February 13, 1987

MEMORANDUM FOR: R. M. Gallo, Chief, Projects Branch #3
Division of Reactor Projects

THRU: Lee H. Bettenhausen, Chief, Operations Branch
Division of Reactor Safety

FROM: P.K. Eapen, Chief, Quality Assurance Section, OB
Division of Reactor Safety

SUBJECT: NINE MILE POINT 2, SALP INPUT FOR ASSESSMENT PERIOD
FEBRUARY 1, 1986 THROUGH JANUARY 31, 1987

Attached is the SALP input based on the Division of Reactor Safety inspections conducted during this assessment period. If you have any questions concerning this SALP, please contact me at X5329.

D.L. Caphton for
P.K. Eapen, Chief
Quality Assurance Section, OB, DRS

Enclosure: As Stated

cc:
S.D. Ebneter, Director, DRS
W.V. Johnston, Deputy Director, DRS
L.H. Bettenhausen, Chief, Operations Branch, DRS
J.P. Durr, Chief, Engineering Branch, DRS
All Section Chiefs DRS
J. Linville, DRP
W. Cook, SRI, DRP
D.L. Caphton, DRS
W. Oliveira, DRS

CONTACT:
William Oliveira
337-5329

RI:DRS	RI:DRS	RI:DRS	RI:DRS
Oliveira/djh for	Eapen for	Bettenhausen	Johnston
2/13/87	2/13/87	2/13/87	2/13/87

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NINE MILE POINT 2

DIVISION OF REACTOR SAFETY INSPECTIONS (2/1/86 through 1/31/87)

Report No.	Functional Area	Lead Inspector	Inspection Hours	Violations No./Severity
86-05	Pre-operational Test Program	L. Briggs	31	0
86-08	Instrumentation and Control	F. Paulitz	60	4/IV(2)
86-11	Operational QA, QA/QC Admin, MT&E, Onsite Committees, NL Training	G. Napuda	135	0
86-13	As-Built Team	J. Wiggins	679	2/V 1/IV
86-14	Pre-operational Test Program	M. Evans	34	0
86-15	Admin. and Operational Procedures, Design Changes & Mods, and Pre-operational Test	C. Petrone	93	0
86-16	Containment Leakage Testing Program	S. Kucharski	93	0
86-20	Pre-operational & Power Ascension Test Programs	L. Briggs	64	0
86-21	Fire/Protection	A. Krasopoulos	36	0
86-22	Procurement, Receipt, Storage, & Handling, Document Control and Records Programs	R. Winters	75	0
86-26	TMI Action Plan, Maintenance, M&TE and Emergency Operational Programs	C. Petrone	56	0

NINE MILE POINT 2

DIVISION OF REACTOR SAFETY INSPECTIONS (2/1/86 through 1/31/87)

Report No.	Functional Area	Lead Inspector	Inspection Hours	Violations No./Severity
86-27	Pre-operational Test Program	M. Evans	37	0
86-28	Construction Deficiencies in Electro/ Mechanical & Instrumentation Distribution & Equipment	C. Woodard	133	0
86-30	Pre-operational Test Program	L. Briggs	30	0
86-31	Pre-operational Test Program	L. Briggs	67	0
86-32	Pre-service Inspection Program	E. Gray	16	0
86-33	Pre-operational, Preliminary, & Post Maintenance Test Programs	L. Briggs	64	1 Dev
86-36	I&C Maintenance	J. Prell	35	0
86-37	Instrumentation & Instrumentation Cable	R. Paolino	177	0
86-38	Pre-operational & Power Ascension Test Programs	D. Florek	82	0
86-41	Power Ascension, Initial Fuel Load and CILRT Pre-operational Test	D. Florek	37	0
86-43	IE Bulletins & Previous Findings	R. McBrearty	32	0

NINE MILE POINT 2

DIVISION OF REACTOR SAFETY INSPECTIONS (2/1/86 through 1/31/87)

Report No.	Functional Area	Lead Inspector	Inspection Hours	Violations No./Severity
86-47	Surveillance Test, and M&TE Programs	S. Chaudhary	35	0
86-48	Operational Staff and QA, Tests and Experiments	W. Oliveira	64	0
86-50	Pre-operational Power Ascension Test Programs	L. Briggs	85	0
86-51	Pre-operational Power Ascension Test Programs	D. Florek	66	0
86-53	MSIV Problems	H. Gregg	43	0
86-57	Power Ascension Test Program & Surveillances	D. Florek	66	0
86-60	Initial Fuel Load	M. Evans	51	0
86-64	Power Ascension Test Program & Surveillances	M. Evans	35	0
86-67	MSIV Problems	H. Gregg	34	0
86-68	Power Ascension Test Program	M. Evans	34	0
87-03	MSIV Problems	H. Gregg	74	0

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP)
NINE MILE POINT 2
DIVISION OF REACTOR SAFETY INSPECTIONS (2/1/86 through 1/31/87)

1. PRE-OPERATIONAL AND POWER ASCENSION TESTING:

(Based on Inspections 86-5, 14, 15, 16, 20, 27, 30, 31, 33, 38, 41, 50, 51, 57, 60, 64 & 68)

During this assessment period region based specialists monitored licensee's pre-operational and power ascension tests on a continual basis. The licensee management provided good support for these tests. The management and the staff appeared to be well trained and qualified. The licensee had an adequate administrative program for conducting pre-operational testing. QA conducted thorough and detailed surveillances of the pre-perational test program. Management in general supported QA activities in pre-operational tests. However, during the early part of this assessment period the licensee's management failed to recognize the importance of maintaining such test data as the pump discharge pressure or flow during system flushing. In spite of the comments from the licensee QA, NRC Resident Inspector and specialists, the licensee did not record the data to establish flush velocities until late in the program.

The licensee held a meeting with NRC personnel in January 1986 to discuss the schedule for fuel load. The target date for fuel load was established as May 29, 1986. However, as of March 1986, the specialists noted that the pre-operational test activities were moving rather slowly. For example, SORC had approved only three of the 26 JTG approved test results and no systems were turned over to Operations as of March 1986. Additionally, the licensee had not provided the test results for NRC review.

As of May 9, 1986, SORC had reviewed test results of only ten pre-operational tests and large number of craft personnel were still completing construction activities. In addition, the fuel load draft procedure was not consistent with the committed regulatory guide for functional testing (Regulatory Guide 1.68). Certain other draft procedures were not consistent with the proposed technical specifications. The staffing of the start up department was not complete. In spite of the above pre-operational and power ascension test program inadequacies, the licensee insisted on maintaining the original target date for fuel load.

In mid June, 1986, the pre-operational test activities began to demonstrate progress. Over thirty systems were turned over to Operations. However, the licensee was not aggressive in dispositioning open test deficiencies. Open items were not discussed in sufficient detail and the matrix to track open items was not always accurate. At least on one occasion, progress of the pre-operational test was at the expense of an inadequate management review. For example, test summaries were used instead of test exceptions to identify minor changes to the procedure. This precluded a review of the procedure change by a Level III test engineer. A deviation was noted in June, 1986 to address JTG's failure to review certain test results to demonstrate the reliability of Diesel Generators. The licensee used results from preliminary tests to establish

the reliability of the diesel generators without JTG results review. According to the FSAR, such preliminary tests results are acceptable only if these results are reviewed and approved by JTG.

In late July, the regional specialists noticed further improvement in the completion of pre-operational tests and the readiness of the power ascension test program. The pre-operational test deficiencies and exceptions were being tracked, audited and closed. The power ascension test procedures were being issued, however, the NRC inspector noted several additional inconsistencies in the power ascension procedures. This indicated that the original review of the power ascension procedures were not in sufficient detail. When identified by the inspector, the licensee decided to conduct a second review of the power ascension test procedures.

Betweer July and September 1986, (preoperational test program closed) the results of preoperational tests and deficiency resolution continued to progress smoothly and the licensee's power ascension program continued to develop and improve. On October 31, 1986, the NRC issued a low power license, less than 5 percent. Initial fuel loading activities proceeded smoothly; however, initial criticality was postponed due to main steam isolation valve leakage (discussed in section 4).

The licensee established five shifts of personnel for power ascension testing. These personnel were selected from GE, S&W and the licensee. The key shift supervisors were selected and staffed. Training of power ascension personnel was being implemented in July. The licensee established a reasonable 250 day program for power ascension testing. The Housekeeping in the pla improved and all dry well activities were complete in July, 1986.

Good management involvement was noted in the development of I&C operations surveillance procedures. These procedures were verified during pre-operational test program and then submitted for review and approval. Similarly, start-up procedures were verified using the licensee's simulator. As a result these procedures were of excellent technical quality.

All inspections during the assessment period identified good QA coverage for the activities discussed in this section and reasonably good implementation of corrective action on identified deficiencies. QA was effective in identifying intrusion of rusty water into the fuel pool and obtaining management attention to correct the situation.

Recommendation Category 2

2. ASSURANCE OF QUALITY AND PROGRAM READINESS FOR OPERATION

(Based on Inspections 86-11, 22, 48, 15, 16, & 26)

During this assessment period the licensee's quality assurance (QA) program readiness to support Unit 2 operation was reviewed. The licensee management was involved in the development of the QA program and implementing procedures. The licensee developed its ANSI/ASME NQA-1 based QA Topical report for both units and received approval from the NRC for the same. The licensee's implementing procedures for both units were based on the existing procedures from Unit 1. These implementing procedures were detailed and provided specific guidance for implementation as they were developed to comply with ANSI N 45.2 daughter standards originally. The licensee was prompt in resolving concerns identified by the NRC during this review. For example, the staff identified inconsistencies in references between the topical report and its implementing procedures. The licensee made a prompt decision to allocate resources to review implementing procedures so as to assure that superseded references are deleted from the implementing procedures and replaced by clear commitments in the Topical Report. The implementing procedures were adequately followed for those Unit 2 activities under the purview of the operations QA program.

In all areas there was adequate staff to support the operational phase of Unit 2. Contingencies also exist to provide additional staffing during outages. The QA department controls and staff are in place to audit Unit 2 activities as they occur. However, management attention is required to assure that QA audits and surveillances include more direct observation of Unit 2 on-going work and to preclude occurrence of a condition noted in Unit 1 operation where it was noted that the QA audit and surveillances and QC inspections did not routinely include an adequate level of actual observation of on-going work. Management attention is required to assure that this condition is not repeated for Unit 2.

Additional reviews were conducted to assess the readiness of plant procedures, maintenance procedures, and emergency operating procedures. The inspectors noted good management involvement in the control, issue and review of these procedures. As a result, the plant, maintenance and emergency operating procedures were well thought out and they met the applicable regulatory requirements and the licensee commitments. Licensee personnel were responsive in resolving the NRC inspectors' concerns during these reviews. The operations and maintenance departments were adequately staffed with personnel knowledgeable in the requirements and implementation of the respective procedures. In addition, the licensee retains a pool of experienced retired personnel "on call" for contingencies in the maintenance area. The licensee also made a conscious decision to staff key positions in Unit 2 with experienced QA/QC and maintenance personnel from Unit 1. This enabled the Unit 2 staff to have a better operations knowledge and expertise and made the transition from one unit

to two unit operation less difficult. In all areas of inspection regional specialists noted good QA/QC coverage for procedure development and on-going work activities (see individual section for details of coverage).

In summary, the organization, staffing and the implementing procedures are adequate to support Unit 2 operation in all areas.

Recommendation: Category 1

3. NON-LICENSED TRAINING

(Based on Inspection 86-11)

During the assessment period, the effectiveness and readiness of the licensee's non-licensed training program to support Unit 2 operational phase were assessed. The licensee has developed a common non-licensed training program for both units. As of November, 1986, Non-licensed Operator, Shift Technical Advisor, Instrument and Control Technician, Electrical Maintenance Personnel, Mechanical Maintenance Personnel, Radiological Protection Technicians, Chemistry Technicians and on-site Technical Staff and Managers Training Programs were accredited by INPO. These programs were being implemented effectively at Unit 2.

Excellent management support was noted for the development and implementation of non-licensed training programs. The line management supported the training personnel in developing the job and task analysis and job specific lesson plans. The input from the craft personnel was not solicited or incorporated in the original job and task analysis or lesson plans. However, the training department was in the process of distributing post training surveys to the craft to obtain input from the craft to revise job and task analysis and the training program at the time of this review.

Instructors had prior hands on experience in the topics of instruction. The training facility was equipped with laboratories to provide hands on training for maintenance of components such as valves, electrical panels, switch boards and instrumentation. There was a good balance between theory and practical aspects in the lesson plans. The effectiveness of training was visible in shift turn over and routine plant tours by the auxiliary operators (AOs). The AOs were observed to be trained effectively to conduct valve line ups. Similarly, the maintenance personnel were well trained in the care of valves including proper greasing procedures.

The instructors routinely obtained feed back from the line supervisors regarding the effectiveness of training in work. They also obtained comments from the trainees at the end of each course. The instructors demonstrated how they incorporated the feedback from the trainees and

their supervisors in the lesson plans. Additionally, the line personnel acknowledged that the non-licensed training programs were highly job related and assisted the personnel in performing their jobs in a technically competent manner.

Quality Assurance Department audits training as part of routine functional area audits. The training department was responsive to QA audit findings and recommendations. As a result corrective actions were taken in a timely and effective manner.

Recommendation: Category 1

4. CONSTRUCTION, ENGINEERING, DESIGN AND MAINTENANCE

(Based on Inspections 86-08, 13, 26, 28, 32, 36, 37, 43, & 53)

During this assessment period, the licensee completed construction activities and took control of plant systems from the Architect Engineer. Several inspections including a major AS-Built team inspection were conducted to assess the adequacy of construction, engineering and design. Separate inspections were also conducted to follow the licensee's actions to resolve problems regarding the leak tightness of the main steam isolation valves (MSIVs). Each inspection assessed the activities in the inspection area with emphasis on hardware, management controls and QA/QC over view.

The As-Built team inspection covered areas in the mechanical (piping and HVAC) electrical power and instrumentation and control disciplines. In general the results of the inspection indicated that the as-built condition of the systems examined were good and in conformance with design requirements. Further, the results showed that the systems inspected were constructed substantially in accordance with the descriptions provided in the FSAR and the SER.

The licensee's management involvement in assuring quality can be detected in site activities. However, the management exercises a general overview rather than close monitoring and thorough involvement, of all activities performed by SWEC (A/E). This is evident in the strong reliance on MAC and SWEC in addressing many quality and technical issues.

SWEC's engineering personnel approached the technical issues raised during this inspection in a timely manner and, in general, with conservative and technically sound approaches.

As indicated above the overall assessment of as-built installations was good except for areas where several violations and unresolved items were identified. Examples of such violation and deviations included:

1. Unauthorized rigging from turned over systems.
2. Attaching scaffolding handrail to safely related pipe supports.
3. SDV piping support installations by RCI were not in conformance with as-built drawings.
4. Vertical cable installations exceeding maximum unsupported span specified in the specification.
5. Lack of identification for flexible conduit extending above the floor from a duct to service water pump.
6. Instrument impulse lines penetrating the drywell wall were not identified on either side of the wall.

In a separate inspection in March, one regional specialist assessed the adequacy of the licensee's electrical and instrumentation and control activities. Several violations were identified to address concerns such as not adequately identifying instrument on the nonconformance and disposition report, not adequately maintaining cable tray separation, and damaged instrumentation tubing. The inspection also noted a lack of established responsibilities between the licensee's QA and Architect Engineer's QA during transition from construction to preoperational phase. The licensee took prompt action to correct the identified deficiencies.

The licensee has established a system to track and close NRC open items in a timely manner. The licensee also assured that the open item packages prepared for the NRC review contained adequate information to close the items in a reasonable manner. Staff responsibility is established to ensure the availability of technical personnel cognizant of the various open items. This was especially evident during the followup of the licensee actions for one IE Bulletin, previous violations, construction deficiency reports and unresolved item. The packages were complete and provided information which was appropriate for NRC closure of each item. Personnel responsible for the open items were knowledgeable of the technical aspects.

Review of final stages of the Preservice Inspection Program (PSI) found the program to be conducted per the ASME Code Section XI rules with an adequately trained staff. Records of PSI examinations performed, relief requests, identification of partial examinations (where limited by geometry) and summary reports were found to be complete. PSI and the Inservice Inspection (ISI) were planned to provide for component examination throughout plant operation.

Licensee training of personnel during this transition period from A/E (Construction) to Licensee (Operation) appeared deficient, for example in the Material and Equipment List (MEL) and Equipment Qualification (EQ) areas. The licensee reported considerable effort to overcome this deficiency including the transfer of knowledge operations personnel in from Unit 1.

Several inspections were conducted to review the adequacy of licensee action in resolving the Main Steam Isolation Valve (MSIV) leakage problem. Licensee management and all levels of personnel were actively involved in the resolution of this issue, as the leak tightness of these valves are critical for fuel load and power operation. A more critical review of the design of these MSIVs during procurement and installation phases could have avoided the entire problem. Testing of these valves under operating conditions could also have identified leakage problems.

The licensee's early solution to mitigate excessive leakage was to reposition the seat springs. It appears that the licensee limited the test after the fix to one valve due to cost and schedule implications. The licensee has an awareness that repositioning of the seat springs will not be the final fix.

In followup inspections, it was evident that the licensee is dedicated to meet leak rate requirements for these valves within the 100 hour warranty run. More conservative approaches were also noted towards the solutions of problems. Prototype tests are being conducted to assure that MSIV operation will be adequate under operating temperature, pressure and steam flow conditions. However, the first such prototype test failed the leak test.

Continued management attention is warranted to adequately track and resolve MSIV leakage and operability problems. Also, a conservative approach developed from prototype testing and a review of the design should be implemented to assure safe operation of the MSIV.

Recommendations: Category 2

5. FIRE PROTECTION

(Based on Inspection 86-21)

This evaluation is the result of one inspection in the fire protection area focusing primarily in the resolution of items previously classified as unresolved.

The licensee's management's emphasis on fire protection is evident throughout the program. Resolution to NRC concerns is prompt and conservative. Unresolved issues from past inspections have been adequately addressed and resolved. The emphasis on good fire protection is also apparent in the choice of the individual who is heading this program. This person has been a licensee employee for more than 40 years, has an SRO license and is involved in local fire department activities. This individual is able to get things done since he has full management support.

Another asp[illegible] the licensee's fire protection program is the fire brigade. T[illegible] brigade is composed of professional fire fighters that are rigorou[illegible] trained in both fire fighting and plant safety.

The plant housekeeping is adequate considering the construction activities.

Recommendation: Category 1