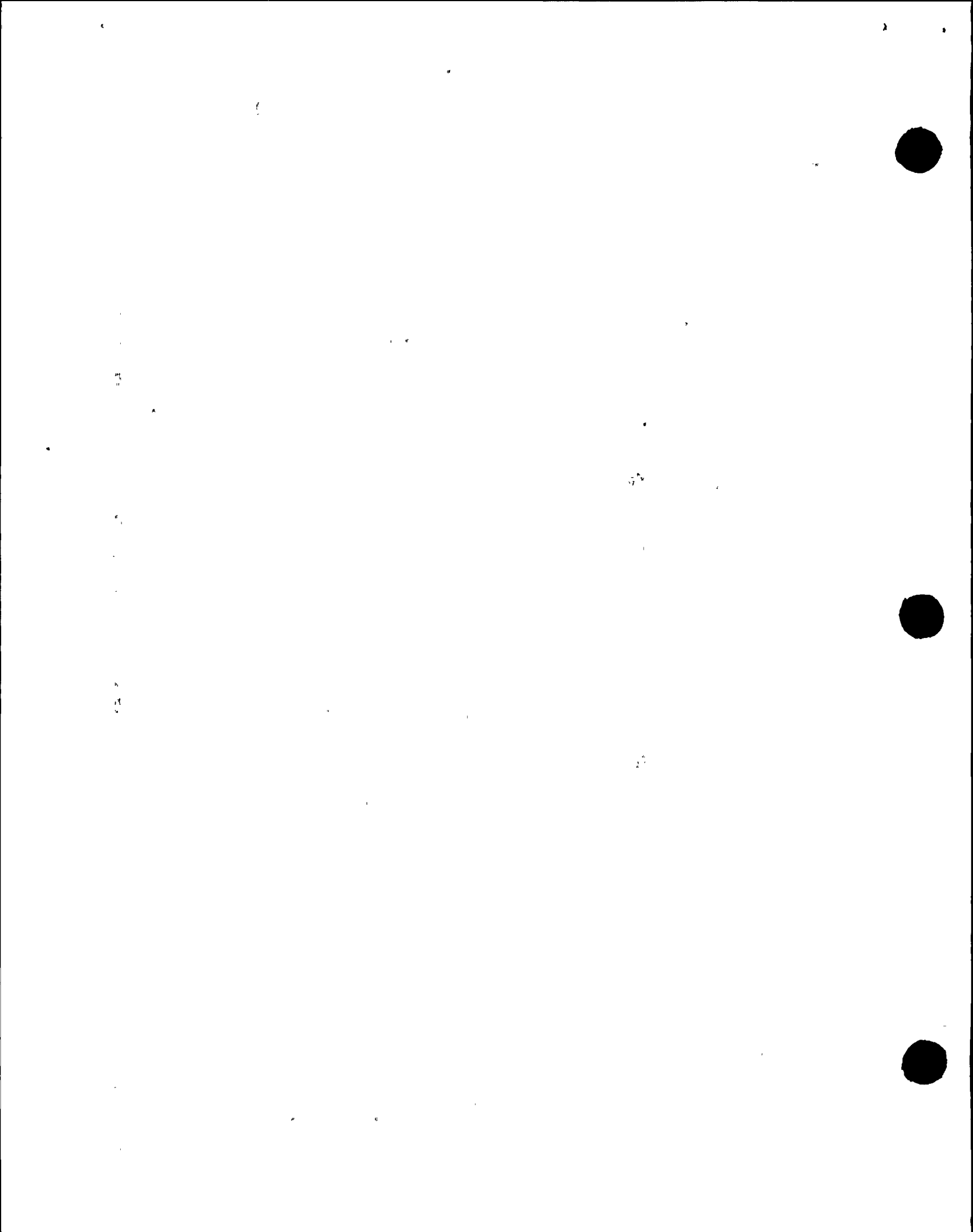
GG/d1
(0492M)

xc: Director of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

W. A. Cook, NRC Senior Resident Inspector

(0492M)

~~8608110409~~ 59 pp.



FACILITY READINESS FOR FUEL LOAD

YEAR MONTH MONDAY	1985												1986																														
	NOV				DEC				JAN				FEB				MAR				APR				MAY				JUN				JUL				AUG						
	4	11	18	25	2	9	16	23	30	6	13	20	27	3	10	17	24	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25

1. Operations, Maintenance and Surveillance

1.1 Staff Training

- a. Licensed Operator 85-02 CLASS EXAM BEGINS 12/10 → 7/21/86 86-01 CLASS EXAM → ON GOING
- b. Licensed Operator Requalification → ON GOING
- c. Non-Licensed Training → ON GOING

1.2 Procedures

- a. Surveillance Test Procedures → 7/18
- b. Maintenance Procedures → 7/31
- c. Administrative Procedures 4/15 COMPLETE
- d. System Operating Procedures → 8/30 COMPLETE
- e. Emergency and Abnormal Operation Procedures... → 5/30 COMPLETE

1.3 Implementation of Surveillance Testing.....

2/15 → 6/30

2. Fire Protection

- 2.1 Procedures → 7/15
- 2.2 Training COMPLETE ▽
- 2.3 Equipment → 7/31

3. Radiological Controls/Chemistry

- 3.1 Procedures → 7/18
- 3.2 Exposure Control Program → 3/31 COMPLETE
- 3.3 Radioactive Waste Program 4/4 COMPLETE
- 3.4 ALARA Program → 7/18

4. Security and Safeguards

- 4.1 New Fuel Security Plan ▽ 11/15
- 4.2 Program and Procedures for Site Security... → 5/12
- 4.3 Establishment and Implementation of the Site Security Program 1/1 → ON GOING

5. Quality Assurance

- 5.1 OA Plan and Procedures ▽ 12/1
- 5.2 Implementation of the Operational OA Program... 12/1 → ON GOING
- 5.3 OA Training and Staffing ▽ 12/1

6. Preoperational Testing

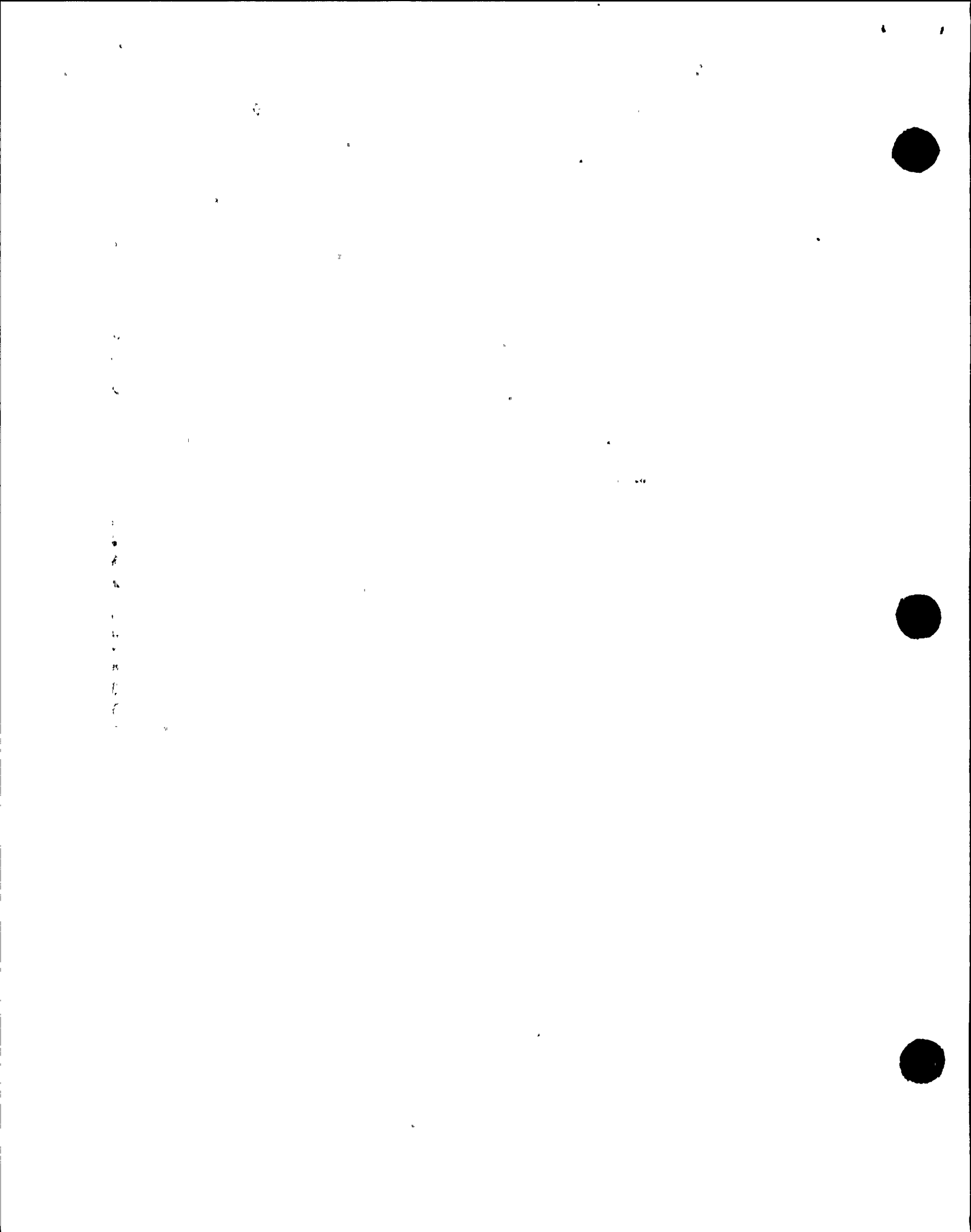
- 6.1 Procedures 12/31
- 6.2 Category 1 System Tests → 5/30 COMPLETE
- 6.3 Milestones
 - a. CILRT → COMPLETE
 - b. Loss of Offsite Power Test → 5/7 COMPLETE (FIELD)
 - c. Fuel Receipt (Readiness for Fuel Receipt)..... ▽ 11/30

7. Emergency Preparedness

- 7.1 Hardware → 5/30 COMPLETE
- 7.2 Procedures → 7/18
- 7.3 Training → COMPLETE
- 7.4 Ready for Appraisal → 5/30 COMPLETE

LEGEND

▽ POINT IN TIME (▽) OR PERIOD OF TIME (▽-▽)
ACTIVITY WILL BE AVAILABLE FOR AUDIT.



FACILITY READINESS FOR FUEL LOAD

Brief Status of Activities:

1.0 OPERATIONS, MAINTENANCE AND SURVEILLANCE

1.1 Staff Training

- a. Licensed Operators - Nine Mile #2 currently has a total of eighteen (18) SRO, and twenty-one (21) RO licensed personnel.

The present Cold License Class 86-01 began instruction on February 10, 1986 with the NRC examination tentatively scheduled for the week of July 21, 1986. This class enrollment presently consists of six (6) SRO and three (3) RO candidates. This class also consists of one (1) SRO re-exam, one (1) SRO written re-exam, (1) SRO oral and simulator re-exam and, two (2) RO Oral and simulator re-exam candidates.

- b. Licensed Operator Requalification - The Licensed Operator Requalification Program will provide a licensed operator with a review of knowledge areas, introduces new job related information and provides practice of seldom used skills by the integration of simulator instruction and classroom lectures. This program will be on-going and will be based on a two (2) year cycle with Operators attending one of every five (5) weeks. The program which meets the requirements of NTP-11, Licensed Operator Retraining, commenced January 27, 1986. All RO and SRO License holders at NMP2 have satisfactorily completed the annual written examination and simulator requirements.

- c. Non-Licensed Training - The Non-Licensed Operator Training Program provides instruction in accordance with NTP-12, Unlicensed Operator Training, presenting theory and design of the NMP-2 plant to unlicensed plant equipment operators. The course is designed as a preparatory course of study for a licensing program. The students attend one (1) week out of every five (5) on a two (2) year cycle. Fifty three (53) Operators are presently enrolled in this program.

Maintenance and Technician Training Programs are designed to provide the knowledge and skills necessary for job incumbents to progress from entry level to journeymen level positions in accordance with ANSI/ANS 3.1 - 1978. "Selection, Qualification and Training for Nuclear Power Plants," and to maintain this level of proficiency. This is an ongoing program which is presently in process.

1.2 Procedures

NOTE: Final approval and release of selected procedures is based on the collection of data obtained from the Pre-Operational Test Program. As testing concludes, revisions will be made to incorporate the required information.

100

100



- a. Surveillance Test Procedures - Four hundred and sixty-six (466) Surveillance Test Procedures have been identified to support the surveillance test program. Of those, two hundred sixteen (216) have been verified to be required for operation in plant operational conditions 4 and 5. Of those, two hundred fifteen (215) have been drafted of which one hundred eighty-nine (189) have been approved (143 interim, 46 final). One (1) procedure remains to be drafted and all Mode 4 & 5 Procedures will be performed and approved in accordance with AP 2.0 by Fuel Load.

NOTE: This procedure development activity is available for NRC inspection.

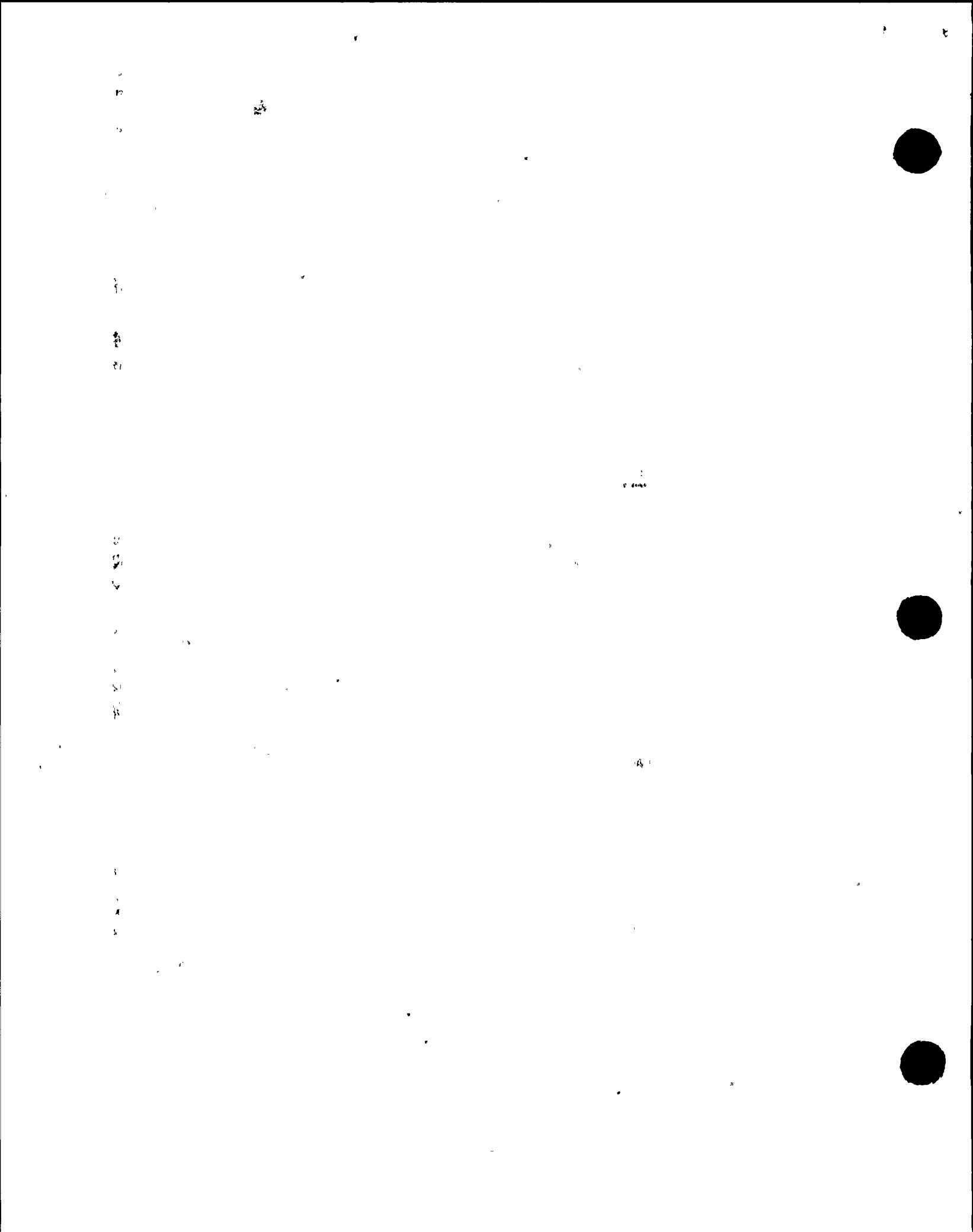
- b. Maintenance Procedures - There are one hundred eighty (180) Mechanical Maintenance Procedures identified, all of which are approved. These procedures are broken down as follows; one hundred twenty-two (122) are safety-related and fifty-eight (58) are nonsafety-related.

One Hundred thirty-three (133) Electrical Maintenance Procedures have been identified and approved. These procedures are broken down as follows; eighty-five (85) are safety-related and the balance of forty-eight (48) are nonsafety-related.

Forty-seven (47) Instrument Maintenance Procedures, Instrument Calibration Procedures, and Instrument Procedures have presently been identified, of those, seventeen (17) are in the review cycle, twenty-eight (28) are approved and two (2) are in draft. Expected completion date for final approval and release of those Instrument Maintenance Procedures required before Fuel Load is July 31, 1986.

NOTE: This procedure development activity is available for NRC inspection, we are now about 94% complete with all Maintenance Procedures.

- c. Administrative Procedures - Nuclear Generation Administrative Procedures have been approved and released.
- d. System Operating Procedures - Presently one hundred ten (110) System Operating Procedures have been identified and initially drafted as Interim Operating Procedures (IOPs). Of these, fifty-five (55) have been identified as required for Fuel Load. These required Procedures are incorporating information from Preoperational Testing, and final issuance is awaiting operational acceptance of the system. Fifty-four (54) procedures have been signed as operating procedures and one (1) is ready for final signature.
- e. Emergency and Abnormal Operation Procedures - Presently all twenty-two (22) Emergency Operating Procedures have been approved.



1.3 Implementation of Surveillance Testing

Installation and debugging of the computer Surveillance Tracking and Scheduling System has been completed. The program data base will be updated to include changes from the draft 5 copy of Plant Technical Specifications. Initial proofing of the Interim Surveillance Procedures has been initiated.

2.0 FIRE PROTECTION

2.1 Procedures

The Fire Protection Procedures will be final approved and released by July 15, 1986.

NOTE: Procedures will be subject to revision to reflect as installed equipment configurations.

2.2 Training

The training of the Nuclear Fire Chief and Fire Protection staff is complete at this time, however it should be noted that this is a continuing training program with continuous requalification of personnel.

2.3 Equipment

Completion of construction and testing activities related to Fire Protection equipment are scheduled for completion by Fuel Load.

3.0 RADIOLOGICAL CONTROLS/CHEMISTRY

3.1 Procedures

The procedures associated with the Radiological Controls and Chemistry programs in support of Fuel Load will be approved and released by July 18, 1986.

3.2 Exposure Control Program

Nine (9) Procedures have been identified as needed for Fuel Load which relate to the Exposure Control Program, all of which are approved.

3.3 Radioactive Waste Program

The Radwaste Training Program (knowledge requirement) for Radwaste Operators is complete. The training program included steam and mechanical fundamentals, and overview of the LWS and WSS Initial Operating Procedures. The program also included training in Waste Handling Procedures that are inclusive of; process controls for the asphalt system, DA Waste, dewatering procedures mobil solidification, cask and liner closure, placarding and labeling containers and departmental interfaces in Radioactive Waste Management.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

22

10
11

12



All fifteen (15) Wastehandling Procedures identified are approved. The Operating Procedures for both the Asphalt Solidification and Liquid Waste are approved. All procedure development activities are now complete. The Process Control Program has been submitted to the NRC for review. Verbal approval was received during the week ending January 17, 1986, with minor questions, answers and commitments to these questions being forwarded to the NRC.

An NRC approved vendor for mobil solidification has been selected. The equipment has been set in place and pre-op of the system, inclusive of solidification, is complete.

3.4 ALARA Program

Seven (7) procedures have been identified, six (6) are approved with one (1) remaining and expected to be final approved and released by July 18, 1986.

4.0 SECURITY AND SAFEGUARDS

4.1 New Fuel Security Plan

All aspects of the New Fuel Security Plan have been implemented in support of the first shipment of nuclear fuel received on site December 5, 1985.

4.2 Procedures for the maintenance and preventive maintenance of the hardware associated with the Operating License Security System were started November 15, 1985. Procedures have been reviewed and rewritten and are awaiting program implementation which will commence with Fuel Load activities.

Acceptance testing of system components, with the exception of automatic CCTV assessments, is complete. The NRC's confirmatory visit of the Unit #2 Security System was held May 12-16, 1986.

4.3 Establishment and Implementation of the Site Security Program for the Operating License

Administrative implementation of the Site Security Program has begun. Full implementation awaits the issuance of a low power license or NRC directive.

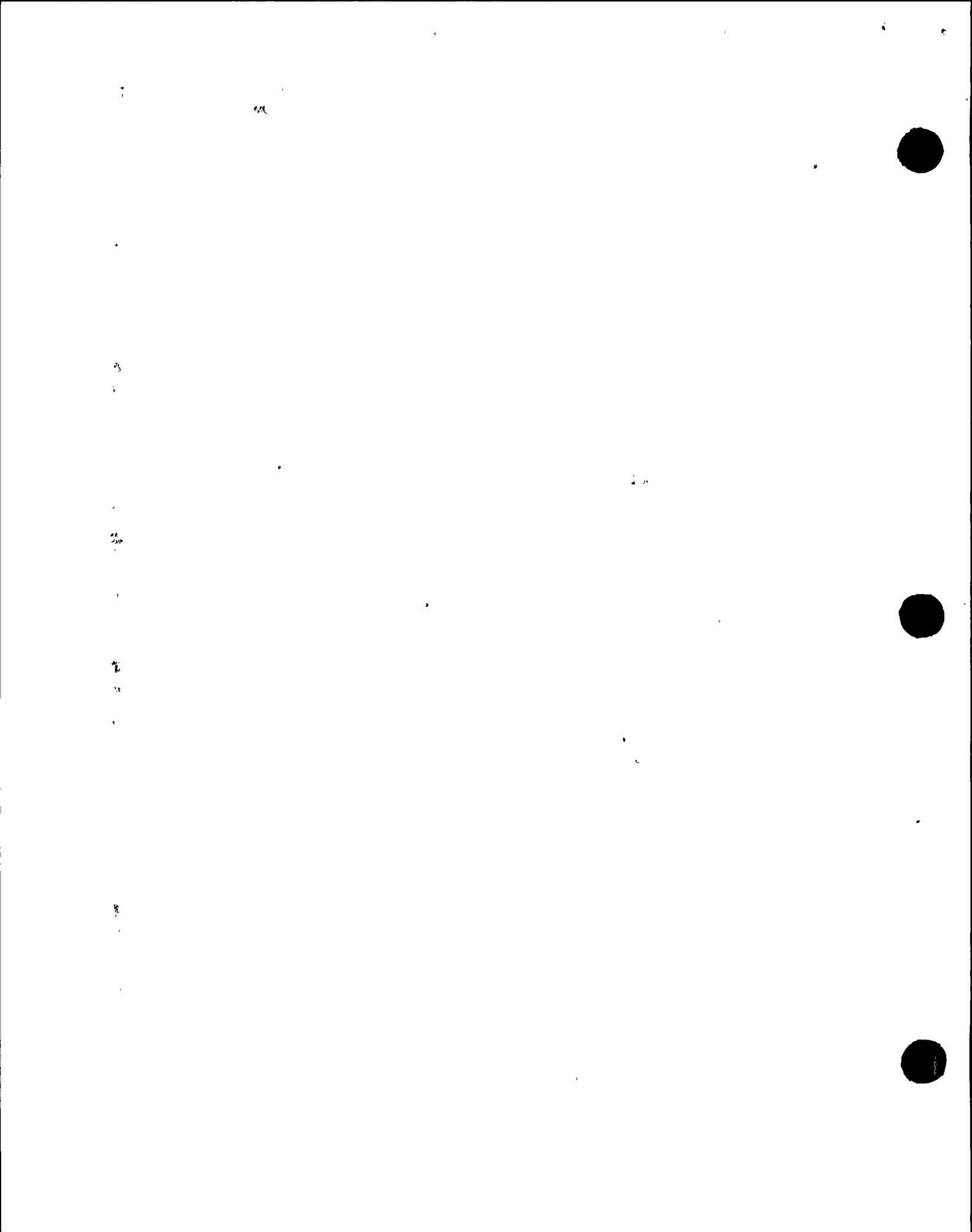
5.0 QUALITY ASSURANCE

5.1 QA Plan and Procedures

Quality Assurance Procedures were approved and released December 1, 1985.

5.2 Implementation of the Operational QA Program

The Inspection, Surveillance and Audit programs were started with the issuance of the associated implementing procedures on December 1, 1985.



5.3 QA Training and Staffing

Training matrices were developed and issued in October of 1985. The Training Program was implemented, positions staffed and Inspectors were certified by December 1, 1985.

6.0 PREOPERATIONAL TESTING

6.1 Procedures

All preoperational test procedures have been drafted and put into the review and approval cycle. Detailed status information such as the total number of procedures required, those drafted, approved and released for testing are contained in reports provided to the site NRC Resident Inspector every two weeks.

6.2 Category I System Tests

All Category I System tests required to support Loss of Power/ECCS test are complete.

6.3 Milestones

- a. CILRT - The critical path to the Structural Integrity Test (SIT) and Integrated Leak Rate Test (ILRT) have been completed.
- b. Loss of Offsite Power Test - This test is field complete.

7.0 EMERGENCY PREPAREDNESS

7.1 Hardware

The construction of hardware associated with the Technical Support Center (TSC), Control Room, Emergency Operations Facility (EOF), communication links, accountability card readers and data acquisition systems is now complete. The testing and calibration of the hardware has been incorporated into the integrated plant schedule to support Fuel Load.

7.2 Procedures

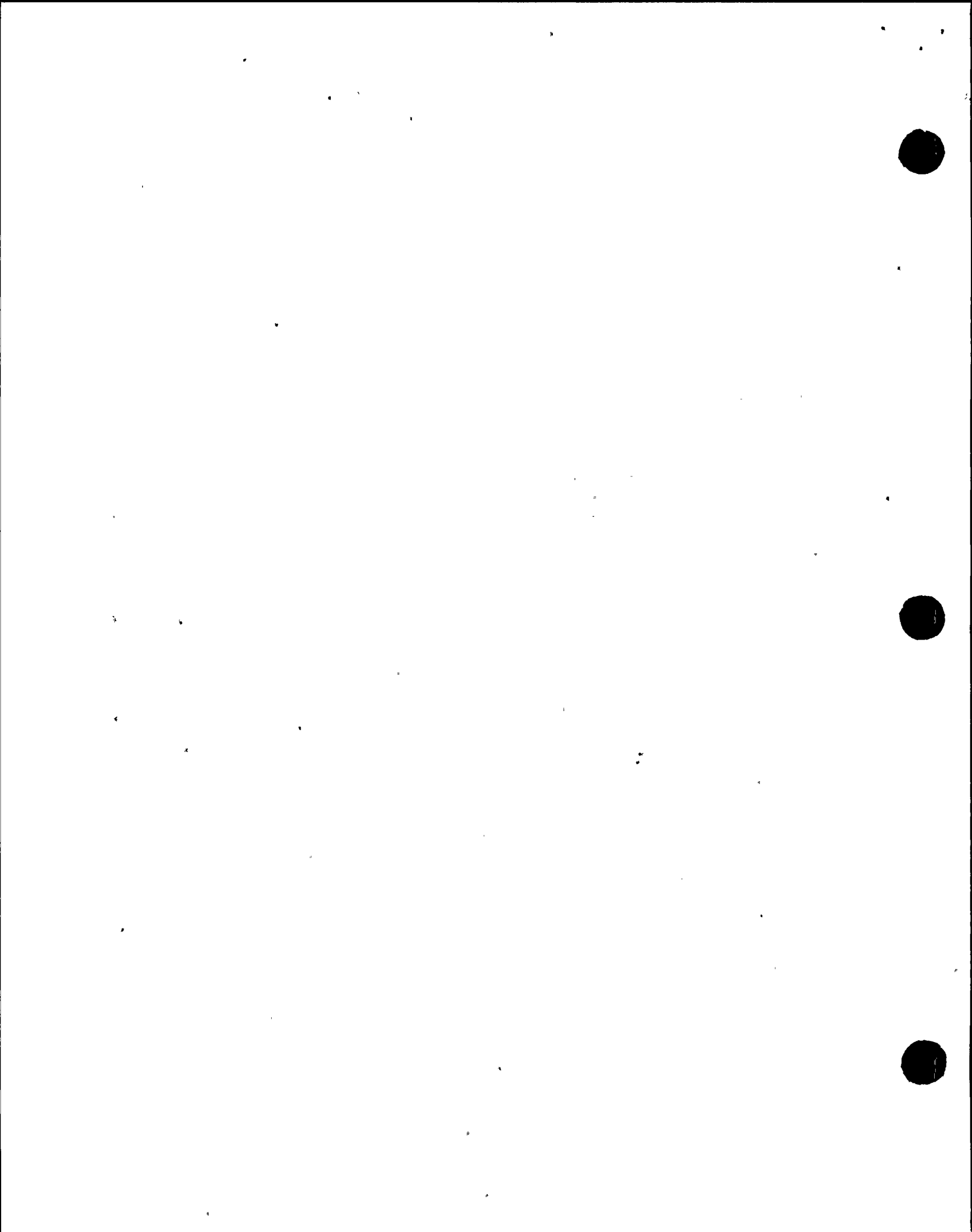
EPIA open items will be resolved by July 18, 1986.

7.3 Training

Personnel involved in emergency activities will be trained on hardware associated with data acquisition systems as construction and testing activities are concluded.

7.4 Readiness for Emergency Preparedness Appraisal

The Emergency Preparedness Appraisal has been completed.



SENIOR VICE PRESIDENT
C. V. MANGAN

MGR. STAFF SERVICES
R. L. NASS

EXEC. SECRETARY
C. F. AUSTIN

**ASST. TO EX.
DIRECTOR
NUCLEAR OPERATIONS**
C. L. STUART

**MANAGER-NUCLEAR
ENGRG. & LICENSING**
C. D. TERRY

**MANAGER
NMP2 LICENSING**
A. F. ZALLNICK

**DIRECTOR
NUCLEAR INFO.
SERVICES**
R. B. BURTCH

**VICE PRESIDENT
NUCLEAR GENERATION**
T. E. LEMPGES



x

MANAGER NUCLEAR ENGINEERING & LICENSING
C. D. TERRY

NUCLEAR ENGINEER
(SR.) W. R. D'ANGELO

ASST. TO VICE PRESIDENT-
NUCLEAR ENGRG. & LICENSING
W. P. NOWICKI

LEAD ADMIN. TECHNICIAN
(ASSOC. SR.) E. S. LAZARZ

MANAGER
NUCLEAR COMPLIANCE
AND VERIFICATION
J. J. BEBKO

MANAGER
NUCLEAR
ENGINEERING
(OPEN)

MANAGER
NUCLEAR
TECHNOLOGY
S. W. WILCZEK, JR.

MANAGER
NUCLEAR
STAFF
SERVICES
A. P. BALENO



MANAGER NUCLEAR ENGINEERING & LICENSING +



MANAGER-NUCLEAR TECHNOLOGY +
S. W. WILCZEK PE

MANAGER
FUELS AND PLANT
PRODUCTIVITY +
D.K. GREENE PE

NINE MILE POINT UNIT 1
LICENSING
LEAD ENGINEER
(ASSOC.SR.) P.E. FRANCISCO

LEAD HEALTH PHYSICIST +
N. SPAGNOLETTI

MANAGER
CONSULTING +
R.J. PASTERNAK

+ ASSIGNED TO BOTH NINE MILE POINT UNITS 1 AND 2



MANAGER NUCLEAR ENGINEERING & LICENSING

MANAGER
NUCLEAR COMPLIANCE
AND VERIFICATION
J. J. BEBKO

COMPLIANCE & VERIFICATION
TECHNICIAN +
(ASSOC. SR.) M. T. BOYLE

LEAD
COMPLIANCE & VERIFICATION
TECHNICIAN +
(ASSOC. SR.) M. BRAUSE

LEAD
COMPLIANCE & VERIFICATION
ENGINEER +
(ASSOC. SR.) L. M. MCNEER

+ ASSIGNED TO BOTH NINE MILE POINT UNITS 1 AND 2

N NIAGARA
M MOHAWK



MANAGER NUCLEAR ENGINEERING & LICENSING +

MANAGER NUCLEAR STAFF SERVICES +
A. P. BALENO PE

DIRECTOR NUCLEAR
HUMAN RESOURCES +
L. L. CLARK

LEAD ADMIN.
TECHNICIAN
D. L. MAXWELL

SUPV. RECORDS MGT.-NMP#1
C. W. JOYNER

LEAD STAFF ENGR.
TECH. SERVICES
R. W. COFFEY

MGR.-ADMIN. SERVICES
K. M. MILES

+ ASSIGNED TO BOTH NINE MILE POINT UNITS 1 AND 2



NINE MILE POINT
NUCLEAR GENERATION SITE ORGANIZATION

GENERAL SUPT.

T. PERKINS

NMP1
STA. SUPT.

T. ROMAN

SITE
CHEM/RAD SUPT.

E. LEACH

SITE
MAINT. SUPT.

K. DAHLBERG

NMP2
STA. SUPT.

R. ABBOTT

SITE
TECH. SUPT.

W. DREWS (SRO)

SITE
TRG. SUPT.

R. ZOLLITSCH (SRO)



TRAINING

GENERAL EMPLOYEE

- ADMINISTRATIVE PROCEDURES
- NUCLEAR SECURITY ORIENTATION
- QUALITY ASSURANCE TRAINING
- SITE EMERGENCY PLAN
- INDUSTRIAL SAFETY
- FIRE PROTECTION
- RADIATION PROTECTION
- RESPIRATORY PROTECTION

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100



TRAINING

LICENSED OPERATOR

- TECHNICAL TRAINING (CLASSROOM)
 - REACTOR OPERATION/THEORY
 - PLANT OPERATING CHARACTERISTICS
 - PLANT SYSTEMS
 - OPERATING PROCEDURES
 - ADMINISTRATIVE PROCEDURES
 - EMERGENCY PLAN
 - TECHNICAL SPECIFICATIONS
 - PLANT TRANSIENTS
 - USE OF INSTALLED PLANT SYSTEMS TO CONTROL OR MITIGATE AN ACCIDENT
 - HEAT TRANSFER, FLUID FLOW, THERMODYNAMICS
- ON-SHIFT TRAINING
 - 3 MONTHS ON SHIFT PARTICIPATION
 - TRAINING MANUAL OF MINIMUM EVOLUTIONS WHICH INCLUDES AS A MINIMUM ITEM REFERRED TO IN 10CFR55.23
- SIMULATOR
 - ALL LICENSE APPLICANTS ATTEND AS OUTLINED IN ENCLOSURE 1 OF H.R. DENTON LETTER 3/28/80 (NUREG 0737)
 - SIMULATOR EXAMINATIONS ADMINISTERED ON PLANT REFERENCE SIMULATOR
- TESTS AND AUDITS



TRAINING

NONLICENSED OPERATOR

◦ CLASSROOM

- NUCLEAR POWER PLANT FUNDAMENTAL (2 WEEKS)
- MATHEMATICS (2 WEEKS)
- PHYSICAL SCIENCE (2 WEEKS)
- SYSTEMS TRAINING (4 WEEKS))

◦ ON-JOB TRAINING

- PARTICIPATION IN SHIFT OPERATIONS
- DURATION UNTIL MEET EXPERIENCE ELIGIBILITY REQT. OF 10CFR55 TO BECOME LICENSED OPERATOR
- TRAINING MANUAL INDICATING REQUIRED EVOLUTIONS, READING AND ASSIGNMENTS



TRAINING

- NONLICENSED STAFF TRAINING TO SUPPORT NINE MILE POINT
- NONLICENSED OPERATOR TRAINING ENSURES ELIGIBILITY TO BECOME LICENSED OPERATOR
- LICENSED OPERATOR TRAINING PROGRAM STRESSES NECESSARY KNOWLEDGE AND SKILLS
- PLANT REFERENCE SIMULATOR AVAILABLE FOR COLD LICENSE TRAINING
- EXPERIENCED TRAINING PERSONNEL INCLUDING SRO AND PROFESSIONAL TRAINING CERTIFICATION



2

3

4

5

6

7

8



TRAINING

CHEMISTRY/RADIOCHEMISTRY TECHNICIAN

◦ TECHNICIAN A

- MATH
- PHYSICS
- MECHANICAL/ELECTRICAL FUNDAMENTALS
- CHEMISTRY
- ANALYTICAL LABORATORY
- RADIOCHEMISTRY
- COUNTING ROOM LAB
- BWR TECHNOLOGY

◦ TECHNICIAN B

- ATOMIC ABSORPTION SPECTROSCOPY
- GAS CHROMATOGRAPHY
- RADIOACTIVE WASTE SOLIDIFICATION/PROCESSING
- SURVEILLANCE TESTING
- WATER QUALITY/MANAGEMENT
- EFFLUENT MONITORING



TRAINING

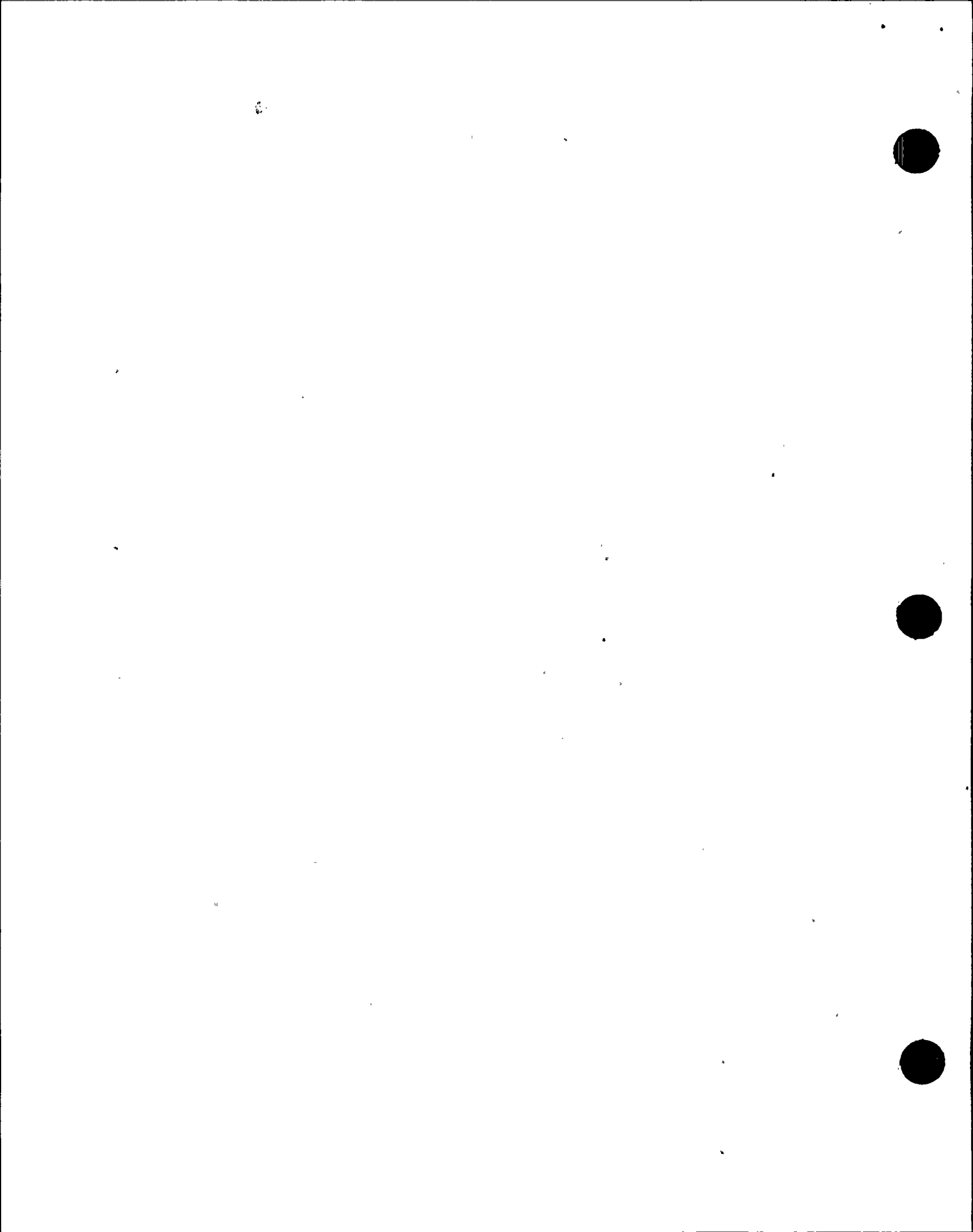
SIMULATOR

- MEET ANS/ANSI 3.5 (1981) AND REGULATORY GUIDE 1.149
- FEATURES
 - FREEZE
 - 20 INITIAL CONDITIONS
 - FAST TIME/SLOW TIME
 - SNAP SHOT
 - BACK TRACK
- UPDATING
 - ONCE PER YEAR
 - 18 MONTHS AFTER COMMERCIAL
- AVAILABLE FOR FIRST COLD LICENSE CLASS



NAME	PREVIOUS LICENSE(S)	CURRENT LICENSE	EXPERIENCE YEARS			DEGREE
			TOTAL POWER PLANT	TOTAL NUCLEAR	BWR COMMERCIAL	
R. B. ABBOTT STATION SUPERINTENDENT	SRO NMP1	-	14	14	14	BSME
M. JONES SUPT. OPS.	RO NMP1 SRO NMP1	SRO NMP2	14	14	14	BS
R. GAYNE ASST. SUPT. OPS.	RO NMP1 RO JAF SRO JAF	SRO NMP1	17	17	17	-
*W. WAMBSGAN ASST. SUPT. OPS.	RO NMP1 RO JAF SRO JAF	SRO NMP1	17	17	17	-
J. MANCUSO ASST. TO SUPT. OPS.	RO NMP1	SRO NMP2	9	9	9	BS
O. HENDERSON SUPV. RADWASTE	-	-	8	8	5	BS

*PRESENTLY IN LICENSE CLASS 86-01 FOR NMP2



NAME	PREVIOUS LICENSE(S)	CURRENT LICENSE	TOTAL POWER PLANT	EXPERIENCE YEARS		DEGREE
				TOTAL NUCLEAR	BWR COMMERCIAL	
M. BULLIS ASST. SUPV. RADWASTE	-	-	4	4	4	AS
A. ANDERSON	RO JAF SRO JAF SRO JAF	SRO NMP2	15	15	11	AAS
M. COLOMB	RO JAF SRO NMP1	SRO NMP2	16.0	14.5	14.5	AAS/BTME
**W. DAVEY	RO NMP1 RO JAF SRO NMP1	SRO NMP2	16.5	16.5	12	AAS
A. DEGRACIA	RO NMP1	SRO NMP2	10	10	10	AAS/BA/ BTME
*J. KIBBE	RO JAF RO NMP1	SRO NMP1	17	17	17	BTME

*PRESENTLY IN LICENSE CLASS 86-01 FOR NMP2

**EXPECT BTME IN FALL 1986

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

101

102



assessments, and several special assessments initiated by NMPC, support Niagara Mohawk's high degree of confidence that NMP-2 has been constructed in accordance with specified requirements and will perform its intended functions safely. As to the future, NMPC has recently received NRC acceptance of the Quality Assurance Program Topical Report for Nine Mile Point Nuclear Station (QATR-1 Revision 1), which commits to the most up-to-date nuclear industry standards, ANSI/ASME NQA-1 and NQA-2 and ANS-3.2. This program will govern the quality assurance activities during the operation phase of the NMP-2 and will provide ongoing confidence in the quality of the plant.

2.0 NRC ACTIVITIES

Beginning early in construction, Nuclear Regulatory Commission (NRC) provided Reactor Inspectors to oversee Quality Assurance Program implementation at NMP-2. Resident inspectors augmented by inspectors from the Regional office performed a series of independent inspections during the construction and testing phases and issued IE Inspection Reports. These reports not only identified infractions, deviations, violations and program weaknesses, but areas of program strength as well. The following paragraphs illustrate the extent of this activity, highlight results and discuss significant aspects of some of the major Inspections/ Appraisals performed.

The data tabulated below reflects the substantial attention given by the NRC to the construction and testing activities at the Nine Mile Point Unit 2 Station and the impact of such attention on the quality of the facility.

NRC INSPECTION ACTIVITY/NOTIFICATIONS

<u>YEAR</u>	<u>REPORTS</u>	<u>INFRAC-</u> <u>TION</u>	<u>DEVIA-</u> <u>TION</u>	<u>VIOLA-</u> <u>TION</u>	<u>PROGRAM</u> <u>WEAKNESS</u>	<u>PROGRAM</u> <u>STRENGTH</u>
1973	2					
1974	1					
1975	4					
1976	7	5	1			
1977	12	3	1			
1978	9					
1979	9	2				
1980	11	2				
1981	14			7		
1982	16			17		
1983	19			16*		
1984	20			24	2	2
1985	<u>34</u>	—	—	<u>6</u>	—	—
TOTALS	158	12	2	70	2	2

47

100

100

100

100

100

100

100

100

100

11

11



prescribing specific corrective actions to be taken by NMPC. NMPC acknowledged the need for comprehensive actions, but also noted to the NRC that a review of management capabilities had already been initiated by NMPC prior to the CAT Inspection. The actions required of NMPC were implemented, resulting in a marked improvement in management control and greater management confidence that the discrepancies noted had not adversely affected the quality of NMP-2.

- Nondestructive Examination (NDE) Van Team 50-410/84-08

The purpose of this examination was to verify the adequacy of NMPC's welding quality control program. This was accomplished by duplicating a selected sample of NDE already performed by the licensee, and by performing additional confirmatory examinations and evaluating the results. In addition to the required examinations, several other confirmatory examinations were performed and compared to quality assurance records. These inspections were performed during the period April 30 through May 25, 1984, by a five-man team of inspection specialists. One Severity Level IV and two Severity Level V violations were reported that required NMPC follow-up action. Of the 280 hardware items inspected, three required field correction.

- Construction Team Inspection (CTI) 50-410/84-18

This inspection, which included management, quality assurance, mechanical, electrical, instrumentation, design control, welding and portions of the corrective actions program was conducted by a nine-man team during the period of December 3-14, 1984. There were two Severity Level IV violations identified. The NRC also issued two notifications of program weakness, as well as two notifications of program strength. The team consensus was that the quality of construction is generally good. The team noted particularly the marked improvement made by the project in the 12 months since the last CAT inspection. In the 297 hardware items inspected, 20 deficiencies requiring field correction were identified.

- Systematic Appraisal of Licensee Performance (SALP) 50/410/SALP

This appraisal covered activities during the 16 month period from October 1983 to January 1985, classified in ten major categories. Compared to the previous SALP, performance ratings improved in three categories; (a) piping systems and supports, (b) mechanical safety related components, and (c) program management and

207

1000

1000

1000

1000

1000

1000

1000



- Instrumentation and Controls
- Mechanical Equipment
- Structural Design
- Equipment Qualification
- Power Systems
- Containment Fracture Toughness
- Control Room Design
- Technical Specifications
- Safety Parameter Display System
- Seismic Qualification
- Pump and Valve Operability

3.0 INDEPENDENT ASSESSMENTS

At appropriate intervals, NMPC has initiated various internal and external assessments of the Quality Assurance Program by independent teams of NMPC and/or consultant personnel. These assessments are designed to provide senior NMPC management with an objective evaluation of the overall effectiveness of the Program and areas of possible enhancement. A summary of the major independent assessments follows.

3.1 Combined Utility Assessment Team (CUAT)

The Combined Utility Assessment group is a voluntary organization, composed of six member utilities, whose purpose is to provide unbiased assessments of the individual utilities Quality Assurance Program and has been active since 1980. This group regularly reviews NMPC activities. These reviews, conducted by senior supervisory Quality Assurance personnel, ordinarily result in recommendations whose implementation could enhance the effectiveness of the Quality Assurance Program. Recommendations were entered into a tracking system to assure that appropriate investigation, analysis and action as needed would be accomplished. Four CUAT assessments have resulted in a total of 87 recommendations. Action on 75 of the 87 recommendations has been completed to date. The remaining 12 are being followed to completion.

3.2 Institute of Nuclear Power Operations (INPO)

The Institute of Nuclear Power Operations (INPO) is a nuclear industry sponsored national organization which conducts independent assessments of nuclear utilities management and quality assurance programs. To date, two INPO evaluations have been completed, which are identified below. These evaluations covered control of design, construction and overall project management, and resulted in 117 recommendations for improvement. To date, 116 of these recommendations have been closed and appropriate improvements have been incorporated into the program. Action on the one remaining item is being tracked.

35

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1478

1

2

3



4.0 INTERNAL ASSESSMENTS

4.1 QA Program Assessment

During the fall of 1984, the NMPC QA department conducted a QA Program assessment of Stone & Webster Engineering Corp. (SWEC), ITT Grinnell (ITT), Reactor Controls, Inc. (RCI) and Johnson Controls, Inc. (JCI) to determine the degree of implementation and effectiveness of their respective QA programs at NMP-2. As a result of these program assessments of site contractors, 17 Corrective Action Requests (CARs) were issued and 71 specific recommendations were made to strengthen the QA Program. NMPC followed up on these items and verified their implementation.

4.2 Hardware Reassessment Program

In July, 1984 a program to reassess previously installed and accepted hardware was undertaken by NMPC QA in response to concerns which developed as a result of CAT, NRC identified violations, NRC Resident Inspector's concerns and NMPC site surveillance, audit and assessment activities. A total of 15 hardware commodities were selected covering the range of construction disciplines: piping, mechanical, HVAC, instrumentation, electrical and civil/structural. A sample of each commodity was reassessed against detailed checklists. The results were documented in accordance with the NMPC Surveillance Program. More than 3,100 hardware items were reinspected by NMPC, SWEC and contractor personnel to verify conformance to the latest design requirements. In addition, over 8,000 square feet of concrete and nuclear coating surfaces were reinspected. The results of these reinspections were evaluated by Engineering and QA. NMPC QA directed that additional reinspections be made by involved contractors on selected commodities. Four (4) commodities, (pipe hangers/supports, instrument tubing supports, HVAC hangers/supports and electrical equipment) required additional inspection while the remaining eleven (11) were observed to have only isolated deficiencies not requiring additional action. An interim presentation of the results was made to the NRC at Region I in December, 1984. The final results of the reassessment effort and associated engineering analysis of nonconforming conditions were presented in a meeting with the NRC on July 23, 1985. As documented in NRC Inspection Report No. 50-410/85-26, it was found that NMPC actions were comprehensive in nature and adequately demonstrate the acceptability of previously-installed hardware commodities.

4.3 Quality Performance Management Program (QPMP)

NRC Letter #83-137, Docket #50-410 required NMPC to establish a program to monitor quality indicators. The QPMP was implemented in August 1984. The QPMP committed the project to trend QC acceptance of construction commodities, trend status

12



13



14



4.5 Independent Design Review (IDR)

Following review by NRC of the ongoing NMPC/SWEC Engineering Assurance/Quality Assurance (EA/QA) Audit program, the NRC conducted an overview of this activity in lieu of their regular Independent Design Inspection. The overall program was conducted in two phases. Phase I involved the assessment of the adequacy and implementation of the design process by evaluating the design and the as-built condition of the Reactor Core Isolation Cooling System (RCICS) associated structures and interfaces. Phase II consisted of an overall evaluation of the combined results of Site Engineering Group (SEG) Technical Audits, the SWEC New York Office Independent Design Review, NRC Construction Appraisal Team (CAT) Inspections, and the SWEC Technical Audit of Reactor Controls, Incorporated (RCI).

Phase I was conducted during the period of April 29 through June 11, 1985 by a 20-member team of technical specialists from SWEC and NMPC who were independent of those who had been responsible for the design that was reviewed. Approximately 170 action items were generated, of which 105 required action by the NMP2 project. The remaining 65 action items were closed without the need for project action.

Phase I indicated no apparent programmatic or systematic weaknesses and that the technical adequacy and implementation of the project design process was satisfactory to ensure a safe and reliable operating plant.

The purpose of Phase II was to form, based on composite results of the above-mentioned audits, conclusions with respect to the effectiveness of the SWEC engineering and design process, and the technical adequacy of the resulting SWEC engineering designs, degree of compliance with the FSAR, applicable codes and standards, and other licensing commitments.

Phase II of the program indicated that the overall design process was adequate and that the overall design of NMP-2 is technically adequate.

4.6 Preparedness for Operation Plan (POP) Evaluation

The POP evaluation, conducted in January 1986, by a team comprised of NMPC QA Department and consultant personnel determined the readiness of NMP-2 for operation. The team determined that a significant majority of the procedures and instructions required for the operation of Nine Mile Point Unit 2 have been developed, approved and issued. In some instances, the procedures were found to contain good practices

255



1000



1000



NMPC AUDITS AND SURVEILLANCES

<u>YEAR</u>	<u>AUDITS</u>		<u>SURVEILLANCES</u>	<u>TOTAL FINDINGS</u>
	<u>OFF-SITE</u>	<u>ON-SITE</u>		
1972	1	0	0	20
1973	4	0	0	39
1974	10	0	0	20
1975	10	1	74	25
1976	6	3	302	58
1977	9	4	800	73
1978	7	4	673	65
1979	5	2	569	34
1980	9	5	359	40
1981	7	4	742	30
1982	7	9	822	54
1983	10	4	1959	94
1984	7	9	1570	263
1985	<u>9</u>	<u>37</u>	<u>981</u>	<u>124</u>
Totals	101	82	8851	939

Within the last three years NMPC significantly increased its own Quality Assurance staff to conduct a greater number of audits and surveillances, consistent with the stepped up construction and test activities. This emphasis provided additional assurance that the QA program was being effectively implemented.

Although a number of findings were disclosed, corrective and preventive actions were taken by the responsible organizations and verified by NMPC Quality Assurance. Findings requiring immediate action to preclude degradation of the condition resulted in Stop Work Orders (SWO) with regard to the specific activity inspected. A total of nine SWO's were issued as a result of the audit and surveillance activity described above.

5.2 Stone & Webster Engineering Corporation (SWEC) Audits

The NMP-2 Architect-Engineer and Principal Constructor, SWEC, conducted scheduled audits of component suppliers, engineering activities, SWEC Quality Assurance, SWEC construction, and subcontractors, as listed below:

- Quality Assurance Auditing Division (QAAD)

The QAAD conducted program, site, contractor, ASME and supplementary audits as designated in the following tabulation. Total findings for all audits performed for each year are also shown.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

11



Supplier audit findings are systematically tracked and are being closed after corrective action is completed and verified.

- SWEC Engineering Assurance Project - Audits/Surveillance

For each year shown, the total number of engineering assurance audits and surveillances performed were as listed below:

SWEC EA AUDITS & SURVEILLANCES

<u>YEAR</u>	<u>NUMBER OF AUDITS</u>	<u>NUMBER OF SURVEILLANCES</u>
1972	3	
1973	10	
1974	8	
1975	8	
1976	8	
1977	8	
1978	10	
1979	10	
1980	3	
1981	1	2
1982	8	1
1983	8	11
1984	7	19
1985	<u>6</u>	<u>8</u>
Total	98	41

A total of 236 of audit observations required follow-up action by Engineering Assurance (EA). These items have either been closed after corrective and preventive actions were completed and verified, or are being tracked by EA pending corrective action verification.

5.3 Contractor Audits

- ITT Grinnell Industrial Piping, Inc. (ITT)

ITT, the major piping subcontractor responsible for design, installation and testing of large and small bore piping and associated supports, conducted site and vendor audits as shown below:

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000



● Johnson Controls, Inc.

Johnson Controls, Inc., the subcontractor for the installation of instruments, tubing and supports, conducted QA and Engineering audits, as listed below:

JCI AUDITS & FINDINGS

<u>YEAR</u>	<u>SITE AUDITS</u>	<u>CORP. AUDITS</u>	<u>AUDIT FINDINGS</u>
1983	1	2	36
1984	1	6	46
1985	<u>1</u>	<u>3</u>	<u>14</u>
Total	3	11	96

All findings identified during these audits have been closed after the corrective actions were completed and verified. During the term of their contract, JCI issued six Stop Work Orders suspending further specific activities until effective corrective actions were implemented.

6.0 INSPECTIONS

Acceptance inspections have been performed at suppliers' facilities by SWEC Procurement Quality Assurance Division and on site by the Field Quality Control Division (FQC). These inspections and tests, and those performed on site by subcontractors, provide the basic assurance that purchased components, structures, and installed systems are in compliance with applicable specifications and code requirements. The total number of SWEC inspection reports issued by year is shown in the following tabulation. This listing covers both in process and final inspections. These reports document both satisfactory and unsatisfactory inspection results. Where results indicated a nonconformance, this was documented on the Inspection Report and tracked through resolution. In addition, certain discrepancies were also documented on Nonconformance and Disposition reports (N&Ds) and are included in the discussion of N&Ds in Section 11 of this report.

4

7

8

9

10

11

12

13

14

15

16

17

18

1924



7.1 SWEC

NDE REPORTS BY METHOD PER YEAR

<u>YEAR</u>	<u>RT</u>	<u>UT</u>	<u>MT</u>	<u>LP</u>	<u>BUBBLE TEST</u>	<u>WELDER QUALS.</u>
1976						9
1977						72
1978						19
1979	197	127				191
1980		7				
1981		x	161	72		
1982			2925	317	52	231
1983	15	39	1137	860	22	734
1984	*	44	1161	3698	126	1529
1985	<u>132</u>	<u>72</u>	<u>1372</u>	<u>4876</u>	<u>196</u>	<u>524</u>
Total	344	289	6756	9823	396	3309

* 6301 inches
x 1676 inches

Initial Acceptance Rate, Volumetric Examination 83%
Initial Acceptance Rate, Surface Examination 97.5%

Note: All data indicates total No. of reports except as noted for 1981 and 1984 when data was compiled in linear increments in lieu of total reports.

7.2 ITT Grinnell

NDE REPORTS BY METHOD PER YEAR

<u>YEAR</u>	<u>LP/MT</u>	<u>RT(2)</u>
1982	1729 (1)	774
1983	2867	633
1984	7590	1163
1985	<u>11819</u>	<u>1832</u>
Total	24005	4402

Initial Acceptance Rate, Volumetric Examination 72%
Initial Acceptance Rate, Surface Examination 95%

NOTE 1: LP/MT exam totals for 1982 for first nine months only.

NOTE 2: SWEC QA/NDT, Boston conducted a complete review of 4,189 ITT Grinnell radiograph packages prior to 11/25/84. A total of 775 weld radiograph packages required some form of corrective action, which has been accomplished.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100



10.1 Design Verification

A total of 10,782 ASME III control drawings (1851 piping, 442 mechanical and 8489 pipe supports) have been prepared to date in the field to facilitate final design verification of 334 large bore and 1089 small bore stress calculations. As-installed conditions which varied from the design were evaluated by engineering in accordance with specification requirements. One-hundred seventy-seven (177) large bore modifications and sixty (60) small bore modifications are required as a result of final design verifications, with an additional forty (40) large bore supports also being added as a result of this ongoing design verification.

10.2 System Walkdowns

Up to February 1986, engineering personnel have completed 50% of the required walkdowns of all Category I buildings and areas for compliance with clearance criteria. To date, 3,000 manhours have been expended for Engineering evaluation of these areas, with 3,100 items being identified requiring Engineering's evaluation of which 1,100 items have been resolved to date resulting in a 2% rework rate.

11.0 NONCONFORMANCE AND DISPOSITION (N&D) REPORTS

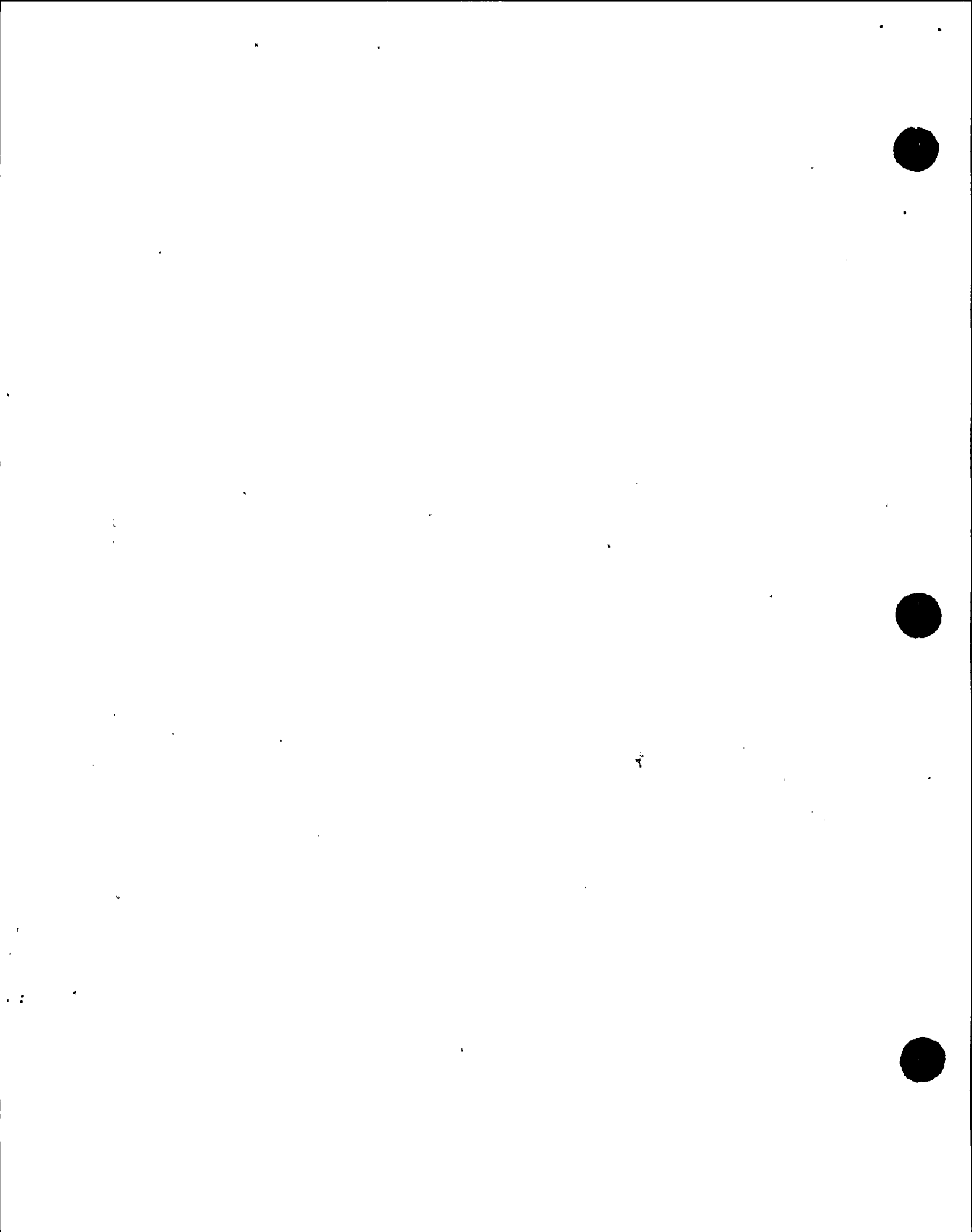
Inspections performed by SWEC through December 1985 which disclosed nonconforming conditions that could not be readily reworked as part of the fabrication or construction process were documented on N&Ds for disposition by Engineering.

NUMBER OF SWEC N&Ds VS. AREA PER YEAR

<u>YEARS</u>	<u>POA N&DS</u>	<u>SITE N&DS</u>
1970		1
1974	1	1
1975	2	22
1976	3	143
1977	31	344
1978	58	332
1979	60	505
1980	31	269
1981	58	842
1982	118	1485
1983	155	2001
1984	194	4414
1985	122	4097
Total	833	14456

There were also approximately 6000 N&D's issued by subcontractors, in addition to those issued by SWEC.

Resolution of the problem is subject to Engineering and Quality Assurance reviews and other specified corrective actions as may be necessary. The NRC assures through their own independent evaluation of the problem/problem solution that the safety of the plant is not compromised. The total number of nonconformance and disposition reports issued on the project by SWEC and subcontractors is approximately 21,300. The total number of reportable 50.55e reports issued through February 1986 is 145. This indicates that the conditions documented by over 99% of the nonconformance and disposition reports issued were considered not significant and, therefore, non-reportable under the criteria established to evaluate reportability.



9MP2 QUALITY OF CONSTRUCTION

INSPECTION & NONDESTRUCTIVE EXAM REPORTS

• INSPECTION REPORTS ISSUED	295,700
• NDE REPORTS ISSUED	52,100
	<hr/>
TOTAL	347,800

NONCONFORMANCE & DISPOSITION REPORTS

• N&D's ISSUED	21,300
• DISPOSITION	
-- ACCEPT AS IS	69%
-- REPAIR	24%
-- SCRAP	3%

RATIO OF SIGNIFICANT DEFICIENCY REPORTS 50.55(e) TO N&D's < 1%

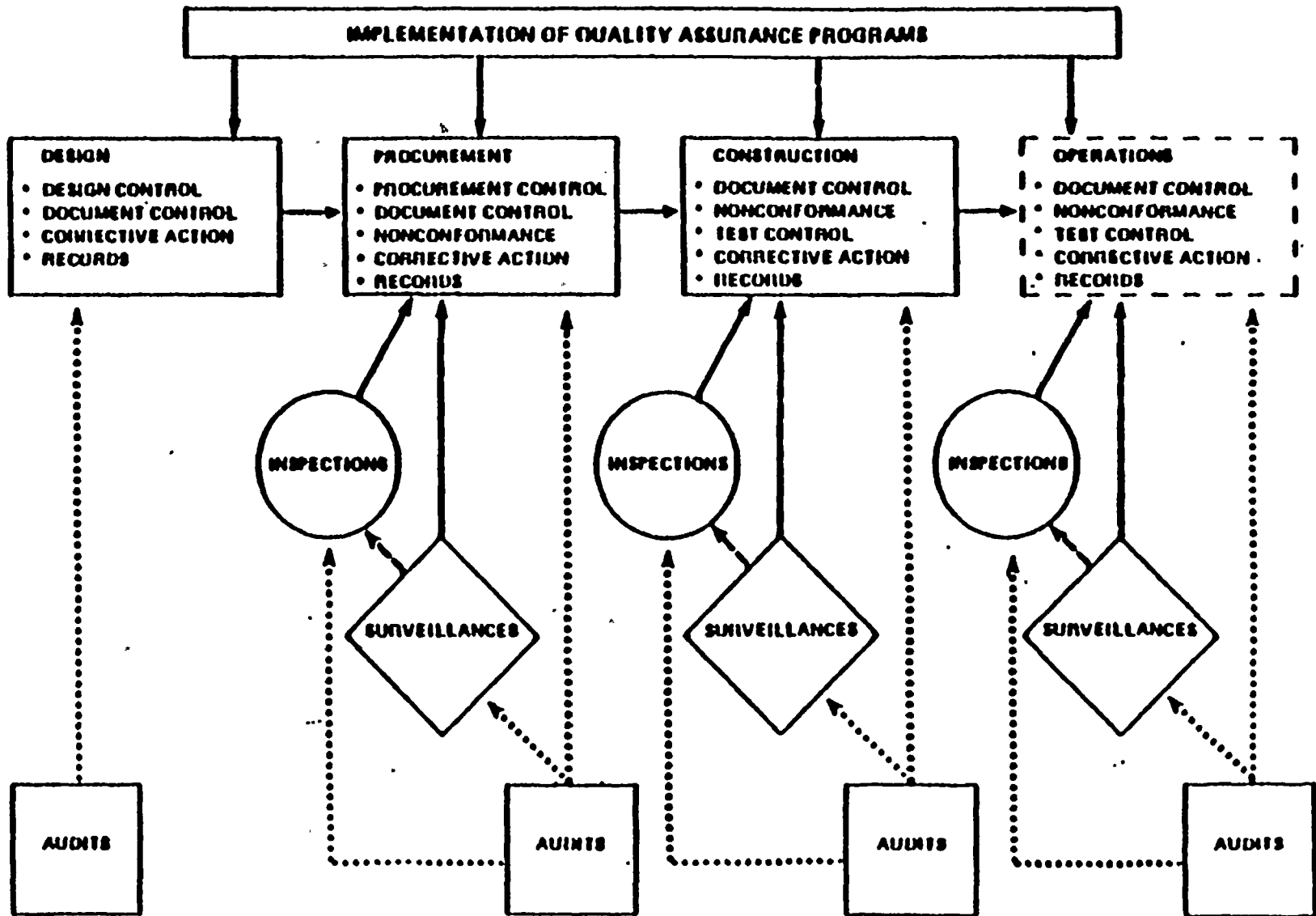
SURVEILLANCES & AUDITS

• SURVEILLANCE REPORTS ISSUED	8,890
• AUDIT REPORTS ISSUED	800
	<hr/>
TOTAL	9,690
• TOTAL FINDINGS REPORTED	4,400
• TOTAL STOP WORK ORDERS ISSUED	40

RATIO OF SWO's TO FINDINGS < 1%



1
2
3
4
5
6
7
8
9
10





POWER ASCENSION PROGRAM

MAJOR ACTIVITIES

- 1. PROCEDURES**
- 2. TRAINING**
- 3. ORGANIZATION**
- 4. SCHEDULE**



POWER ASCENSION PROGRAM

PROCEDURES

- SCOPE DEVELOPED IN 1985
- APPROXIMATELY 120 PROCEDURES DEFINED
- SORC APPROVAL IN PROGRESS
- SIMULATOR TESTING (TRANSIENT TESTING)
 - REQUAL TRAINING USAGE



POWER ASCENSION PROGRAM

PROCEDURES

- **LICENSED OPERATOR TRAINING**
- **FUEL HANDLING TRAINING**
- **ADMINISTRATIVE CONTROLS**
- **STARTUP TEST SUMMARIES**
- **TEST ENGINEER TRAINING**



POWER ASCENSION PROGRAM

ORGANIZATION

- **FULLY STAFFED**
- **EXPERIENCED**
- **FIVE SHIFT ROTATION**
- **UPPER MANAGEMENT SUPPORT**

2

1

2

3



POWER ASCENSION PROGRAM

SCHEDULE

- **AGGRESSIVE**
- **PRE-PLANNING TO REDUCE TESTING AND DELAY TIMES**
 1. **TEST PROGRAM IMPROVEMENTS**
 2. **TUNE-UP PROGRAM ENHANCEMENTS**
 3. **12 SYSTEM WALKDOWNS**
 4. **OFF-LINE DATA ANALYSIS (SPARE GETARS)**
 5. **EXPERIENCED ORGANIZATION**



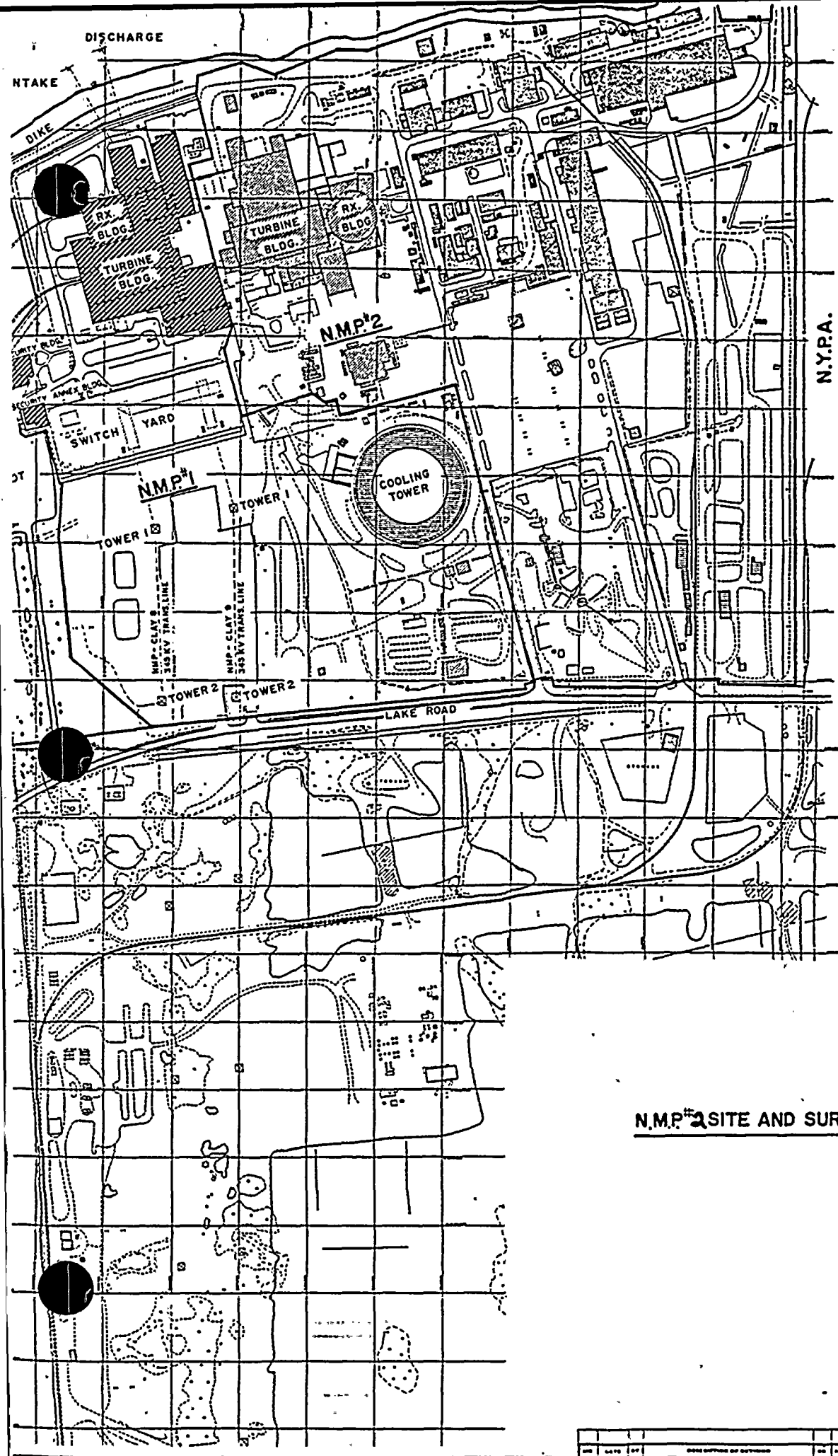
RADIATION PROTECTION PROGRAM

MANAGEMENT OVERSIGHT TO RADIATION PROTECTION PROGRAM

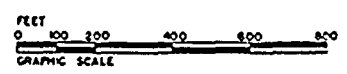
- **SITE RADIATION PROTECTION STAFF**
- **SITE OPERATIONS REVIEW COMMITTEE (SORC)**
- **SAFETY REVIEW AND AUDIT BOARD**
- **QUALITY ASSURANCE DEPARTMENT**

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100





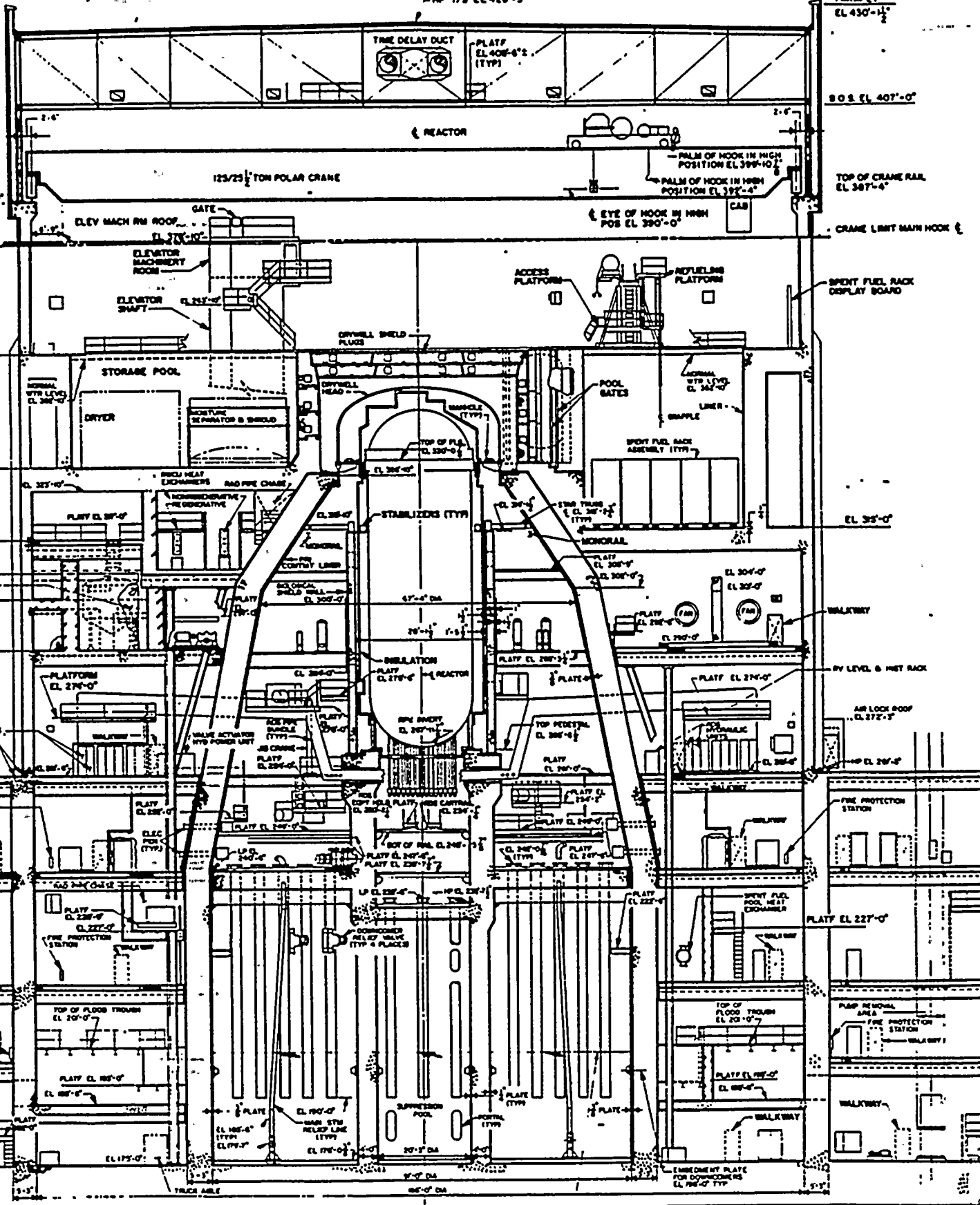
N.M.P. #2 SITE AND SURROUNDING N.M.P.C. PROPERTY



NIAGARA MOHAWK	
NIAGARA MOHAWK POWER CORPORATION SYRACUSE, N.Y.	
NINE MILE POINT NUCLEAR STATION UNIT 1B	
PLOT PLAN	
F.S.A.R. UPDATE	
DATE	BY
12-23-84	AS NOTED
3-N2.0-S6	
C-35611-C	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100





**GENERAL ARRANGEMENT REACTOR
BUILDING SECTIONS**

**NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2**

HIGH WTR LEVEL EL 257'-0"
NORMAL WTR LEVEL EL 250'-0"
LOW WTR LEVEL EL 196'-0"

112

RADIATION PROTECTION PROGRAM

I. POLICY

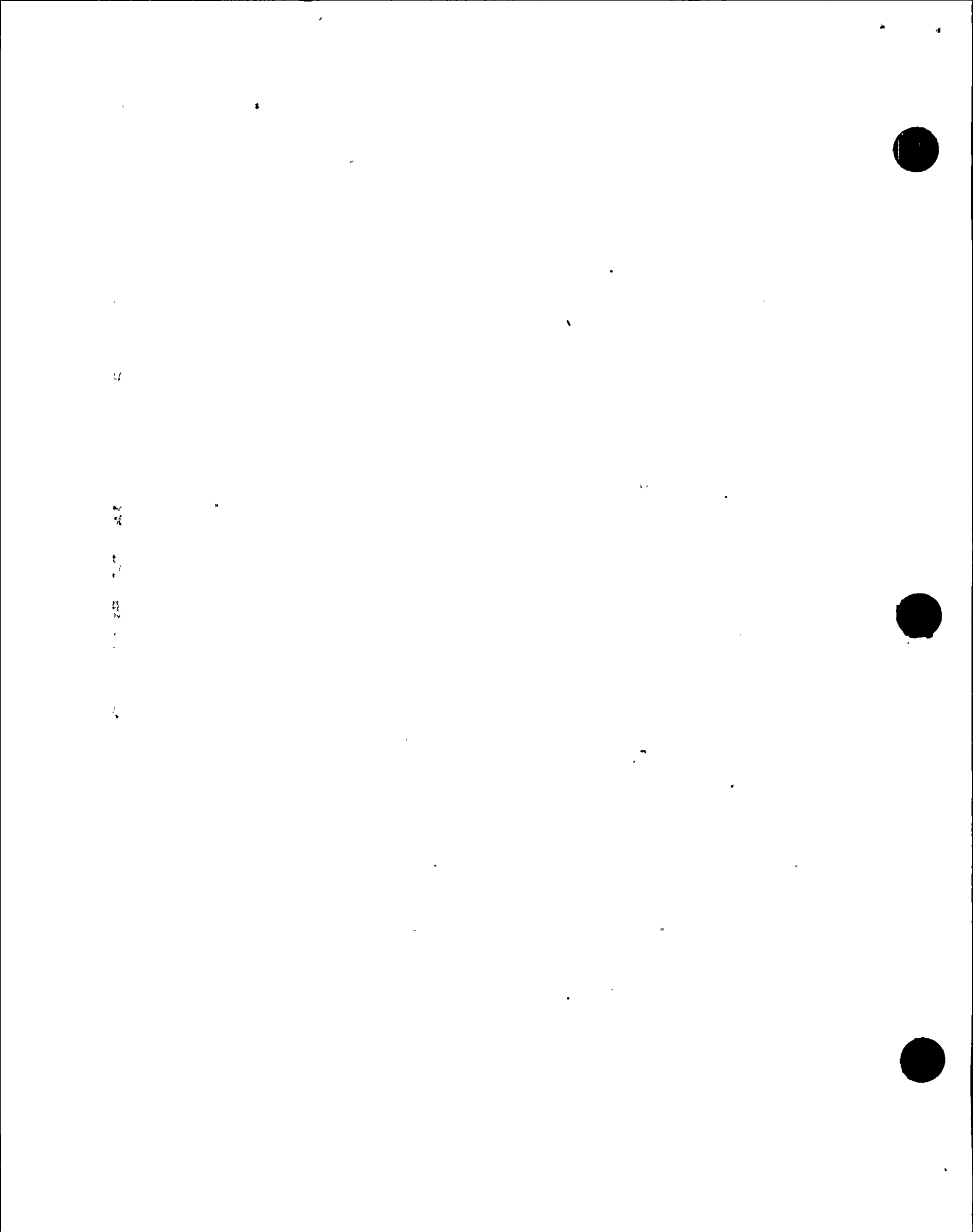
- **NMPC POLICY IS TO ENSURE THAT EXPOSURE OF STATION PERSONNEL, THE GENERAL PUBLIC, AND THE ENVIRONMENT WILL BE ALARA**
- **NMPC HAS FORMALLY ENDORSED INPO'S FIVE REM PER YEAR EXPOSURE GUIDELINE**
- **MANAGEMENT OVERSIGHT PROVIDED TO ENSURE COMPLIANCE**

II. ORGANIZATION

- **EXPERIENCED SITE AND CORPORATE HEALTH PHYSICS STAFFS**

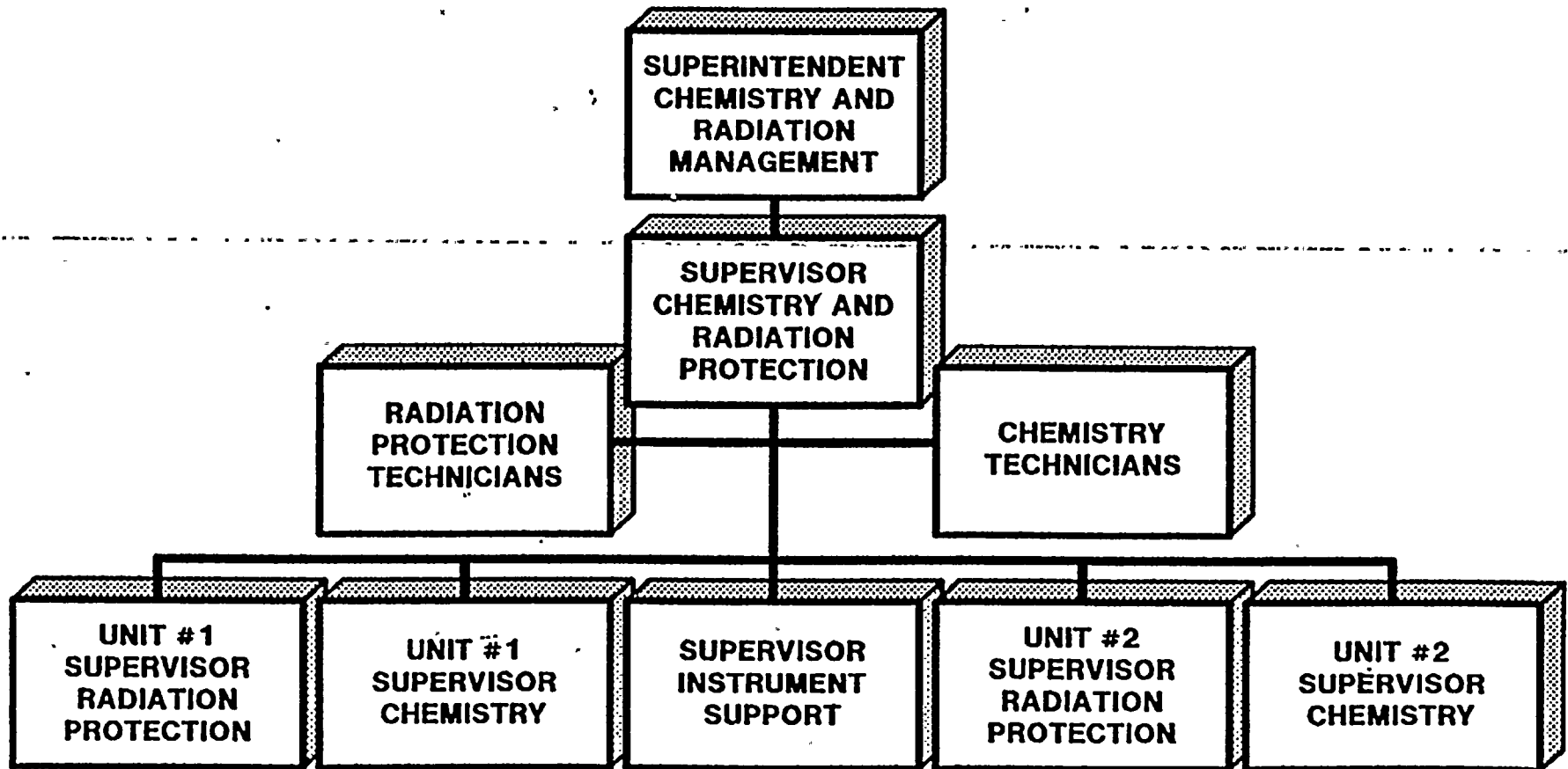
III. ALARA DESIGN OBJECTIVES

- **MINIMIZE AMOUNT OF TIME PLANT PERSONNEL SPEND IN RADIATION AREAS**
- **MINIMIZE RADIATION LEVELS IN ROUTINELY OCCUPIED PLANT AREAS AND IN THE VICINITY OF PLANT EQUIPMENT**



RADIATION PROTECTION PROGRAM

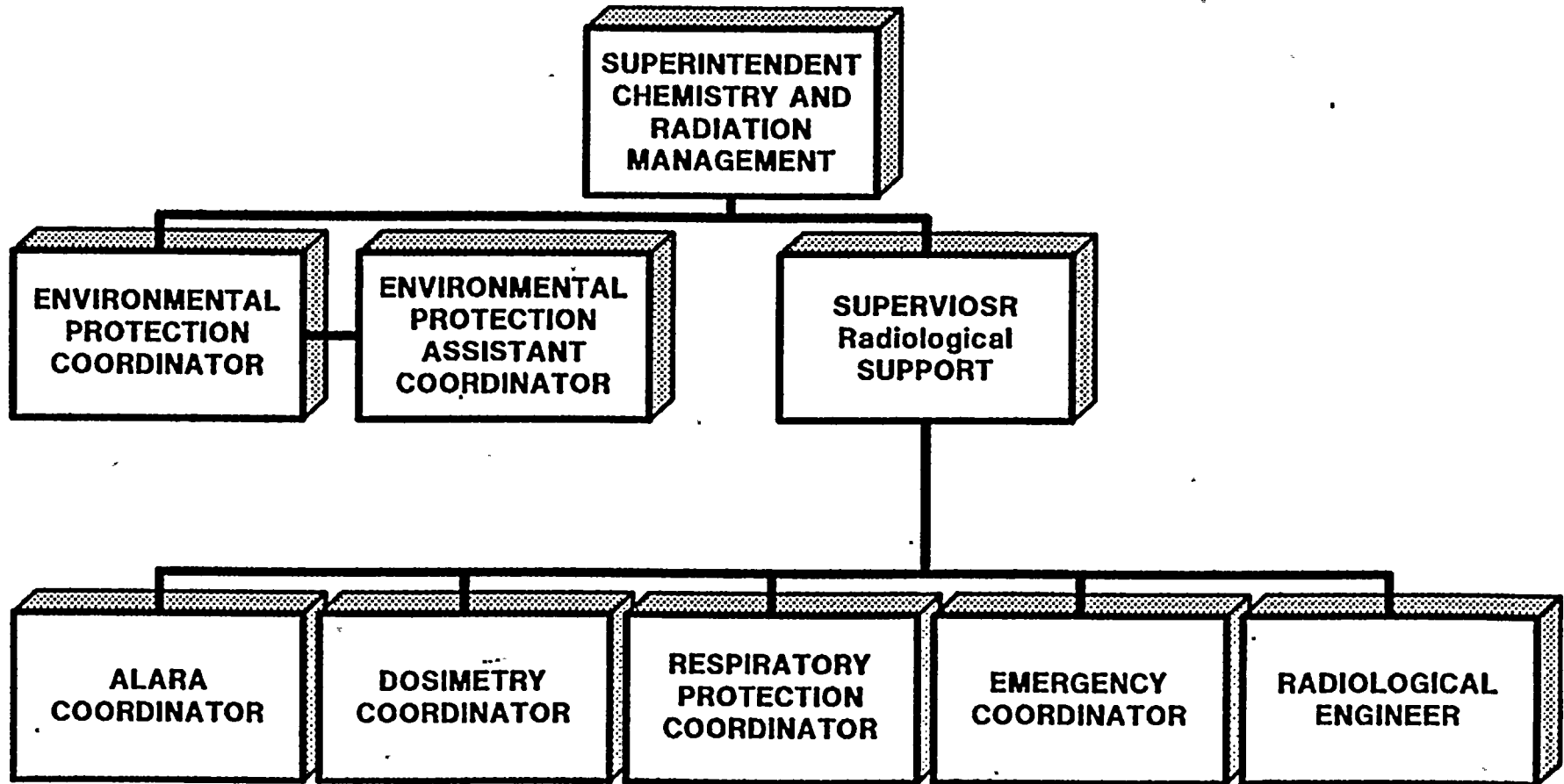
CHEMISTRY AND RADIATION PROTECTION OPERATIONS GROUPS





RADIATION PROTECTION PROGRAM

RADIOLOGICAL SUPPORT AND ENVIRONMENTAL PROTECTION GROUPS





RADIATION PROTECTION PROGRAM

IV. OPERATIONAL ALARA PROGRAM ELEMENTS

- DEDICATED ALARA GROUP
- PRE-ALARA WORK REVIEWS
- POST-ALARA WORK REVIEWS
- ALARA GOALS PROGRAM
- ALARA AWARENESS PROGRAM



1

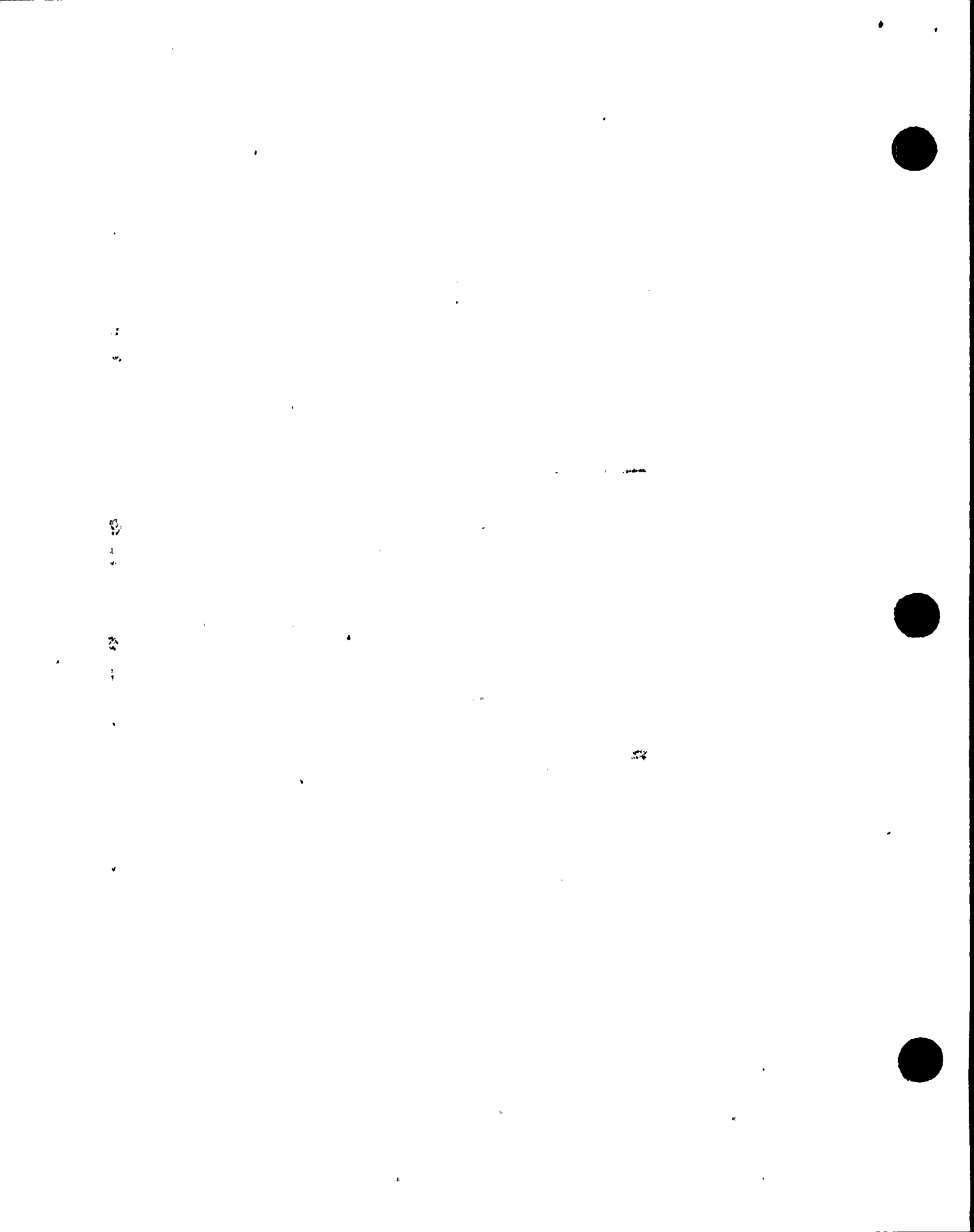
2
3
4

RADIATION PROTECTION PROGRAM

NINE MILE POINT ALARA COMMITMENT (POLICY 6.1.7.1)

PURPOSE: THE PURPOSE OF THIS POLICY IS TO ACKNOWLEDGE THE COMPANY'S RESPONSIBILITY FOR A RADIATION EXPOSURE OBJECTIVE TO BE AS LOW AS REASONABLY ACHIEVABLE (ALARA)

POLICY: "THE COMPANY POLICY IS TO COMMIT SUFFICIENT RESOURCES TO ENSURE THAT EXPOSURE OF STATION PERSONNEL, THE GENERAL PUBLIC, AND THE ENVIRONMENT WILL BE AS LOW AS REASONABLY ACHIEVABLE...ETC."



RADIATION PROTECTION PROGRAM

EXAMPLES OF DESIGN CONSIDERATIONS

- 1. OPERATOR INTERFACE CONTROL PANELS FOR SYSTEMS CONTAINING RADIOACTIVE MATERIALS HAVE BEEN PLACED IN LOW BACKGROUND AREAS (I.E., RX WATER CLEANUP SYSTEM).**
- 2. A DEDICATED CONTROL ROD DRIVE MAINTENANCE FACILITY WITH A SUPPORTING VENTILATION SYSTEM HAS BEEN CONSTRUCTED TO MINIMIZE RADIATION EXPOSURE TO OTHER WORK GROUPS.**
- 3. GENERALLY, COMPONENTS (PUMPS, VALVES, ETC.) HAVE BEEN SEPARATED BY SHIELD WALLS TO REDUCE EXPOSURE LEVELS TO WORKERS FROM UNRELATED COMPONENTS (TANKS, PUMPS, ETC.).**
- 4. REACH RODS TO VALVES HAVE BEEN PROVIDED WHERE APPROPRIATE FOR THE MANUAL OPERATION OF THE REACTOR WATER CLEANUP SYSTEM.**
- 5. SYSTEMS CONTAINING RADIOACTIVE MATERIALS HAVE BEEN REVIEWED FOR FLUSHING AND DECONTAMINATION FIXTURES. THE REVIEW RESULTED IN THE VERIFICATION OF EXISTING CONNECTIONS OR THE RECOMMENDED PLACEMENT OF NEW CONNECTIONS.**
- 6. THE NINE MILE POINT UNIT 2 MODEL WAS EXTENSIVELY USED BY THE ALARA REVIEW COMMITTEE FOR THE ALARA DESIGN REVIEW. THE MODEL WAS REFERENCED TO EVALUATE ACCESS CONTROL, SHIELDING DESIGN, PIPE RUNS AND EQUIPMENT PLACEMENT.**



RADIATION PROTECTION PROGRAM

ALARA AWARENESS PROGRAM

- **ALARA SUGGESTIONS**
- **TRAINING**
- **ALARA COMMITTEES**
- **MANAGEMENT OVERVIEW**
 - **SITE ALARA COMMITTEE**
 - **SORC**
 - **SRAB**



RADIATION PROTECTION PROGRAM

POST-ALARA WORK REVIEW CRITERIA

- ROUTINE TASKS
- SPECIAL TASKS
- OUTAGE TASKS
- TASKS PERFORMED ON EXTENDED RWP'S
- TASKS RECEIVING GREATER THAN 25 MAN-REM



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

RADIATION PROTECTION PROGRAM

NINE MILE POINT ALARA GOALS PROGRAM

THE ANNUAL EXPOSURE GOAL IS AN ANTICIPATED EXPOSURE VALUE CALCULATED BY ESTIMATING THE RADIATION EXPOSURE TO PERSONNEL PERFORMING PLANNED ACTIVITIES.

A SPECIFIC ALARA GOAL IS A STATEMENT OF A DESIRED OBJECTIVE CLEARLY EXEMPLIFIED WITH A MEANS OF MEASURING GOAL ACHIEVEMENT AND A SPECIFIC END POINT.



EMERGENCY PLANNING

EMERGENCY RESPONSE ORGANIZATIONS

STAFFING LEVEL I - SHIFT PERSONNEL

STAFFING LEVEL II - SHIFT PERSONNEL

TECHNICAL SUPPORT CENTER

OPERATIONS SUPPORT CENTER

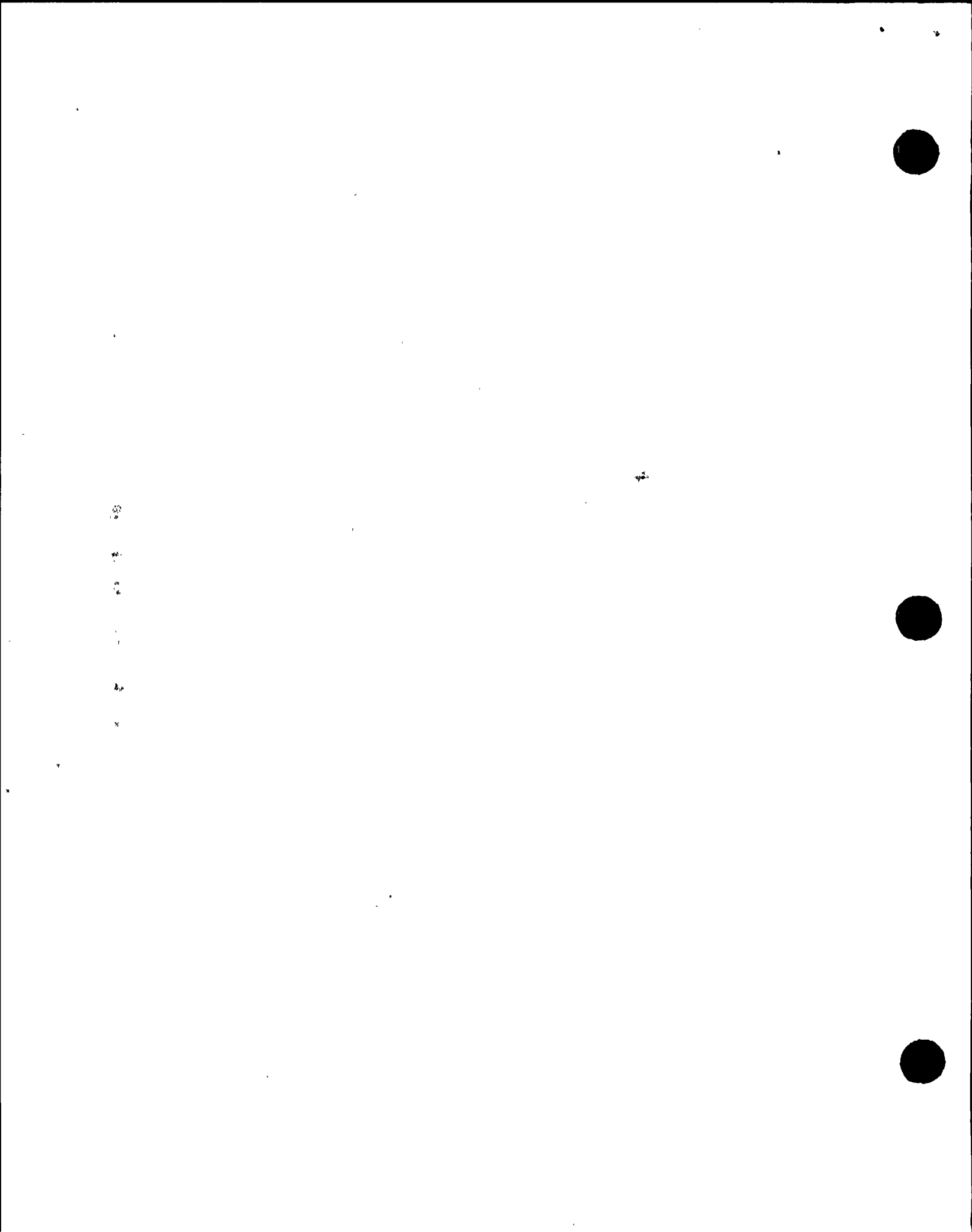
STAFFING LEVEL III - SHIFT PERSONNEL

TECHNICAL SUPPORT CENTER

OPERATIONS SUPPORT CENTER

EMERGENCY OPERATIONS FACILITY

JOINT NEWS CENTER



EMERGENCY PLANNING

EMERGENCY RESPONSE FACILITIES

<u>FACILITY</u>	<u>LOCATION</u>
CONTROL ROOM	306' EL., CONTROL BLDG., NMP2
TECHNICAL SUPPORT CENTER	248' EL., ADMIN. BLDG., NMP
OPERATIONS SUPPORT CENTER	261' & 277' EL., ADMIN. BLDG., NMP
EMER. OPERATIONS FACILITY	NMP TRAINING CENTER, NMP
AEOF	NIAGARA MOHAWK SERVICE CENTER; VOLNEY, N.Y.
JOINT NEW CENTER	NAVAL MILITIA BLDG., OSWEGO, N.Y.
CORP. EMER. OPERATIONS FACILITY	NIAGARA MOHAWK POWER CORP., HEADQUARTERS: SYRACUSE, N.Y.



EMERGENCY PLANNING

NINE MILE POINT EXERCISE EXPERIENCE

- 1981 - NMPC CONDUCTED THE FIRST SUCCESSFUL FULL SCALE NRC/FEMA OBSERVED EXERCISE IN NEW YORK STATE
- 1982 - NRC PARTICIPATED IN A SUCCESSFUL NINE MILE POINT SITE FULL SCALE NRC/FEMA OBSERVED EXERCISE WITH JAFNPP
- 1983 - NMPC CONDUCTED ITS SECOND SUCCESSFUL FULL SCALE NRC/FEMA OBSERVED EXERCISE
- 1984 - NMPC CONDUCTED A SUCCESSFUL SMALL SCALE NRC OBSERVED EXERCISE
- 1985 - NMPC CONDUCTED ITS THIRD SUCCESSFUL FULL SCALE NRC/FEMA OBSERVED EXERCISE



2
3
4
5

100

100

NMP2 EMERGENCY PLANNING

I. NMP2 EMERGENCY PREPAREDNESS

- INCORPORATED INTO AN ALREADY EXISTING SUCCESSFUL EMERGENCY PREPAREDNESS PROGRAM SUPPORTING NMP1
- LOCAL AND STATE OFFSITE EMERGENCY PLANS APPROVED BY FEMA
- PUBLIC ALERT AND NOTIFICATION SYSTEM APPROVED BY FEMA

II. EMERGENCY ORGANIZATIONS

- BEGINS WITH THE MINIMUM SHIFT CREW AND EXPANDS TO INCLUDE OTHER PERSONNEL
- ONSITE EMERGENCY ORGANIZATION AUGMENTED BY

CORPORATE SUPPORT
INPO SUPPORT
NSSS (GE) SUPPORT

LOCAL SERVICES SUPPORT
NEARBY NUCLEAR FACILITIES SUPPORT



.

x

.



e

v

55



NMP2 EMERGENCY PLANNING

III. COORDINATION WITH GOVERNMENTAL AGENCIES

- **NYS AND OSWEGO COUNTY**
- **NRC & DOE**
- **CANADIAN MINISTRY OF THE SOLICITOR GENERAL**

IV. EMERGENCY RESPONSE FACILITIES

- **EMERGENCY RESPONSE FACILITIES BUILT AND STAFFED IN ACCORDANCE WITH SUP. 1 NUREG 0737 AND NUREG 0654**

V. EXERCISE EXPERIENCE

- **NMPC HAS SUCCESSFULLY CONDUCTED THREE EXERCISES**



EMERGENCY PLANNING

COORDINATION WITH PARTICIPATING GOVERNMENT AGENCIES

- STATE AND LOCAL - LEAD AGENCIES
 - NEW YORK STATE DISASTER PREPAREDNESS COMMISSION
 - OSWEGO COUNTY OFFICE OF EMERGENCY PREPAREDNESS

- FEDERAL - LEAD AGENCIES
 - USNRC
 - USDOE - BROOKHAVEN AREA OFFICE

- INTERNATIONAL - LEAD AGENCY
 - CANADA - MINISTRY OF THE SOLICITOR GENERAL



4

11

12

13

14

15

16

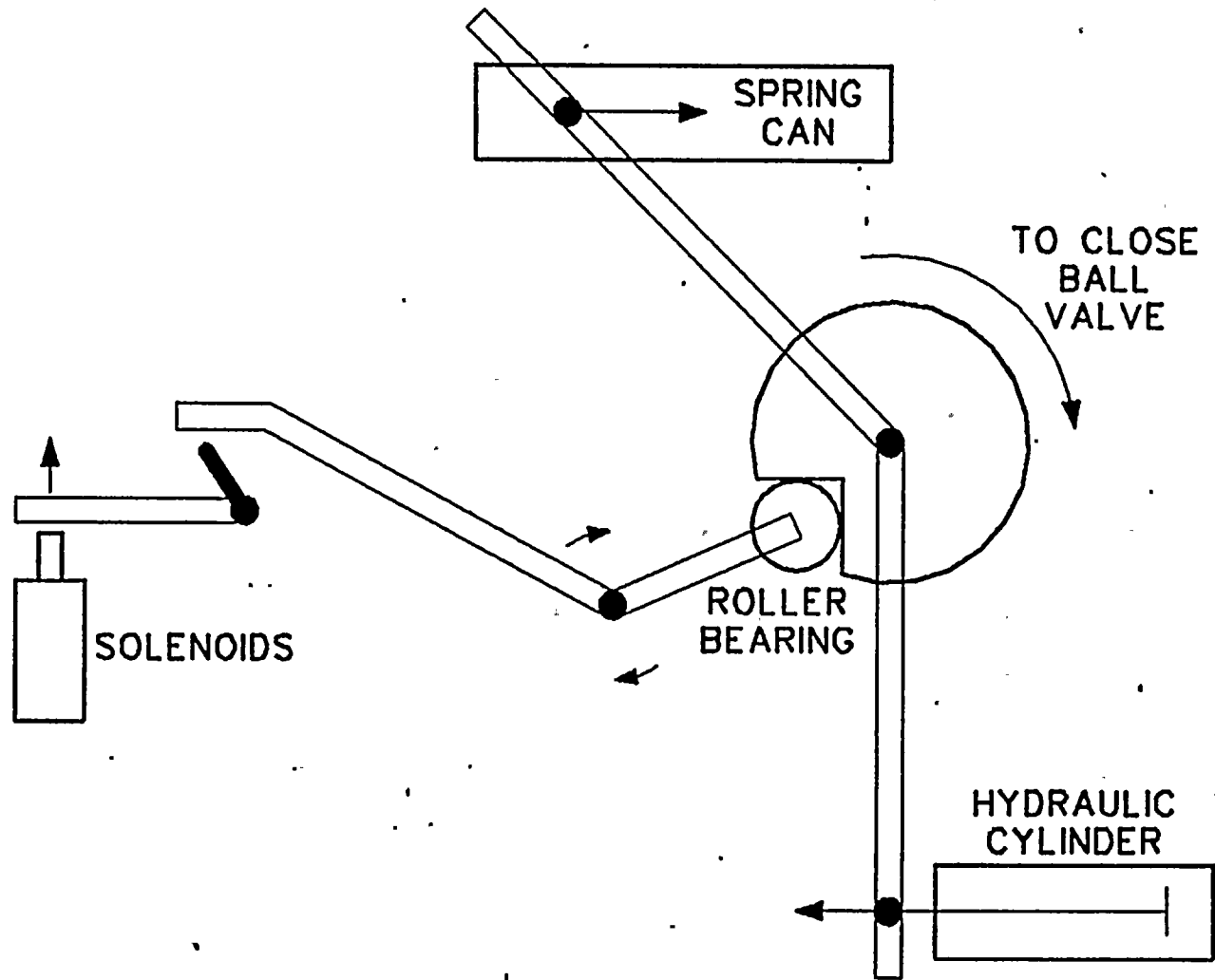
EMERGENCY PLANNING

SUPPORT FROM OTHER NUCLEAR POWER PLANTS

- ASSIST WITH EQUIPMENT AND PERSONNEL IN MONITORING AND EVALUATION OF ON-SITE AND OFF-SITE RADIOLOGICAL SITUATIONS
- PROVIDE PERSONNEL FOR ASSISTANCE AT THE OFF-SITE EMERGENCY CENTER
- ASSIST IN COMMUNICATIONS BETWEEN EMERGENCY CENTERS, THE CONTROL ROOM, AND OFF-DUTY PLANT PERSONNEL OF OUTSIDE AGENCIES
- ALLOW USE OF RADIATION CHEMISTRY LABORATORY
- ALLOW USE OF ENVIRONMENTAL LAB FACILITY
- ALLOW USE OF WHOLE BODY COUNTING FACILITY
- ALLOW USE OF GEOPHYSICAL PHENOMENA MONITORING EQUIPMENT
- ALLOW USE OF BACKUP METEOROLOGICAL TOWER
- PROVIDE PERSONNEL FOR IN-PLANT RECOVERY OPERATIONS AS AVAILABLE
- PROVIDE PERSONNEL TO ASSIST IN THE JOINT INFORMATION CENTER, AS AVAILABLE



MSIV CLOSURE MECHANISM



5



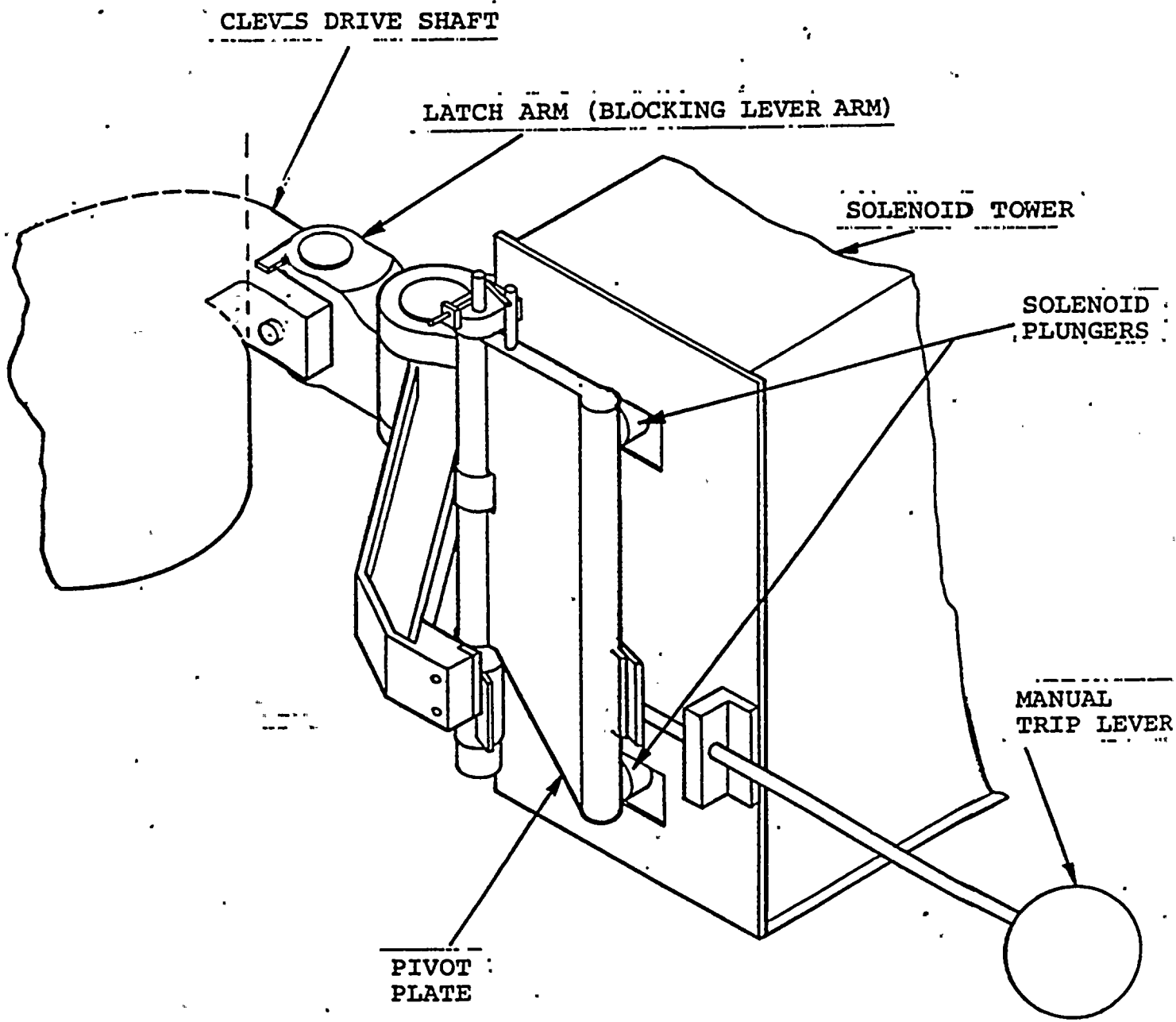


FIGURE 3-10. SOLENOID TOWER

