ENCLOSURE 1

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT 50-412/85-99

DUQUESNE LIGHT COMPANY

BEAVER VALLEY POWER STATION, UNIT 2

(Construction Phase)

ASSESSMENT PERIOD: APRIL 1, 1984 - MARCH 31, 1985

BOARD MEETING DATE: MAY 20, 1985

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I. INTRODUCTION

1. Purpose and Overview

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect the available observations on a pericdic basis and evaluate licensee performance based on those observations with the objectives of improving the NRC Regulatory Program and licensee performance.

The assessment period is April 1, 1984 through March 31, 1985. The prior assessment period was December 1, 1982 through March 31, 1984. Significant findings from prior assessments are discussed in the applicable Performance Analysis (Section IV) functional areas. Evaluation criteria used during this assessment are discussed in Section II below. Each criterion was applied using the "Attributes for Assessment of Licensee Performance," contained in the NRC Manual Chapter 0516.

2. SALP Board and Attendees

Review Board Members

W. Kane, Deputy Director, Division of Reactor Projects (DRP) and Acting SALP Board Chairman
S. Ebneter, Director, Division of Reactor Safety (DRS) (Part Time)
E. Wenzinger, Chief, Projects Branch 3, DRP
L. Bettenhausen, Chief, Operations Branch, DRS (Part Time)
L. Tripp, Chief, Projects Section 3A, DRP
G. Walton, Senior Resident Inspector, Beaver Valley, Unit 2
S. Varga, Chief, Operating Reactors Branch No. 1, DRP
B. Singh, Licensing Project Manager, NRR

Other Attendees

C. Anderson, Chief, Plant Systems Section, DRS (part time)
G. Meyer, Project Engineer, Projects Section 3A, DRP
F. Casella, Reactor Engineer, Projects Section 3A, DRP
H. Gray, Reactor Engineer, Materials and Processes Section DRS (part time)

3. Background

Duquesne Light Company was issued a Construction Permit (CPPR-105) to build Beaver Valley, Unit 2 (Docket No. 50-412) on May 3, 1974. The Nuclear Steam Supply System (NSSS) is a 2660 MWt Westinghouse PWR with three loops; the Architect/Engineer (A/E) is Stone and Webster. At the end of this assessment period, fuel load is scheduled for April, 1987, and the planned commercial operation date is December, 1987. Stone and Webster Engineering estimated the construction at 85.3 percent complete as of March 31, 1985, as compared to 77.5 percent complete at the end of the last assessment period (March 31, 1984).

a. Licensee Activities

The numbers of craft workers decreased slightly during the assessment period. On March 31, 1984, there were 2412 craft workers, compared to 2338 craft workers on March 31, 1985; a decrease of 3 percent. Second shift activity was increased from 423 to 570 during this period. There is essentially no third shift activity. Weekend activity has decreased from an average 1746 manual and nonmanual personnel to an average of five manual personnel working on Saturdays. The licensee's Quality Control Department staffing increased from 281 to 361, an increase of 28 percent. Stone and Webster Engineering supervisory, engineering and administrative personnel on site have increased 34 percent; from 485 to 650 people. The majority of this increase was in the Engineering Department. Also notable was the assignment by Stone and Webster of a full-time Site Project Manager and a Site Engineering Sponsor. Both of these senior managers bring many years of nuclear experience to the project in key areas.

Reorganizational changes were made in the Duquesne Light Company Startup Group during the assessment period by combining the "Construction Startup Group" (CSUG) and "Operations Startup Group" (OSUG) under one Startup Manager as the "Startup Group" (SUG). This will eliminate the need for two independent turnovers as well as combine all testing activities.

Additional safety-related equipment was completed and turned over to Duquesne Light Department Startup Group. Thirty-eight (38) subsystem release packages that contain safety related items were turned over. Included in these packages were major items such as the 4160-volt emergency buses, the 480-volt emergency buses and substantial portions of the Service Water and Primary Component Cooling Water Systems. See Functional Area 10 for additional details.

During this assessment period, the major construction activities included installation, welding, examinations, hydrostatic testing and flushing of the main steam, feedwater, large and small bore piping and associated supports; heating, ventilation, and air conditioning (HVAC) and fire protection systems were partially installed; pumps, motors, control panels, reactor coolant pumps and motors, and safety-related storage tanks were installed and connected. Electrical cable trays were installed, cable was pulled and terminated; instrumentation lines and associated hardware were partially installed. Painting/coating occurred throughout the site. Insulation of tanks and pipes commenced during this assessment period. The major portion of safety related work on soils and foundations was completed before this assessment period started.

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To complete the cable pulling, approximately two million additional feet remain to be pulled of the approximately 5.8 million feet total. The contractor plans to pull 90 percent of the remaining cable during the 1985 calendar year. The reactor coolant system hydrostatic test is planned for May, 1986. Steam generator hydrostatic test of the secondary side is scheduled for January, 1986. The initial startup of the diesel generators is planned during 1985. The turbine was put on turning gear in October, 1984.

b. Inspection Activities

A second resident inspector was assigned onsite effective October 7, 1984. Resident inspector activities involved accomplishment of assigned inspection requirements including observation of work in progress, follow-up of licensee events, reactive inspection and evaluation of licensee responses to NRC identified concerns. In addition, the resident inspector participated in a Construction Team Inspection (CTI) conducted by NRC Region I.

Twenty-two inspections were performed during the assessment period; nine independently by resident inspectors, twelve by region-based specialist inspectors and one Construction Team Inspection performed jointly by a resident inspector and region-based specialist inspectors. There were 3917 hours of inspection of which 1593 were by the resident inspectors, 1207 were by region-based specialists and the remainder was the CTI plus the inspection hours involved in examinations of components using the Nondestructive Testing Mobile Lab. The specialist inspection activities were in the following areas: instrumentation installation, piping and pipe support installation, electrical cable installation, electrical separation and termination, welding and welder qualifications, preoperational test and operational preparedness, and independent verification of piping, structural, and support weldments. The CTI included coverage of project management, engineering/construction interface, quality assurance/quality control, piping and mechanical components, and electrical/instrumentation work.

c. Licensing Activities

The Draft Safety Evaluation Report (SER) was issued March 1, 1984. Final SER issuance is planned for April, 1985. NRR and DLC Licensing Division continued correspondence and meetings to resolve NRR outstanding items. This included site visits made by NRR personnel to observe the actual installed condition of the hardware. The ACRS full committee hearing is scheduled for August, 1985.

Four amendments (Amendment 9) to the FSAR were issued during this assessment period.

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II. CRITERIA

The following criteria were used as applicable in evaluation of each functional area:

1. Management involvement in assuring quality.
2. Approach to resolution of technical issues from a safety standpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Reporting and analysis of 50.55(e) and Part 21 items.
6. Staffing (including management).
7. Training (effectiveness and qualification).

To provide consistent evaluation of licensee performance, attributes associated with each criterion and describing the characteristics applicable to Category 1, 2, and 3 performance were applied as discussed in NRC Manual Chapter 0516, Part II and Table 1.

Category 1: Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used such that a high level of performance with respect to operational safety or construction is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective such that satisfactory performance with respect to operational safety or construction is being achieved.

Category 3: Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appeared strained or not effectively used such that minimally satisfactory performance with respect to operational safety or construction is being achieved.

The SALP Board also assessed each functional area to compare the licensee's performance during the last quarter of the assessment period to that during the entire period in order to determine the recent trend for each functional area. The trend categories used by the SALP Board are as follows:

Improving: Licensee performance has generally improved over the last quarter of the current SALP assessment period.

Consistent: Licensee performance has remained essentially constant over the last quarter of the current SALP assessment period.

Declining: Licensee performance has generally declined over the last quarter of the current SALP assessment period.

III. SUMMARY OF RESULTS

1. Overall Facility Evaluation

Improvement was shown in all three areas that received low ratings (Category 3) in the last SALP report; the licensee and their primary contractor were responsive in addressing the weaknesses noted in that assessment. Several initiatives implemented during this assessment period were effective in improving performance in those weak areas, however, some lingering engineering/construction interface problems still exist in the electrical/instrumentation area. An overall program for resolution of electrical cable separation problems now exists; satisfactory progress is now being made in this area. Additional attention to separation problems involving instrumentation tubing and internal panel wiring is needed.

Satisfactory performance was achieved in each functional area, but problems within several areas need further attention if higher performance levels are to be achieved. These include better control over items being reworked, day-to-day attention to in-place storage to preclude past cyclic performance in this area, assuring that recent actions to preclude or provide for prompt identification of QC inspection errors are effective, and tightening the system completion/turnover process to reduce the high number of open items at turnover. Licensee project management and startup programs are functional, but better defined organizational responsibilities and control of system completion/turnover are needed.

Quality Assurance and Administrative Controls was evaluated as a separate functional area in this SALP assessment period due to numerous organization and senior management changes that occurred during this period. Except for isolated cases of inspector error, the Quality Assurance/Quality Control organization has been effective in assuring quality through independent audits, daily inspection activities, and reinspection efforts. Licensee resolution and followup of deficiencies resulting from inspector errors were thorough and are now complete.

2. Facility Performance

	Functional Area	Category Last Period	Category This Period	Recent Trend
1.	Containment and Other Safety-Related Structures	2	1	Consistent
2.	Piping Systems and Supports	3	2	Improving
3.	Safety-Related Components	1	1	Consistent
4.	Support Systems	1	1	Consistent
5.	Electrical Power Supply and Distribution	3	2	Consistent
6.	Instrumentation and Control Systems	2	2	Declining
7.	Licensing Activities	2	2	Improving
8.	Storage of Safety-Related Components	1	2	Improving
9.	Engineering/Construction Interface	3	2	Consistent
10.	Preoperational/Startup Testing	Not rated	2	No Basis
11.	Quality Assurance and Administrative Controls	Not rated	2	Consistent

IV. PERFORMANCE ANALYSES

1. Containment and Other Safety-Related Structures (1%)

a. Analysis

During the prior assessment period, performance in this functional area was generally good. Problems were identified which involved a failure to identify requirements for bolted connections of structural steel joints with long slotted holes and the lack of progress in repairing containment electrical penetration welds.

All inspection coverage in this area was by the resident inspectors during the current assessment period. It included the licensee's activities to demonstrate that surface coatings in containment were acceptable, verification that high strength bolts and nuts were used in the construction of structural steel members, and the repairs made on the containment electrical penetration welds. Although inspection coverage was limited, this Functional Area was rated during this assessment in recognition of the licensee's thorough followup on problems noted in the last SALP as well as in response to an allegation.

The bulk of all concrete was placed during previous assessment periods, and during the previous assessment period, the batch plant was disassembled and removed from the site. The miscellaneous concrete poured during this period was obtained from offsite. The major work remaining to be done in this functional area is the closing of the containment construction opening which is planned for the fall of 1985.

No problems were identified by the NRC during this assessment period. The concerns expressed in the last SALP report regarding the slow progress being made on the required repairs to containment electrical penetration welds have been satisfactorily resolved. During this assessment period, all repairs were completed and reinspected with minimal impact on construction.

To resolve an allegation that the NRC received from an outside source, DLC performed extensive destructive tests on paint coatings inside containment to demonstrate acceptable coating adhesion and thickness. The licensee took the initiative and contracted a coating expert to destructively sample 187 areas where coatings were applied to assess installed conditions. All areas investigated were acceptable. This demonstrates a commitment to quality and a desire to work with the NRC to resolve safety concerns.

No 50.55(e) reports were issued in this functional area.

b. Conclusion

Category 1, Consistent. Licensee actions to resolve concerns resulting from allegations concerning coating quality are particularly noteworthy.

c. Board Recommendation

Licensee

None

NRC

None

2. Piping Systems and Supports (27%)

a. Analysis

During the prior assessment period, there was a marked increase in the number of deficiencies and errors noted in this functional area. Many of the problems were attributed to deficiencies in basic documents such as drawings and specifications, and involved lack of clarity, insufficient details, ambiguity, conflicting requirements, etc. Problems in this area were closely related to weaknesses in the engineering/construction interface; a Category 3 rating was assigned.

This area received frequent coverage by the resident inspectors, during four inspections by region-based specialists, and was included in the Construction Team Inspection (CTI) coverage. One of the specialist inspections included the NDE van and actual tests were performed on several components. A high level of piping installation has continued throughout the assessment period. The majority of the large bore piping is installed; however, many of the associated supports are not. Small bore piping installation is progressing satisfactorily.

The licensee and constructor have been aggressively pursuing and correcting the root causes of problems identified in this area in the last SALP. An action taken in the Engineering Department was the formation of an "Integrated Construction Support Group" (ICSG) in November, 1984. The personnel are located in the Auxiliary Building which allows construction direct access to the engineers. The group's function is to perform "hands on resolution of construction problems associated with the drawings or specifications." This group has high visibility and accessibility to the construction forces. It has strong licensee and constructor support and although it has been operational for only a short time, it appears to be functioning very well and eliminating many construction/engineering problems where confusion previously existed.

Stone and Webster Engineering also established a "Constructability Review Team (CRT)" to review pipe support drawings and assure they were precise and clear. The objective was to eliminate the issuance of confusing information to Quality Control and Construction which would then be used during installation and inspection. This directly addresses a problem area discussed in the last SALP report. This team consisted of representatives from Schneider Power Construction and Engineering, Stone and Webster Construction and Engineering, and Duquesne Light Company Site Quality Control. Since this team's inception in June, 1984, it has been very effective in eliminating confusion on drawings. The team decided shortly after its formation to completely redraw all pipe rack support drawings. Also, numerous changes were required on individual pipe support

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drawings. Many drawings were expanded from one sheet to two sheets to provide clarity. The effectiveness of the CRT efforts, including feedback to and training of design engineers, has been demonstrated by the marked decrease in the percentage of drawings that are being sent back for revision following CRT review (from an initial rate of approximately 50% to a 3-5% rate by the end of the assessment period).

The "Engineering Confirmation Program" was implemented during this period, partially because of past concerns identified by NRC. The licensee's portion of this program was completed during this assessment period. Stone and Webster plans to complete their part of the program during 1985. Licensee management has shown strong support for this program. The licensee is demonstrating through implementation of this program, the acceptability and implementation of specification and design criteria.

The licensee has placed greater emphasis on reducing the number of first time rejects (i.e., construction presenting unacceptable material to Quality Control), by emphasizing to the workers and construction foremen the need for quality improvements during the initial construction and installation of the hardware. This has strong management support and resulted in a reduction of the amount of rejected material. In parallel with these corrective actions, the piping contractor replaced the Project Manager and Assistant Project Manager effective January 1, 1985. These actions are designed to reduce the problems the contractor had been experiencing.

The above actions demonstrate considerable attention to past weaknesses in this area. To date, these efforts appear to have been effective.

The licensee has implemented major reinspection programs to correct discrepancies in the area of pipe supports and baseplates. (This was also identified as a concern in the last SALP report.) Implementation also included numerous reinspections of supports due to inspector error. (This item was reported to the NRC as a 50.55(e) item.) The reinspections and rework have, for the most part, been completed.

NRC has identified concerns in this area involving reworked items. The contractor needs to implement stricter controls when existing QC inspection reports are nullified and when additional inspections are necessary when existing pipe supports are reworked or dismantled. Although the licensee has issued procedures to control this area, implementation results have only been marginally effective. This item was also the subject of a 10 CFR 50.55(e) report.

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The number of problems identified by NRC and other independent audits involving pipe supports indicates some weaknesses in the quality program in this area. However, when problems were identified, the licensee took excellent corrective actions through inspections and rework to assure the product was constructed adequately. For the inspector errors, the licensee has taken strong punitive actions and/or retraining where necessary.

Hardware quality was assessed during this period through inspections performed using the NDE Mobile Lab. Numerous welds and supports were inspected to verify component workmanship and quality. These sample inspections found acceptable weld quality and verified the installed product is constructed to acceptable quality standards. To demonstrate the acceptability of using a flexible ring to maintain minimum gap on socket welds (trade name Gap-O-Lets), the licensee had extensive analytical work and flow testing performed on simulated welds. This data supported the licensee's position on acceptability; it demonstrates the licensee's willingness to resolve any NRC quality concerns even when significant additional efforts are required.

A "Construction Team Inspection" (CTI) performed late in the SALP period found no significant problems in this area and verified acceptable construction practices were established. The CTI and NDE independent inspections also found that the licensee, constructor and contractors have excellent record-keeping and retrieval capabilities.

In summary, the licensee has implemented numerous management programs supplemented by reinspection to strengthen the programmatic weaknesses identified in the last SALP report. From a programmatic standpoint, these appear to be strong corrective actions and should be effective in eliminating these weaknesses. However, for several of these actions, implementation has been too recent to demonstrate overall effectiveness. Control of reworked items needs additional management attention to be effective. The CTI inspections found this area to be adequately controlled. Overall, the licensee and contractor have shown positive results and improvements since the last SALP. With implementation of these programs and continuing strong management support of the new controls, continuing satisfactory performance should be assured and further improvements should be achievable.

b. Conclusion

Category 2, Improving. Licensee/contractor initiatives have been responsive to past NRC concerns in this area.

c. Board Recommendation

Licensee

Continue to aggressively implement initiatives in this area.

NRC

Continue to monitor recent licensee/contractor initiatives to improve the engineering/construction interface.

3. Safety Related Components (15%)

a. Analysis

No significant problems were noted in this area during the prior assessment period. Work on safety related components was found to be well controlled; a Category 1 rating was assigned.

Most of the inspection activities in this area were by the resident inspectors; there was one inspection by a region-based specialist. The work activities in this area included connecting the main steam and feedwater piping to the steam generators, final assembly and trial fitting of the reactor vessel upper and lower internals, rework of the main steam isolation valves, installing the reactor coolant pumps and motors, and completion of the site fabricated storage tanks.

NRC found that good controls were in place for the large amount of work involved in welding, repairs, and heat treatment of steam generator piping connections; fitting and welding of the reactor vessel upper and lower internals; repairs of the main steam isolation valves; and installation of the reactor coolant pumps and motors. Two violations were identified during this assessment period; (1) failure to follow procedure for disassembly of a valve; and (2) liquid penetrant indications found on previously inspected and accepted reactor vessel internals. The licensee is taking corrective actions on these items. The liquid penetrant indication was found to be superficial when cosmetic sanding was performed and had no apparent effect on the structural adequacy of the reactor vessel internals. Both cases appear to be isolated. However, better controls on disassembly of components are warranted.

NRC found steel chips and other foreign material present on the interior of the reactor vessel upper internals rod guides which indicated a need to implement stronger controls on the fabrication and installation of these critical components.

In summary, overall performance in this functional area is good. The high performance levels noted in the previous SALP assessments have been maintained except for isolated deficiencies.

b. Conclusion

Category 1, Consistent.

c. Board Recommendation

Licensee

None.

NRC

None.

4. Support Systems (9%)

a. Analysis

No significant fabrication problems were identified in this area during the last assessment period. The licensee and contractor had good controls; a Category 1 rating was assigned.

This area was covered by the resident inspectors and during two inspections by region-based specialists. Installation of the heating, ventilation and air conditioning (HVAC) and fire protection systems continued throughout the assessment period. No violations were identified.

Inspections were performed in several areas of HVAC installation including vendor records and general construction. Limited inspections of records and procedures for fire protection systems were performed. Good controls were found in each of these areas.

A 50.55(e) significant item was reported to the NRC. A Duquesne Light Company Quality Assurance Audit identified that HVAC supports failed to meet minimum weld sizes stated on the drawings. Investigations performed by the licensee found the undersize welds were missed primarily because of one inspector's errors. This indicates some breakdown in the licensee's Quality Control Program; however, the licensee's Quality Assurance Program was effective because their internal audits discovered the deficiency. Management took necessary punitive actions regarding the individual involved. In addition, management took good corrective actions by performing 100% reinspection of the inspector's work and through sampling of other inspectors' work. Overview inspections of new work as accepted by QC were also implemented. These aggressive actions were effective in restoring confidence in the quality of support welds.

In summary, the licensee and contractor have good controls in this area. The licensee's identification and correction of problems indicates overall good control of quality. The contractor has also demonstrated good fabrication controls.

b. Conclusion

Category 1, Consistent.

c. Board Recommendation

Licensee

None

NRC

Reduce inspection coverage.

5. Electrical Power Supply and Distribution (17%)

a. Analysis

Day to day construction and QC inspection activities were considered to be under good control during the prior assessment period. However, the licensee/contractor had been very slow in developing and implementing an approach that would meet cable separation commitments and requirements so as to resolve widespread cable separation problems. A Category 3 rating was assigned.

This area was covered by the resident inspectors, during six inspections by region-based specialists and by the CTI. Cable trays, conduits, and cable continued to be installed throughout the assessment period. The bulk of the remaining work involves cable pulling and termination. Included in this area are cable support activities (in trays and in free air) as well as wrapping cable for fire protection, covering raceways with tray covers and other activities to meet the separation criteria required by Regulatory Guide 1.75.

One violation and one deviation were identified during this assessment period. The violation involved failure to follow procedures during cable pulling and inadequate controls for protection of cable already installed. Exceeding cable bend radius, pulling cable with nonconforming conditions on the cable, and damaging installed cable because of sharp corners on tray side rails were examples cited in this violation. These problems were attributed to lack of controls in the interface between the Engineering, Quality Control and Construction personnel regarding when cable pulling should be stopped and/or started, timely issuance and disposition of nonconformance and disposition reports, and written and/or verbal disposition by Engineering. The deviation resulted from the licensee's failure to fulfill commitments made to the NRC regarding controls on cable overfill in raceways. Corrective actions regarding the deviation have been taken and accepted by the NRC.

Other concerns were identified during this assessment period, many of which represent lingering engineering/construction interface problems similar to those discussed in the last SALP report. They include:

-- Unsupported cable lengths in excess of specification which could lead to support overloading and resultant cable damage (denting). This issue now appears to be sufficiently clarified to allow QC inspectors to perform inspections and identify areas where additional supports are needed. In attempting to resolve this issue, many conflicting requirements were presented to the NRC. The NRC's identification of these problems and the constructor's failure to provide acceptable engineering

corrective actions at the outset of problem identification indicates additional management attention is required to resolve technical issues as they arise in this area.

-- The retorquing of spring nuts, a problem identified by the licensee. This a major problem which should have been avoided with proper torque applied during installation. This was a problem in the engineering area in failing to specify torque requirements to the contractor for installation, consistent with the spring nut manufacturer's recommendations.

-- The constructor's inability to provide satisfactory resolution to the NRC's questions regarding consideration of side wall pressure during pulling of cable. (Subsequent to the end of the assessment period, the licensee was in the process of revising cable pulling procedures and reviewing the acceptability of existing pulled cable.)

-- NRC identified conflicting requirements between engineering specifications and FSAR requirements regarding the identification of cable runs from safety-related buses to non-Class 1E loads. FSAR and specification changes were required to eliminate the confusion.

-- Other problems, such as the violation (see Functional Area 11) involving improper disposition of nonconforming conditions on pull tension and bend radius, manual changes to engineering cable pull tickets without design requirement considerations and NRC concerns which involved the followup omission of shims on electrical supports, inadequate torquing of anchor bolts used on electrical supports, inadequate control of cable fills in raceways, tray-to-tray connections with use of unqualified material, and lack of controls on storage of coiled cable indicate weaknesses in the Engineering and/or Construction electrical discipline.

Many of these items have since been adequately resolved and in some instances, reinspections to identify the need for rework are in progress. The reinspection and/or rework of some of the other items, such as retorquing the spring nuts, retorquing Hilti bolts and inspection and installation of shims under baseplates is a concern because of timeliness in commencing the reinspection. The plan to inspect these items late in 1986 could create some accessibility problems for Hilti bolts and baseplate shims. Also, further fabrication and turnovers to DLC of these systems with existing known nonconforming conditions is a concern because it creates the need to perform construction rework on systems turned over to operations. The last SALP identified that good corrective actions were being taken on the majority of these items; however, since that time, reinspections were stopped. .

A major area identified as a weakness in the last SALP report regarding cable separation and compliance with Regulatory Guide 1.75 has since received extensive management attention. Cable pulling was stopped by the licensee until clear resolution and direction was established. Stone and Webster Engineering established a program to resolve all issues and systematically accomplished these objectives. Construction and QC personnel have been trained with respect to separation requirements. Effective May 18, 1984, subsequent electrical installations (external to panels) have complied with Regulatory Guide 1.75. Also, Stone and Webster and Duquesne Light Quality Control inspectors have completed an inspection program which identified areas requiring rework. The rework is virtually completed. Further, the licensee has implemented a test program to support the cable separation program, regarding the kinds and amounts of cable wrapping and cable tray covers necessary for compliance with the regulatory guide. Except for actual installation of cable wraps and tray covers, resolution of this item is complete. This area has clearly shown positive involvement by the licensee and Stone and Webster's management since the last SALP report, and as a result, corrective actions have been responsive to past concerns.

Other areas discussed in the last SALP report have also received increased management attention and are showing marked improvement. The Integrated Construction Support Group (discussed in Functional Areas 2 and 9) established by Stone and Webster Engineering also plays an important role in resolving issues and questions in the field involving electrical issues. This concept of placing engineers in the buildings where the work is being accomplished provides an excellent contact to field personnel for clarifying and/or resolving issues.

The "Constructability Review Team" (also discussed in Functional Areas 2 and 9) reviewed conduit support drawings and revised drawings where necessary to provide concise and clear information to the field. Again, this has helped eliminate confusion regarding drawing requirements which existed during the last SALP period.

Generally, the electrical contractor (Sargent Electric) has demonstrated a sound quality oriented approach to safety issues. With some exceptions, no major problems have occurred in the construction and installation of cables and cable trays in accordance with specifications and procedures. Exceptions are the violation involving minimum bend radius of cable in pull boxes and failure to cease pulling cable when nonconforming conditions existed on cable from the pulling operation. Increased management attention is warranted to assure compliance with requirements pertaining to cable damage, bend radius and pull tension.

QC personnel and management are well qualified and knowledgeable of work requirements, specifications and procedures. The training program for QC inspectors is well conceived, thorough and well executed. Personnel are adequately trained.

In summary, improvement is noted in this area since the last SALP report. Management, through reorganization and restructuring, has effectively addressed the cable separation and other problems described in that SALP report. This area has received significantly increased attention by both the licensee and Stone and Webster since the last SALP report was issued. Most of the identified problems occurred earlier in the assessment period; resolution of cable separation concerns is progressing well. Although improvement has been shown during this assessment period, numerous lingering problems still exist.

b. Conclusion

Category 2, Consistent. This area continues to warrant priority licensee/contractor attention.

c. Board Recommendation

Licensee

Complete development of an overall comprehensive plan to address and resolve problems in this area. Implement an integrated plan for timely resolution of remaining outstanding electrical issues. Complete reinspections and rework prior to system turnover.

NRC

Maintain present inspection level in this area to monitor licensee resolution of past issues and completion of work.

6. Instrumentation and Control Systems (11%)

a. Analysis

During the last assessment period, control of onsite construction and inspection activities in this area was considered to be good. However, several items fabricated offsite were identified as needing significant inspections and rework. A Category 2 rating was assigned.

There was some coverage of this area by the resident inspectors, three inspections by region-based specialists, and the CTI included these systems. Various work in this area continued throughout the site similar to the last SALP period such as wiring and terminations in the Control Building and terminations in various control panels. Also, installation of various flow, pressure and temperature instrumentation began in several safety-related systems such as the Service Water System and the Primary Component Cooling Water System to support turnover of portions of these systems to the DLC Startup Group.

Stone and Webster Engineering and DLC Site Quality Control devised a program to inspect and correct various workmanship problems in the internal wiring of numerous panels discussed in the last SALP report. During this assessment period, the licensee completed a 100% reinspection effort of these panels and has corrected many of the workmanship problems. Also, vendor surveillance inspection plans were upgraded for any future inspections of wiring at vendor facilities prior to panel shipment. These actions demonstrate the licensee's continuing commitment to quality.

Four violations were identified late in this assessment period with three of these violations concerning the installation of instruments and instrument tubing. The fourth violation concerned the failure to implement the Quality Assurance Program when inspecting panel internal wiring against Regulatory Guide 1.75 separation requirements.

The three violations involving the installation of instruments and instrument tubing were the result of inadequate engineering design review and ambiguity in the specification and are indicative of a problem in this area. Specifically, onsite engineering failed to translate sufficient information from composite drawings to single line construction drawings used by craft and QC personnel. The insufficient information in these drawings regarding installation and construction criteria such as instrument type, tubing size, location, separation, slope and routing led to problems involving inadequate separation of redundant tubing, mounting of redundant instrument tubing on the same support and failures to mount instrument vents and drains to direct the discharge away from personnel and

electrical equipment. The licensee and Stone and Webster took rapid corrective action by issuing a stop work order on the installation of instrument tubing pending an engineering review and resolution of the discrepancies. The licensee has proposed tighter engineering controls, but still does not require Quality Control personnel to verify separation criteria for instrument tubing.

The violation concerning the lack of QC inspection of panel internal wiring separation also occurred at the end of this assessment period. The licensee and Stone and Webster developed a procedure to inspect the internal wiring in all safety-related panels for compliance with Regulatory Guide 1.75 and to define the rework necessary for compliance. While this process appeared to provide a method to upgrade these panels, these inspection activities did not follow the DLC Quality Assurance Program in that personnel performing inspections were not part of the QA function, were not certified to perform inspections, and were not independently separated from the organization directly responsible for performing the specific activity (Stone and Webster Engineering in this case). The licensee/contractor needs to provide additional attention to problem resolution to assure that actions to resolve deficiencies do not circumvent the existing QA/QC programs.

In summary, several violations were identified in this functional area in the last two months of the assessment period. However, other installation and QC inspection activities have been satisfactory. Separation requirements for panels (internal wiring) and instrument tubing are still being addressed; instrumentation separation clearly received lower priority than cable separation (see Section 4). Clear definition of engineering criteria and Quality Control functions and responsibilities need to be addressed for instrumentation and control systems. Further, inspections conducted on safety-related equipment must be in accordance with the approved DLC Quality Assurance Program. Additional management involvement is needed in this area to maintain high quality standards and timely resolution of separation problems.

b. Conclusion

Category 2, declining.

c. Board Recommendation

Licensee

Resolve internal panel wiring discrepancies in a timely manner. Assure that separation inspections are in accordance with the DLC Quality Assurance Plan and verify compliance with requirements.

NRC

Increase inspection effort.

7. Licensing Activities

a. Analysis

This area was categorized as satisfactory (Category 2) during the previous SALP. Evaluation and monitoring of licensing activities included routine contact between the NRC and DLC as well as conference calls, site visits, meetings and audits as required. The major licensing activities during this assessment period involved the continuation of the NRC staff review of the FSAR and ER, issuance of the Draft Environmental Statement and Draft Safety Evaluation Report, and preparation for Safety Evaluation Report (SER).

Based on a composite of a number of functional areas, the applicant continues to demonstrate evidence of prior planning and assignment of priorities. He has well stated, controlled and maintained explicit procedures for control of activities. This has been shown by the applicant's approach to resolving approximately 350 open items identified in the staff's draft safety evaluation report to support preparation of the final SER. The applicant established a program to identify and track the status of each item and maintained internal schedules for resolving each open item. Generally, DLC management assigned the necessary technical people to develop complete, high quality responses,. Further, he has been using the NRC backfitting procedures provided (e.g., NRC Manual Chapter 0514) in an attempt to assure that only cost effective safety measures are implemented.

In a majority of cases the applicant provided timely responses to open issues. The applicant was responsive to a majority of the staff concerns, took the initiative to resolve issues by requesting conference calls, and meetings, and promptly followed up with submittals of responses. Responses were generally technically sound, concise, and addressed the staff's concerns in a professional manner. Some exceptions occurred during the power systems, mechanical engineering, radiological assessment, meteorology and effluent treatment, auxiliary systems, and instrument and control systems portions of the safety review. In these cases, several discussions and meetings with the applicant were necessary in order to obtain clarification and reach resolution. Although corporate management reviews and signs all submittals to NRR, it is felt that increased direct management involvement might have expedited the resolution in these cases. Early on, while DLC management urged the NRC staff to meet their scheduled milestones, they did not provide timely inputs of sufficient quality for NRC to meet those milestones. However, more recently this situation has improved.

DLC generally demonstrated a clear understanding of issues during meetings and discussions with the NRC staff and in its submittals to the staff. Its approaches to resolution of technical issues are

viable and generally sound and thorough. The applicant was willing to perform additional studies as necessary to resolve technical issues. He performed detailed analytical technical work in a timely manner to support the SER schedule. Generally, when the staff and the applicant held differing technical positions, the applicant provided a sound basis for his position. Some exceptions occurred concerning the auxiliary systems, instrumentation and control systems, and power systems portions of the safety review. In these cases, the applicant did not always demonstrate a clear understanding of the issues. Viable approaches to resolution were generally proposed, however, in some cases it required much more interaction than normally required.

Positions within the applicant's organization are identified and authorities and responsibilities are well defined. Generally, sufficient technical staff have participated in review meetings to effect timely resolution of open items. DLC licensing staff have been very effective. However, it is felt that management involvement in resolution of significant issues failed to prevent the need for additional staff effort to obtain resolution and prevent schedule delays.

Overall, our conclusion is that, although the reported individual ratings for the evaluation criteria were variable, the licensee's performance in this area has been adequate and reasonably effective in addressing nuclear safety considerations. The increased management participation towards the end of the SALP period has contributed to improved understanding and resolution of issues.

b. Conclusion

Category 2, Improving.

c. Board Recommendation

Licensee

None.

NRC

None.

8. Storage of Safety Related Components (9%)

a. Analysis

This area is listed as a separate functional area because it was assessed as a weak functional area in two of the last three SALP reports. In addition to the resident inspector's daily site tours and specific inspections, there were three inspections by region-based specialists.

Storage conditions were observed throughout the site both for equipment already installed and for equipment still in storage in the warehouses. Four violations were issued during this assessment period concerning storage of a variety of plant equipment - instrumentation, personnel airlock, piping and motor operators. Additional NRC concerns occurred involving storage of an assortment of equipment - coiled cable, sealing electrical terminals, fan motors, fuel pool heat exchangers, batteries, instrument valve manifolds, and reactor vessel upper internals. Inspections found moisture present on the inside surfaces of the fuel pool heat exchangers (records indicated components were in dry lay-up). In addition, records indicated water was found two years earlier in the same heat exchanger and no corrective actions were taken.

With one exception, all of these findings pertained to in-place storage of components. These problems and other NRC findings indicated that during the first part of this assessment period, the licensee's storage program significantly deteriorated from the Category 1 condition which was present at the end of the last SALP period.

In December, 1984, based on NRC findings, the licensee recognized that strong corrective actions were necessary to upgrade the storage program with particular emphasis placed on components requiring in-place storage and maintenance. A Composite Review Work Group (CRWG) was formed with construction, engineering and startup personnel from Stone & Webster, Duquesne Light Company, Schneider Power Corporation (SPC) and Sargent Electric Company (SECO). The CRWG conducted a building-by-building review of the in-place storage conditions of safety-related components beginning in January, 1985, with the Reactor Building and ending in March, 1985, with the Primary Intake Structure. Subsequent to these building reviews, SPC and SECO building and area foremen are being held responsible to maintain equipment in a properly stored condition until it is accepted for test. Also, a Management Oversight Committee (MOC) was formed to review the reports published by the CRWG and by the Management Committee for Storage Review which conducts regularly scheduled site tours with emphasis on in-place storage. The MOC, which began functioning in February, 1985, is charged with assessing the overall storage program effectiveness as project conditions change.

Although final reports of the CRWG are not issued yet, positive results are apparent to the inspectors during daily tours of the site. This observation was confirmed by the Construction Team Inspection (CTI) performed in March, 1985, when no NRC findings occurred in this area. At that time, in-place storage of components was generally good; the team was favorably impressed by in-plant conditions.

In summary, the licensee's corrective actions have reversed the deteriorating trend previously observed earlier in the assessment period. However, the long term effectiveness of controls in this area will be determined by the attention devoted by the contractors to in-place storage in their respective work areas. Due to extended construction schedules, storage controls of critical components must receive increased management attention and corrective actions must be taken when adverse conditions are found. Licensee management must review the storage program efforts on an ongoing basis to ensure that the in-place storage of components continues to improve and the recent positive trend in this area does not become just a momentary one.

b. Conclusion

Category 2, Improving.

c. Board Recommendation

Licensee

Provide continuing management overview to preclude recurrence of past cyclic performance in this area.

NRC

None.

9. Engineering/Construction Interface (6%)

a. Analysis

In the prior assessment period, a Category 3 rating was assigned to this functional area, primarily due to numerous deficiencies noted in the contents of design related documents issued by vendors and contractors. Engineering documents frequently failed to contain sufficient information and/or information that was clear enough for field use by Construction and QC personnel. There was inadequate interface between engineering and construction to resolve the field problems that resulted from such engineering document deficiencies.

Inspections by the resident inspector included the "Engineering Confirmation Program", the "Constructability Review Team" and the Integrated Construction Support Group (ICSG). One inspection was conducted by a region-based specialist inspector concerning the "Engineering Confirmation Program" where the validity of an electrical calculation affecting the sizing of 5 KV power cables was in question. Region-based inspectors reviewed the engineering/construction interface as part of the Construction Team Inspection (CTI) performed in March, 1985.

Both the licensee and the AE have taken numerous steps during this assessment period to correct weaknesses in this area and to strengthen the engineering/construction interface. Some of these actions concerning the "Engineering Confirmation Program" had been underway since October, 1983, as noted in the last SALP report. The numerous steps taken to improve performance have required additional experienced manpower. Stone and Webster, in particular, has substantially upgraded their Site Engineering Group (SEG) with the addition of senior technical personnel. Several individuals were added recently, but the major personnel changes occurred between April and September, 1984, when twenty-four additional engineers were added to the SEG. This group included three new Assistant Superintendents of Engineering, each of whom brought at least 10 years of engineering and construction experience to his position. Also included in this staff increase were two principal engineers in the pipe support area and a senior design supervisor in the electrical design area. Further, Stone and Webster management appointed a SEG Site Sponsor who reports to the Stone and Webster Engineering Manager at Boston, and provides upper Stone and Webster management attention and support for SEG efforts.

The Duquesne Light Company (DLC) manpower commitment has also been substantial. An example of such commitment is illustrated by the expenditure of approximately 11,000 hours by forty-eight DLC engineers in completing the design bases endorsement effort of the "Engineering Confirmation Program" with the major conclusion drawn that DLC has no unresolved concerns with the Beaver Valley Power

Station - Unit 2 Plant Design Bases. NRC found this effort to be thorough. DLC did identify some specific design discrepancies, but these are being resolved with Stone and Webster through an effective follow-on program.

Project utilization of this additional manpower has achieved positive results in strengthening the engineering/construction interface. This was evidenced in the CTI when it was concluded that improvements had been made in the engineering/construction interface for all functional areas except the Electrical Power Supply and Distribution area where problems still exist. As discussed in more detail in Functional Areas 2 and 5, the "Constructability Review Team" and the ICSG have been instrumental in providing improved communications between engineering and construction. In particular, the ICGS has significantly enhanced the engineering/construction/QC interface by improving the availability and timeliness of engineering involvement in problem resolution. Mechanical and Electrical Constructability Review Teams (CRTs) were established in June and July, 1984, respectively. These CRTs were effective in addressing past concerns in this area involving cluttered and overly complex drawings as well as ambiguous, confusing and sometimes conflicting installation drawings and specifications which often led to interpretations by crafts and QC personnel inconsistent with the designer's intent. These CRTs reviewed all new or revised drawings before issuance. Dramatic improvements were achieved (from initial drawing revision rates to resolve CRT concerns of 50-75% to a 3-5% revision rate by the end of the assessment period). Following the successes achieved in improving drawing quality, CRT efforts were also focused on "installability" reviews (assuring that installations could be made without problems regarding access, interferences, etc.). These initiatives (ICSG and CRTs) have been particularly responsive to past NRC concerns in this area.

In summary, substantial improvements in the engineering/construction interface have been made in all functional areas. In the electrical and instrumentation Functional Areas, some lingering interface problems still exist as noted therein. A substantial addition of experienced, technical personnel by both Duquesne Light Company and, in particular, Stone and Webster occurred during this assessment period. Continued high level of management involvement is needed to solve the weaknesses in the electrical/instrumentation areas similar to the success achieved in the mechanical area. Also, management must continue to be sensitive to the engineering/construction interface in all functional areas to ensure that the recent improvements remain until the project is completed.

b. Conclusion

Category 2, Consistent.

c. Board Recommendation

Licensee

None.

NRC

None.

10. Preoperational/Startup Testing (5%)

a. Analysis

This is the first SALP report to separately address this Functional Area. Two inspections were made in this area by region-based specialists and there was some additional coverage by the resident inspectors.

During the assessment period, management changes were made in the startup area to reorganize all startup activities into a single group. This reorganization included the addition of personnel from Shippingport Atomic Power Station and Beaver Valley, Unit 1. These changes have not been incorporated in the Nuclear Construction Division Procedures Manual (see Functional Area 11).

Earlier in this period, NRC found that the licensee had not formally issued a Startup Manual, even though some work was being accomplished to individual test procedures. By the end of this assessment period, the Startup Manual had been issued. Another concern identified by NRC regarded the need for the licensee to provide a procedure which established the criteria for turning a system over to the licensee. System turnovers without established criteria limiting the types of nonconforming conditions that can be accepted have resulted in high numbers of open items. Some of these items require a substantial amount of construction before they are complete. This is considered to represent a weakness in the program for system turnover where pressure to show progress is a contributing factor. However, the CTI did observe that, for the system sampled (primary component cooling water), all significant discrepancies noted in an extensive system walkdown were already being tracked in various site tracking systems.

During the assessment period, the licensee accepted portions of 18 safety-related systems (38 subsystems) from construction; the major items being primary component cooling, service water, main transformer and associated protection equipment, 480 volt buses, uninterrupted power supply, storage batteries and electrical panels. One violation was issued during this period; failure to certify personnel performing walkdown inspections in preparation for system turnovers. The licensee promptly corrected this item and it has been accepted by the NRC.

In summary, during this period only the programmatic and staffing aspects of this functional area were evaluated. It is premature to fully assess the overall quality and effectiveness of the program implementation at this time. Preliminary reviews have, however, found weaknesses in the program related to personnel qualification and establishment of system turnover criteria, which warrant management attention.

b. Conclusion

Category 2. Inspection limited to latter part of period, therefore, no basis for trend.

c. Board Recommendation

Licensee

Assure that pressures to achieve system turnover do not lead to turnovers with excessive construction items remaining to be finished.

NRC

None.

11. Quality Assurance and Administrative Controls

a. Analysis

This is the first SALP report to separately address this functional area. Quality assurance activities and their associated administrative controls are also a part of all other functional areas. Startup operations involve many administrative controls to properly test, operate and maintain equipment different than construction activities require. Therefore, administrative controls within the project take on increasing importance. The licensee's performance concerning quality was closely monitored by NRC while several reorganizations occurred within the licensee's Nuclear Construction Division involving senior management changes during the project transition.

Inspections performed by the Construction Team Inspection (CTI) conducted in March, 1985, included specific reviews of the quality assurance and project management areas. One violation involving procedural compliance was identified during the CTI; two other violations involving failures to properly remove hold and reject tags and properly disposition an N&D concerning cable pull tension were also identified in other inspections. All NRC open items are tracked on a "Next Step List" which is published monthly.

In the past, the licensee has demonstrated an adequate QA program. The overall QA and QC programs, organizations and responsibilities continue to be well defined. QA/QC personnel are qualified and trained; staffing has been adequate. QC management is strong and responds to NRC issues as well as plant problems in a technically sound and timely manner. The licensee is presently implementing a new program called Quality Improvement Management Program (QIMP) designed to involve the licensee and constructor/contractor upper management in improving quality and construction. The program's objectives are for the regular review of construction's quality performance, clear assessment of causes for adverse performance trends, and implementation of appropriate corrective measures for performance improvement.

Many positive facets of the licensee QA program were evident during the CTI. However, certain NRC concerns were identified during the CTI involving numerous organization changes and potential weaknesses due to several reorganizations in the DLC Nuclear Construction Division. NRC has expressed a concern that the organizational changes wherein the QA/QC function reports to the Nuclear Group Vice President who also functions as the DLC Project Manager may decrease the effectiveness of QA/QC.

The procedure violation noted during the CTI affected various documentation including Stone and Webster Engineering documents, vendor test reports, receipt inspections, and Westinghouse (NSSS) procedures. While these items were relatively minor on an individual basis, when viewed collectively, they show that the project needs to emphasize the importance of following procedures. This fact was further illustrated during the CTI when the DLC Nuclear Construction Division Procedures Manual was found to be in need of revision in several areas to reflect the organizational changes made in the DLC Nuclear Construction Department when the DLC Startup Group was formed. This was viewed as a project management weakness since these DLC Nuclear Construction Department organizational changes had occurred approximately a year before the CTI. The DLC Nuclear Construction Division Procedures Manual has not been revised to reflect these changes.

The licensee's audit program is being effectively implemented and is generally thorough. Corrective actions for audit findings are prompt and thorough. Staffing is adequate as evidenced in the timely completion of the audit schedule and followup verification of audit findings. One of the joint Stone and Webster/DLC audits of SEG activities was exceptionally detailed and technical in nature involving several Stone and Webster technical personnel. Such audits are considered to be an improvement compared to past audits which were more procedural in nature.

In summary, controls in this area are adequate. Quality Assurance audits are effective. Quality Control management is effective in resolving problem areas. Isolated cases of inspector errors have been corrected and sampling over-inspection of all inspectors' work should curtail future errors. DLC organizational changes need to be reflected in the Construction Division Procedures Manual.

b. Conclusion

Category 2, Consistent.

c. Board Recommendation

Licensee

Provide project organizational stability. Continue recent initiatives by completely implementing QIMP. Assure that proper QA independence from schedule and cost considerations is maintained.

NRC

Conduct a special inspection of new organization in about six months to determine effectiveness of QA/QC functions.

V. SUPPORTING DATA AND SUMMARIES

1. Construction Deficiency Reports (CDRs)

Nine CDRs were submitted by the licensee during the assessment period. Six of the deficiencies were associated with vendor supplied hardware. Two corrected CDRs, 84-00-07 and 84-00-09, were reviewed by the inspector during this period, with corrective actions considered acceptable. Deficiency reports are listed in Table 1.

2. Investigation Activities

The licensee conducted numerous tests on containment coatings to determine the validity of an allegation received by the NRC. Based on work performed by the licensee and inspections performed by the NRC, this allegation was not substantiated and is closed.

3. Escalated Enforcement Action

None.

4. Management Conferences

June 12, 1984 - A special, announced management meeting at NRC request to discuss the results of the Region I SALP board convened to assess licensee performance from December 1, 1982 to March 31, 1984.

October 29, 1984 - A special, announced management meeting at NRC request to discuss the licensee's progress in problem areas discussed in the most recent SALP report.

TABLE 1

CONSTRUCTION DEFICIENCY REPORTS

(April 1, 1984 - March 31, 1985)

BEAVER VALLEY POWER STATION, UNIT 2

CDR Number	Deficiency	Cause Code
84-00-05	Misapplications of solenoid-operated valves	B
84-00-06	Removed, dismantled or partially dismantled pipe supports	F
84-00-07	Inadequate wiring on voltage regulators supplied by Power Conversion Products, Inc.	B
84-00-08	Potential cracking/breakage of the lube oil pump bosses on the diesel generators	B
84-00-09	Auxiliary feedwater pump impeller wear ring - change in material	B
84-00-10	Hydrogen Control System-spurious operation of motor-operated valve	Determined not to be reportable
84-00-11	QC acceptance of undersized/incomplete welds on HVAC, pipe supports	Determined not to be reportable
85-00-01	Inadequately torqued bolts for electrical support connections	D
85-00-02	EFCO-600 actuator latching mechanism for MSIVs - failure of latch roller bearing	E

Cause Codes

A - Personnel Error
B - Design/Fabrication Error
C - External Cause
D - Defective Procedure
E - Component Failure
F - Site Construction Error

TABLE 2

VIOLATIONS

(April 1, 1984 - March 31, 1985)

BEAVER VALLEY POWER STATION, UNIT 2

A. Number and Severity Level of Violations

1. Severity Level

Severity Level I	0
Severity Level II	0
Severity Level III	0
Severity Level IV	11
Severity Level V	5
Deviations	1
TOTAL	17

B. Violations vs. Functional Area

	Functional Area	Deviations	Severity Level IV	Severity Level V
1.	Containment and Other Safety-Related Structures	0	0	0
2.	Piping Systems and Supports	0	0	0
3.	Safety-Related Components	0	1	1
4.	Support Systems (HVAC)	0	0	0
5.	Electrical Power Supply and Distribution	1	1	0
6.	Instrumentation and Control Systems	0	3	1
7.	Licensing Activities	0	0	0
8.	Storage of Safety-Related Components	0	2	2
9.	Engineering/Construction Interface	0	1	0
10.	Preoperational/Startup Test	0	1	0
11.	Quality Assurance and Administrative Controls	0	2	1
	TOTAL	1	11	5

TABLE 3

INSPECTION HOURS SUMMARY (4/1/84 - 3/31/85)

BEAVER VALLEY POWER STATION, UNIT 2

	Functional Area	Hours	% of Time
1.	Containment and other Safety-Related Structures	50	1
2.	Piping Systems and Supports	1039	27
3.	Safety-Related Components	607	15
4.	Support Systems (HVAC)	345	9
5.	Electrical Power Supply and Distribution	668	17
6.	Instrumentation and Control Systems	425	11
7.	Licensing Activities	0	0
8.	Storage of Safety-Related Components	372	9
9.	Engineering/Construction Interface	219	6
10.	Preoperational/Startup Test	192	5
11.	Quality Assurance and Administrative Controls*		
	TOTAL	3917	100

*Included in other functional areas

TABLE 4

INSPECTION ACTIVITIES

BEAVER VALLEY POWER STATION, UNIT 2

Report Number	Inspector	Areas Inspected
84-04	Specialist 108 Hours	Installation of safety-related electrical equipment and the status of the separation program.
84-05	Resident 107 Hours	Followup on unresolved items, bulletins, 50.55(e) items, information notices, self-initiated INPO audit; design and inspection of seismic Cat. 2 components and daily site tours.
84-06		SALP Report.
84-07	Resident 127 Hours	Followup on unresolved items, allegation on surface coatings, 50.55(e) items, deviation; cable separation; activities of constructability review team; vendor supplied material record review; qualification of post weld heat treatment.
84-08	Specialist 96 Hours	Work activities relative to the installation of instrument cables and termination, and HVAC system to ascertain whether these activities were being accomplished in accordance with NRC requirements and licensee SAR commitments.
84-09	Resident 135 Hours	Followup on noncompliances, unresolved items and 50.55(e) reports; in-place storage; reactor vessel internals; dispositioning Nonconformance and Disposition Reports; fire protection; record review of steam generator tube rolling.
84-10	Specialist 96 Hours	Work activities and documentation relative to the installation of instruments and electrical equipment storage to ascertain whether these activities were being accomplished in accordance with NRC requirements and licensee SAR commitments.
84-11	Specialist 8 Hours	Followup on licensee actions relating to several open items in the area of HVAC, electrical, piping and equipment supports.
84-12	Specialist 104 Hours	Inspection of turnover portion of the Quality Assurance Program for preoperational testing, including QA/QC overview and interface activities.

Report Number	Inspector	Areas Inspected
84-13	Specialist 61 Hours	Previously identified unresolved items, record review, qualification of post weld heat treatment, observation of welding, visual inspection of welds, review of welder performance qualification, filler metal control.
84-14	Resident 142 Hours	Followup on unresolved items and 50.55(e) items, Quality Control reinspection program of supports, electrical cable, incorporation of Construction Revision Notices, Engineering Confirmation Program, drawing control, seismic and environmental qualification reports, record review of pipe welds.
84-15	Specialist 434 Hours Onsite 192 Hours Offsite	Independent measurements inspection at the construction site using the NRC mobile Non-destructive Examination (NDE) Laboratory. Selected safety-related piping, structural and support weldments fabricated to ASME Code, Section III, Classes 1, 2 and 3, and American Welding Society (AWS) Code D1.1 requirements were inspected.
84-16	Resident 247 Hours	Followup on unresolved items, in-place storage of components, construction of Spent Fuel and Refueling Cavity Liner, electrical and instrument tubing support installations, repair of main steam isolation valves, post weld heat treatment of piping welds, upper reactor vessel internals, disposition of Nonconformance and Disposition Reports.
84-17	Specialist 62 Hours	Installation of safety-related electrical equipment and the status of the color separation program and the vendor wiring inspection program.
84-18	Resident 307 Hours	Followup on unresolved items, in-place storage of reactor coolant system component fuel pool heat exchangers and batteries, installation of rigid sway strut pipe supports, review of several information notices.
84-19	Specialist 16 Hours	Activities relating to the installation of safety-related electrical cable and equipment.

Report Number	Inspector	Areas Inspected
85-01	Specialist 72 Hours	Preoperational test and operational preparedness inspection program including schedule of testing activities, construction program status, test program requirements, responsibilities and involvement of Quality Assurance and Quality Control, preoperational test procedure status, test procedure review and verification.
85-02	Specialist 95 Hours	Safety Injection System piping, pipe supports, reactor vessel internals, preservice inspection and review of certain open items.
85-03	Resident 227 Hours	Followup on unresolved items, in-place storage of components, installation of pipe supports, containment polar crane maintenance, weld material control, weld material certification, review of welding, inspection procedures, and installation of high strength bolts and nuts.
85-04	Specialist 62 Hours	Work in process, completed work, and partially completed work relating to the installation of safety-related components and systems. Review and closeout of open items.
85-05	Resident 191 Hours	Followup on unresolved items, control of hold tags, inspection and disposition of electrical panel wiring separation, cable pull ticket controls, pipe welding and associated activities; installation of electrical pull boxes.
85-06	Resident 100 Hours	Followup on unresolved items, review of radiographic film, welder qualification, and review of nonconformance and disposition reports.
85-07	CTI 693 Hours Onsite 235 Hours Offsite	Project management, engineering/construction interface, electrical, piping, and quality assurance.

ATTACHMENT 1

ENFORCEMENT DATA

Report Number	Subject	Severity Level	Functional Area
84-08-03	Uncapped or unplugged instrument tubing and instrument connection ports. (Closed 84-16)	V	8
84-09-01	Failure to meet commitments to revise several documents affecting raceway cable overfill. (Closed 85-05)	Dev.	5
84-09-02	Failure to follow procedures to control storage of the personnel air lock (Closed 84-16)	IV	8
84-10-01	Sealing of electrical equipment in storage.	V	8
84-12-01	Walkdown personnel are not certified/qualified except group leaders and Site Quality Control.	IV	10
84-18-01	Failure to adhere to procedures for storage requirements for permanent plant equipment.	IV	8
85-02-01	Failure to follow procedures for disassembly of valve.	IV	3
85-02-05	Liquid penetrant indications founds on previously accepted reactor vessel internals.	V	3
85-04-01	Instrumentation separation did not meet criteria.	IV	6
85-04-03	Vent drain lines not installed per specification	V	6
85-04-04	Instrumentation supports-redundant lines not supported from independent supports.	IV	6
85-05-01	Failure to remove hold and reject tags in accordance with procedure requirements.	IV	11
85-05-02	Failure to perform QC inspections in accordance with the QA program on electrical panel internal wiring separation.	IV	6

Report Number	Subject	Severity Level	Functional Area
85-05-03	Failure to properly disposition Nonconformance and Disposition reports for cable pull tension and bend radius.	IV	11
85-07-01	Failure to follow procedures in electrical cable installation	IV	5
85-07-02	Failure to maintain records to show how or whether cable side wall pressure was considered in cable pulling calculations.	IV	9
85-07-03	Failure to follow administrative procedures.	V	11

ENCLOSURE 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Docket No. 50-412

JUN 07 1985

Duquesne Light Company
ATTN: Mr. J. J. Carey
Vice President
Nuclear Group
Post Office Box 4
Shippingport, Pennsylvania 15077

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) Report 50-412/85-99

The NRC Region I SALP Board has assessed the performance of activities at the Beaver Valley Power Station, Unit 2 for the period April 1, 1984 - March 31, 1985. The SALP Board Report is enclosed. A meeting to discuss this assessment has been scheduled for June 19, 1985. This meeting will be held in Shippingport, Pennsylvania, near the site.

At the SALP meeting, you should be prepared to discuss our assessment, particularly in the area of organizational structure, reinspections, and electrical concerns discussed in the report and your plans to improve performance. The meeting is intended to be a dialogue wherein any comments you may have regarding this report may be discussed; and, if there is additional information which you believe could alter the assessment, please feel free to identify such matters. Additionally, you may provide written comments within 30 days after the meeting. Consideration of any points raised during the meeting or in your written comments will be reflected in my characterization of your overall safety performance which will be provided as part of the final SALP package.

Your cooperation with us is appreciated.

Sincerely,

Thomas E. Murley
Regional Administrator

Enclosure: SALP Report 50-412/85-99

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cc w/encl:
E. J. Woolever, Vice President, Nuclear Construction Division
R. E. Martin, Manager, Engineering
R. J. Swiderski, Manager, Startup Group
E. Ewing, Quality Assurance Manager
E. F. Kurtz, Jr., Manager, Regulatory Affairs
P. RaySircar, Stone and Webster Engineering Corporation
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
Commonwealth of Pennsylvania

ENCLOSURE 3

SALP MANAGEMENT MEETING ATTENDEES

JUNE 19, 1985

Duquesne Light Company

J. Arthur, Chairman
J. J. Carey, Vice President, Nuclear
E. J. Woolever, Vice President, Special Nuclear Projects
N. R. Tonet, General Manager, Nuclear Engineering and Construction
J. Sieber, Senior Manager, Unit 1
H. M. Siegel, Nuclear Engineering Manager
C. E. Ewing, Quality Assurance Manager
R. J. Swiderski, Startup Manager
R. E. Martin, Engineering Manager
J. F. Grogan, Corporate Communications
F. A. Cavalier, Manager, Project Control
J. A. Hultz, Construction Liaison
S. D. Hall, Licensing, Senior Project Engineer

Stone and Webster Engineering

H. F. Foley, Site Project Manager
W. H. Bolke, Senior Project Manager
H. W. Durkin, Superintendent of Engineering
C. O. Richardson, Project Engineer
A. A. Dasenbrock, Resident Manager
J. E. Williams, Senior Construction Manager
P. A. Wild, Director of Engineering

CAPCO

B. M. Miller, Manager, Projects, Ohio Edison Company
A. Timme, Toledo Edison Company

Nuclear Regulatory Commission

T. Murley, Regional Administrator, Region I
W. F. Kane, Deputy Director, Division of Reactor Projects (DRP), Region I
E. C. Wenzinger, Chief, Projects Branch No. 3, DRP, Region I
L. E. Tripp, Chief, Reactor Projects Section 3A, DRP, Region I
S. Varga, Chief, ORB-1, Division of Licensing, NRR
B. K. Singh, Project Manager, NRR
G. A. Walton, Senior Resident Inspector, Beaver Valley Unit 2
W. M. Troskoski, Senior Resident Inspector, Beaver Valley Unit 1

ENCLOSURE 4

Duquesne Light

Nuclear Group
Quality Assurance Unit
Box 184
Shippingport, PA 15077

July 19, 1985
2NRC-5-105

United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: Dr. Thomas E. Murley, Regional Administrator

SUBJECT: Systematic Assessment of Licensee Performance (SALP)
Report No. 50-412/85-99

Gentlemen:

Thank you for meeting with us on June 19, 1985 to discuss the Beaver Valley Power Station Unit No. 2 SALP Report for the period of April 1, 1984 through March 31, 1985.

In addition to the items discussed at the June 19th meeting, the following items summarize the actions taken or planned to be taken to address the concerns which were identified in your letter of June 7, 1985:

Section IV.2 - Piping Systems and Supports

Section IV.2 identified an area of concern regarding control of reworked items, specifically pipe supports. This item was originally identified by DLC in mid-1984 as a potentially significant deficiency (SDR-84-06). As outlined in the final report for SDR 84-06 (letter 2NRC-4-200 dated 12/3/84), corrective actions taken to improve control over reworked pipe supports have included:

- Issuance of FCP-41 to formally document and track the requirements applicable to dismantled or partially dismantled items, components, or structures which have been previously SQC inspected.

- Issuance of SQC IP 7.45 to provide an SQC over-view of this area and ensure site compliance with the requirements of FCP-41.

- Assignment of an SQC inspector to perform surveillance of the above program to provide assurance that the intent of the program is being fulfilled.

Subsequent to the above noted concerns with pipe supports, the NRC

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issued Violation 85-02-01, regarding the disassembly of a safety-related valve without appropriate authorization or documentation being issued. As a corrective action regarding this problem, Site Project Management has directed the electrical and mechanical contractors to re-emphasize to appropriate personnel the requirements for strict adherence to the site rework control program; personnel failing to comply with rework control procedures will be subject to disciplinary action. To prevent similar occurrences in the future, designated contractor Building Managers are now a focal point for any rework of previously installed permanent plant equipment, and are responsible for assuring that such rework complies with all rework requirements.

Section IV.5 Electrical Power Supply and Distribution

The NRC's concerns for this area can be divided into two distinct categories, specific concerns and general concerns. The specific concerns have been identified as NRC Unresolved Items or Violations or reported on Significant Deficiency Reports. These specific issues have involved several aspects of the electrical design and installation process at BVPS-2, as well as all organizations involved in the process. All of these specific issues have been previously addressed as NRC Open Items and are being tracked to ensure timely resolution and completions. Certain of the issues have precipitated changes in the procedures or processes governing electrical activities within engineering, SQC, or the electrical contractor. Many of the issues have already been resolved to the NRC's satisfaction.

The NRC's general concerns are the following:

> "(Licensee is to) complete development of an overall comprehensive plan to address and resolve problems in this area. Implement an integrated plan for timely resolution of remaining outstanding electrical issues. Complete reinspections and rework prior to system turnover."

As stated above, the resolution of remaining outstanding electrical issues is currently on-going and receives high priority. The BVPS-2 Project NRC Open Items List provides concise information regarding the status for these NRC items. This report is utilized by management personnel to ensure that all items receive timely attention.

An integrated and detailed plan, entitled the Electrical Plan Guide (EPG) has been developed and was issued for official project use and information on June 10, 1985. It describes the plans for resolution of engineering items and completion of construction and inspection activities on tasks important to the electrical effort. The plan will be kept up to date on a quarterly basis.

The Project recognizes that systems are being turned over for the construction proof testing activity with outstanding items. The previously referenced EPG defines all of these required actions and the reinspection/verification of the conditions reported has commenced.

The Project has recently undertaken an overall review of the BVPS-2

electrical installation specification, the electrical Field Construction Procedures, and the SQC electrical Inspection Procedures. The objective of this review is to ensure consistency among these documents, and to ensure each document is complete regarding its purpose. The review of the electrical installation specification will identify the bases used to develop the various numerical limits and requirements specified and will provide assurance that calculations, codes, or standards used as bases for the specification are properly documented. These reviews, and any necessary corrective actions are scheduled to be completed by September 30, 1985. Finally, the staffs of both the Site Engineering Group and the Integrated Construction Support Group have been strengthened through the addition of senior experienced electrical engineers. The introduction of these individuals has improved the interface among engineering, construction, and quality control.

Section IV.6 Instrumentation and Control Systems

The SALP Report discussion of this functional area identified the following areas as needing improvement:

a) The engineering and design process regarding QA Category I instrumentation tubing.

b) Engineering and construction efforts to ensure compliance with R.G. 1.75 separation requirements for internal panel wiring.

Actions which are being taken to address these issues are summarized below:

a) The NRC's concerns with the engineering and design process for QA Category I instrumentation tubing are summarized in the SALP Report as follows:

"The three violations involving the installation of instruments and instrument tubing were the result of inadequate engineering design review and ambiguity in the specification and are indicative of a problem in this area. Specifically, onsite engineering failed to translate sufficient information from composite drawings to single line construction drawings used by craft and QC personnel. The insufficient information in these drawings regarding installation and construction criteria such as instrument type, tubing size, location, separation, slope and routing led to problems involving inadequate separation of redundant tubing, mounting of redundant instrument tubing on the same support, and failures to mount instrument vents and drains to direct the discharge away from personnel and electrical equipment.

The licensee and SWEC took rapid corrective action by issuing a stop work order on the installation of instrument tubing pending an engineering review and resolution of the discrepancies. The licensee has proposed tighter engineering controls, but still does not require Quality Control personnel to verify separation criteria for instrument tubing."

The following points are drawn from letter 2NRC-5-078 and serve to respond to the NRC concerns quoted above:

- A review of specification 2BVS-977 and the engineering and design process was initiated in an effort to establish that all necessary requirements regarding separation criteria were present, consistent, and understandable.

- The specification review was completed and 2BVS-977 was revised to enhance the clarity of various sections. Also, site procedure 2BVM-228 for the design of instrument tubing in seismic areas was issued, and SEG engineers and designers were trained in the use of the procedure.

- A review of all issued isometric drawings was completed to assure that all tubing separation deviations or mounting deficiencies were appropriately identified and dispositioned. No hardware modifications have resulted from this review.

- Regarding the installation of vent and drain lines on instrument tubing lines, administrative procedures are being revised to ensure that, where necessary, potential effluent discharges will not present any hazards.

- A review of instrument tubing installation drawings was completed and indicated that, aside from the separation issues discussed above, the drawings contained sufficient information regarding instrument type, tubing size, location, slope and routing, as necessary.

- The STOP-WORK order was released once necessary actions were completed to ensure the adequacy of continuing work on QA Category I instrument tubing.

In addition to the above actions, the following steps have been taken to further address concerns in this functional area, and to provide an additional level of assurance that the instrument tubing and design process is of the highest quality:

- A review of 2BVS-977, pertinent Field Construction Procedures and SQC Inspection Procedures, will be conducted to ensure that these project documents are complete and consistent with each other regarding instrument tubing design and installation activities. This review, including any necessary corrective actions, will be completed by September 30, 1985.

- Engineering is providing SQC with engineering information necessary to develop inspection procedures for SQC verification of the spatial separation of safety-related redundant instrument impulse lines. The necessary SQC and project documents to ensure this verification are scheduled to be issued by September 30, 1985.

b) The NRC's concerns regarding electrical panel internal wiring separation reviews that were conducted without SQC participation have been fully addressed in DLC's letter 2NRC-5-073 dated 5/17/85. As stated in the letter, the engineering review to determine separation discrepancies was not outside the DLC QA Program. The subject panels were scheduled to receive a final SQC inspection following completion of the engineering activity. This SQC inspection activity has commenced.

In addition, the NRR has been provided with the "BVPS-2 Electrical Separation Verification Testing Report", which provides justification for the explicit separation criteria being used in the evaluation of Class 1E electrical equipment at BVPS-2.

Finally, pertinent project documents have been revised to include explicit separation requirements applicable to electrical panels that contain both external wiring (field installed) and internal wiring (vendor supplied). Further details regarding this issue will be developed to address NRC Unresolved Item 85-05-05.

A significant number of corrective actions have been initiated and completed, and it is our opinion that, while a significant amount of instrumentation work is required to complete the project, no major changes to the existing administrative controls are necessary to achieve full compliance with NRC regulations.

Section IV.8 Storage of Safety Related Components

The NRC discussion of this functional area refers to a variety of storage problems that have previously been identified as Unresolved Items, Violations, or SDRs. A majority of these individual items represented deviations from BVPS-2 in-plant storage requirements, and required various corrective actions. To date, most of the specific storage problems have been resolved with the NRC. In addition, as the NRC has acknowledged, strong and extensive action has been taken to improve storage conditions at BVPS-2, including:

- assignment of contractor personnel as permanent Building Managers, with direct responsibility and accountability for overall care, custody and control of installed equipment, until turnover to SUG.
- establishment of a Composite Review Work Group (CRWG), with broad contractor, SWEC, and DLC involvement, to identify weaknesses with storage requirements/procedures or with physical in-plant conditions.
- formation of a Management Oversight Committee (MOC) to assess the overall effectiveness of the storage program, and provide continuing and visible management attention in this area.

The evaluation of this functional area included a recommendation that the licensee "provide continuing management overview to preclude recurrence of past cyclic performance in this area."

Management attention to the storage program at BVPS-2 will continue. The

CRWG, MOC, and Building Manager system discussed above will be maintained as the primary vehicles for ensuring adequate in-plant storage conditions.

Section IV.9 Engineering/Construction Interface

The evaluation of the engineering/construction interface at BVPS-2 reflects the progress achieved to date in the ongoing programs established in response to weaknesses identified in this functional area during previous SALP assessment periods. However, two concerns remain:

a) "In the electrical and instrumentation functional areas, some lingering interface problems still exist..."

b) "Management must continue to be sensitive to the engineering/construction interface in all functional areas to ensure that the recent improvements remain until the project is completed."

Actions which are being taken to address these concerns are as follows:

a) Initiatives which have been taken to enhance the engineering/construction interface for the electrical and instrumentation controls areas are discussed under Section IV.5 and IV.6 of this document.

b) Project Management has taken various steps to improve the BVPS-2 engineering/construction interface, including initiation of the BVPS-2 Engineering Confirmation Program, establishment of Constructibility Review Teams and the Integrated Construction Support Group, issuance of the project Electrical Plan Guide to provide an integrated and concerted approach for the resolution of electrical issues, and assignment of experienced individuals to various site positions which involve direct contact with construction forces.

Executive management has instituted a scheduled weekly meeting that involves senior site personnel from the Engineering, Construction, Startup and QA/QC departments. The prime function of this meeting is to ensure that potential interface problems are identified at the earliest possible time and that appropriate actions are taken to ensure that timely resolutions are obtained. It is considered that these face to face discussions assist executive management in maintaining the improved engineering/construction interfaces described in the SALP Report.

c) With reference to the three specific items of concern described by the NRC in the CTI Report, DLC's response identifies the actions taken to address cable pulling practices (85-07-05) and lack of documentation of calculations related to cable tension/side-wall pressure (85-07-09). Further details describing our actions with reference to Unresolved Item 85-07-07, torque requirements for circuit breakers, will be developed.

Section IV.10 Preoperational/Startup Testing

The BVPS-2 Startup Group provides direct and timely knowledge of plant status, and includes determination of turnover acceptability of systems/subsystems. The acceptability of a system/subsystem is based upon the readiness for satisfactory performance of construction proof testing and does not imply that the system/subsystem is ready to perform activities other than construction proof testing. Accordingly, the number of open items can be higher when a system/subsystem is turned over at the construction proof test phase than at the system testing phase (system operability verification tests and preoperational tests).

The DLC SUG has established a three phase program for the formal review and acceptance of plant systems by DLC: the initial phase defines the turnover of systems/subsystems from construction to DLC SUG to perform construction proof testing, the second phase requires a system review release for the performance of system operability verification (SOV) and/or Pre-operational (pre-op) test activities, and after completion of the SOV and/or pre-op testing, the final phase requires a system acceptance release by DLC Nuclear Operations personnel.

Field Construction Procedures have been revised to add additional controls, specifically identify and assign responsibilities and provide greater detail regarding implementation of the turnover program. These procedures require appropriate certification of personnel, programmatic review of system/subsystem completion status and identification of uncompleted items by the site contractor. A formal review and concurrence by Building and Milestone Managers that the system/subsystem is ready for turnover, and SQC verification of the construction status prior to submission of the turnover package to SUG for acceptance is required. This process is functioning to turn over systems/subsystems for construction proof testing with a recognizable reduction in the number of discrepancies or nonconforming conditions reported.

All site organizations have become more proactive in ensuring that systems/subsystems are more complete prior to turnover. Senior DLC personnel have been assigned within the electrical contractor's site organization. The rework construction activities are directed by a senior DLC construction representative working within the Construction Management site organization. Additionally, field construction supervision with greater contemporary experience in systems/subsystems completion and turnover have been assigned. The assignment of the personnel described ensures accurate and thorough identification of system/subsystem status and approves and coordinates all construction work to be performed on systems/subsystems that have been turned over for testing.

Section IV.11 Quality Assurance and Administrative Controls

Duquesne Light management has discussed the NRC concern regarding organizational changes wherein the QA/QC function reports to the Nuclear Group Vice President. It must be recognized that cost and schedule concerns and quality concerns must be addressed by a key individual at some level of management. In Duquesne Light, this occurs at the Nuclear Group Vice President level, who reports directly to the Chairman of the Board and President of the Company. It should also be noted

that the Manager of Quality Assurance may go directly to the President of the Company with quality matters. In addition to the normal reporting chain, quality matters can also be discussed at the weekly BVPS-2 Site Managers Meeting, at the Vice President of Nuclear Group's biweekly BVPS-2 Staff Meeting, and at the bimonthly Project Management Committee Meeting. Duquesne Light management is committed to assuring the high quality of BVPS-2 and will continue to monitor quality trends to ensure that cost and schedule concerns do not adversely affect the quality of the plant.

DLC management has established a quality organization which is totally independent of the engineering/construction/startup organization. The Quality Assurance Manager is provided with adequate resources to ensure that the inspection activity can be accomplished in a timely manner to enable the construction work to proceed in an orderly manner.

We recognize that the project organization has undergone an evolution during the period covered by this SALP Report. The Management Analysis Corporation has been retained to review our existing organization and to provide recommendations on the desirability of adding additional key personnel to assist us in the completion of the project. We expect the results of this review to be issued in September. We will inform you of any planned changes to the project organization personnel that are made as a result of this review.

We believe that the BVPS-2 Project has one of the finest quality programs in the industry and we will continue to provide the necessary support to assure the independence and integrity of the existing program.

DUQUESNE LIGHT COMPANY

By _____
J. D. Carey
Vice President

CEE/jh

cc: Mr. B. K. Singh, NRC Project Manager
Mr. G. Walton, NRC Resident Inspector
NRC Document Control Desk