50-461

MEMORANDUM FOR: C. E. Norelius, Director
Division of Reactor Projects, Region III

FROM: J. G. Partlow, Director
Division of Inspection Programs
Office of Inspection and Enforcement

SUBJECT: ASSESSMENT OF IMPLEMENTATION OF THE NRC INSPECTION PROGRAM BY REGION III AT CLINTON NUCLEAR POWER STATION

The Office of Inspection and Enforcement described to the Commission in SECY-82-150A the assessment of the implementation of the NRC inspection program in conjunction with Construction Appraisal Team (CAT) inspections. Accordingly, we have examined Region III's implementation of the construction inspection program based on the May-June 1985 CAT inspection at the Clinton Power Station. The results of the inspection were documented in Inspection Report 50-461/85-30 dated August 15, 1985. The enclosure to this memorandum documents the results of our assessment of the construction inspection program implementation.

Original signed by:
James G. Partlow

J. G. Partlow, Director
Division of Inspection Programs
Office of Inspection and Enforcement

Enclosure: Assessment

cc: J. Taylor, IE

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REGIONAL CONSTRUCTION INSPECTION PROGRAM

ASSESSMENT - CLINTON POWER STATION (R-III)

I. OBJECTIVE

The objective of this assessment is to evaluate Region III's implementation of the Light Water Reactor Inspection Program-Construction Phase (construction inspection program) and to make an overall assessment of the adequacy of Region III's oversight of construction activities at the Clinton Power Station site.

The Construction Appraisal Team (CAT) of the Division of Inspection Programs conducted an announced construction inspection at the Illinois Power Company's Clinton Power Station during the period of May 20-31 and June 10-21, 1985. While the predominant effort of the inspection team was devoted to hardware inspection, the team also evaluated the control of design changes and corrective actions.

II. Assessment Activities

A review was made of Region III inspection reports of the Clinton Power Station (CPS), SALP reports, and construction deficiency reports to identify those deficiencies that were previously identified by Region III inspectors or the licensee. The review included inspection reports of 1979 to 1985, applicable open items and violations and SALP reports for the periods ending September 30, 1982 and February 29, 1984.

To determine the inspection effort at CPS, the inspection reports for 1979 through April 1985 and the 766 Computer System inspection data were analyzed. It was determined that Region III performed a total of 10370 manhours of direct inspection effort at the CPS site with approximately 330 manhours recorded for January through April, 1985.

The site total and 1985 inspection hours were compared to other sites in a similar stage of construction and the manhours were found to be comparable, thus indicating a satisfactory level of inspection effort at the site. Attachment I graphically depicts the comparison of inspection hours. The analysis of the inspection reports and 766 Computer System data indicated that the construction inspection program was approximately 85 to 90 percent complete at the start of the CAT inspection.

The Executive Summary and Potential Enforcement Actions of the CPS CAT inspection report (50-461/85-30) are provided as Appendix A and Appendix B, respectively.

III. Assessment Findings

A. Electrical and Instrumentation Construction

1. CAT Findings

- The CAT inspectors found electrical separation criteria had not been met in a number of raceway installations, and current walkdown activities were not adequate to ensure compliance w'th commitments. Analysis to justify lessor spatial separation also was found being used which is inconsistent with current FSAR commitments.

- Separation deficiencies also were found with vendor wiring in main control room panels. The use of flexible conduit as a fire barrier in these panels requires additional review by NRR.

- The CAT inspectors identified unperformed inspections and unqualified wire with safety-related work performed by the licensee's plant staff under the Maintenance Work Request Program.

- Several QC accepted medium-voltage terminations were identified which were not insulated although insulation is required by the design, installation and inspection documents.

2. Assessment

- Raceway separation is discussed in two inspection reports reviewed. One resulted in an open item for conduit-to-conduit separation and the other resulted in a violation for cable tray-to-cable tray separation (report 50-461/81-27). The lack of inspection by the licensee for separation was not discussed in the reports. However, due to continuing problems in the electrical area and many cable tray and hanger deficiencies and violations documented in report 50-461/82-02 the first electrical stop work order was issued by the licensee. This was followed by a stop work order for conduit as well. Except for the separation violations no other significant deficiencies were identified by the CAT with raceway or raceway supports.

- The region identified separation problems with PGCC cables, documented in reports 50-461/81-05 and 81-09, and issued violations. These resulted in FSAR changes and NRR review and approval of flexible conduit as a fire and separation barrier for particular circuits in the PGCC. The CAT found that this specific approval was extended by the PGCC vendor and the AE into main control boards which are outside the approved PGCC scope.

- The resident inspector documents in his inspection reports an ongoing process of alerting the licensee to problems encountered at other sites which may have applicability to

CPS. One such item, which was confirmed to be a problem by the licensee and for which corrective actions were taken, was the use of unqualified wire. Since the only unqualified wire found by the CAT was installed under the Maintenance Work Request Program it appears that the region's inspection program at this stage should place more emphasis on work performed by Illinois Power Company's plant staff.

- Cable installation and termination inspections are documented in several regional inspection reports. However, only one inspection of terminations is documented after completion of the deficient terminations noted by the CAT and that inspection included only one of the type found deficient by the CAT. Although the inspection procedure requires the inspector to select at least two cables of the type found deficient, the region has not yet completed the procedure's inspection requirements.

- The status of the electrical inspection procedures is commensurate with site construction and are virtually all completed. The most major effort remaining is completion of IP 51064B, Electrical (Cables and Terminations II) - Work Observation. However, only about half of the instrumentation inspection procedures have been completed. This is apparently because regional instrumentation inspections had been deferred for follow up and resolution of an electrical instrumentation stop work order. A recent region inspection report did identify problems with instrumentation lines and instruments and a number of apparently isolated problems also were identified by the CAT.

3. Recommendations

The construction inspection program procedures for electrical and instrumentation construction are adequate. Additional regional emphasis is required for inspection of raceway separation and inspection of electrical construction performed by plant staff. This can be accomplished during the region's completion of IP 51064B and the remainder of the instrumentation procedures. It is recommended that since a significant portion of the instrumentation modules need to be completed that the current inspection procedures, issued March 1984, be used.

B. Mechanical Construction

1. CAT Findings

- The CAT inspectors identified a lack of control regarding the removal of temporary supports, and the piecemeal formulation of the program for identification and evaluation of potential interferences and interactions.

- The CAT inspectors identified an interface deficiency with the extension piece manufactured and provided by Basic Engineering and the snubber unit provided by Pacific Scientific Company.

- Two ASME Class 1 snubber supports were found to have been modelled and analyzed in a manner contrary to FSAR commitments.

- The CAT inspectors identified a lack of attention to detail by QC personnel during their inspections of Class D pipe supports/restraints.

2. Assessment

- Previous Region III inspection reports had not addressed the lack of control regarding the removal of temporary supports nor a review of the program. However, Region III was aware of this issue prior to the CAT inspection.

- The two incorrectly modelled and analyzed ASME Class 1 snubber supports normally would not have been identified through implementation of the construction inspection procedures.

- The region's inspection sample of pipe supports/restraints did not appear to include the licensee's Class D inspection program and, therefore, the lack of attention to detail by QC personnel would not have been identified.

- The numerous instances of wooden scaffold in contact with or supported by permanent pipe supports/restraints components were similarly identified in Region III inspection report 50-461/81-25 for electrical cable pan rails and hangers. The Region III follow up inspection report 50-461/84-29, item 50-461/81-25-04, indicated that the licensee has stopped using cable pan rails and hangers for supporting scaffolds and this item was closed. However, the concern with scaffolding in contact with mechanical piping and supports was not addressed in either of the referenced inspection reports.

- SALP report 50-461/84-03 noted a rating of Category 2 for the three mechanical areas. This rating is consistent with the CAT's conclusions.

3. Recommendations

The construction inspection program is determined to be adequate, but DI/RCPB will evaluate of the need for a specific inspection requirement or guidance relative to licensees' programs for the removal of temporary supports. Region III will need to follow the licensee's corrective actions for the removal of temporary supports and incorrectly modelled supports and other CAT findings.

C. Welding - NDE

1. CAT Findings

The CAT inspectors found that vendor procured tanks and heat exchangers were accepted and installed with deficient welds. In addition, some of the reviewed vendor radiographs for the containment liner and dry well wall area did not have the required weld and film quality.

2. Assessment

Past CAT inspections have also identified welding deficiencies in vendor provided equipment. This problem has been brought to the attention of the Vendor Program Branch and they are modifying their inspection approach in an attempt to reduce the number of these types of deficiencies that are being found in the field.

3. Recommendation

The construction inspection procedures for this area are determined to be adequate. An IE information notice has been issued relating to the tank and heat exchanger weld problems.

D. Civil and Structural Construction

1. CAT Findings

Deficiencies were identified with the untimely and less than comprehensive corrective action taken to resolve concerns regarding the adequacy of structural fill test data records, insufficient torquing of high strength bolts in the Hydraulic Control Unit (HCU) framing, rags found embedded in a concrete placement, material found in the rattle spaces immediately around the containment building, and cadweld operator tensile testing frequency requirements not being met and the adequacy of corrective action previously taken by the licensee to resolve this same issue.

2. Assessment

The specific deficiencies mentioned above had not been previously identified by the regional office. The region's inspection reports indicate that the soil records for the ultimate heat sink, dams, and dykes have been reviewed. There was no specific inspection record that the records of structural fill under the power block had been reviewed, as expected. The region's general review of the Illinois Power Company's Overinspection (IPOI) Program criteria for inspection of structural steel was adequate and would not have served to identify that S&L implementation for selection of the scope of IPOI's hardware coverage, relative to the HCU framing, was insufficient.

Concrete placement work was reviewed by the region. The rags found in the concrete placement is considered an isolated case. Cadweld travelers were reviewed by the region for conformance to the procedures, but apparently not with the specifications or FSAR commitments, which are different from the procedures. The inspection program does require that FSAR commitments be considered and, therefore, this deficiency should have been found by the region. The inspection of the cleanliness of the separation (rattle) space is not specifically directed by applicable inspection procedures, but would have been identified, if included in the region's inspection sample.

3. Recommendations

The geotechnical/foundation, structural steel, and reinforced concrete construction inspection procedures are adequate. An evaluation will be made by DI/RCPB regarding emphasizing cleanliness of building separation (rattle) space in the applicable inspection procedures. The region should monitor the licensee's resolution of the CAT findings relative to the records of structural fill under the power block and ensure that inspection program requirements are satisfied in this area.

E. Material Traceability and Control

1. CAT Findings

Lack of traceability was found for fastener materials, particularly for vendor supplied pump-motor and pump-turbine assemblies mounted on skids. Also, deficiencies were found in traceability for fasteners on certain hangers and HVAC control panel cabinets.

2. Assessment

In CPS inspection report 50-461/85-23, the Region III inspectors checked procurement documents for technical adequacy, quality assurance program requirements and procurement activities. No problems were identified in the licensee's procurement activities.

3. Recommendations

The construction inspection procedure for the area of procurement appears to be adequate. The procedures for inspection of source and receipt inspection of vendor supplied equipment appear to be inadequate in the areas of fastener traceability. Problems have been identified in several of the CAT inspections where vendor supplied fasteners are reviewed for traceability. In future revisions to inspection procedures, more emphasis will be placed on traceability including control of fasteners furnished with vendor supplied equipment.

F. Design Change Control

1. CAT Findings

- A high rate of discrepancies was found between the active change documents listed in the Document Management System (DMS) and the change documents posted with controlled copies of a piping design specification.

- Numerous discrepancies were identified in the filing and updating of procedures in the Civil and Structural Resident Engineer's copy of the Baldwin Associates (BA) Project Procedures Manual.

- The computer data base did not satisfy the BA QA Manual objective for an index system which will ensure the rapid and orderly identification and retrieval of records.

- A number of documentation discrepancies were identified in Illinois Power Company Overinspection Program reports.

2. Assessment

- Region III had previously identified unposted active change documents on design drawings in inspection reports 50-461/80-006 and 50-461/81-005. Superseded revisions of drawings which had not been removed from files were identified in inspection report 50-461/81-005 which also identified documentation discrepancies on design drawings. Documentation discrepancies in traveler packages were identified in inspection report 50-461/84-017.

- The inspection procedures (IPs) most likely to capture hours used in inspection of design change control and specify design document control are IP 37051/37051B Verification of As-Builts, and IP 37055/37055B, On-Site Design Activities. According to the 766 Computer System data for CPS through April 30, 1985, a total of 25 staff hours had been expended on IP 37051B, which was 80 percent complete, and 20 staff hours had been expended against IP 37055B, which was 10 percent complete.

3. Recommendations

The construction inspection procedures are adequate in the design change control area. However, increased regional attention should be given to verifying the updating of controlled procedures and design documents. The implementation of a computer data base which satisfies the objectives of the BA QA Manual should be verified. In addition, the region's sample for their review of the IPOI program should include critical review of the data recorded on the Overinspection reports.

G. Corrective Action Systems

1. CAT Findings

- A lack of control of entries into the licensee's Startup Punch List after turnover of systems for startup testing was found by the CAT. The number of problems found with the limited NRC CAT sample of open items reviewed indicates that this matter requires additional licensee management attention.

- The CAT identified a licensee failure to apply effective corrective actions in the area of document control for licensee QA audit findings.

- The CAT found in several inspection areas that the licensee had dispositioned nonconformances use-as-is without providing a basis to substantiate this disposition.

2. Assessment

- In CPS inspection reports 50-461/84-21 and 85-03, the Region III inspector reviewed the Preoperation Testing Program. No problems were identified with the licensee's program or documentation reviewed.

- In CPS inspection report 50-461/84-17 the Region III inspectors reviewed the corrective action system in regard to allegations related to nonconformance documents dispositioned use-as-is and invalidated nonconformance documents. No problems were identified during this inspection.

- In CPS inspection report 50-461/85-35 the Region III inspectors reviewed the licensee's audit program. Audit checklists, findings, corrective action and timeliness of response were reviewed for a sample of audits. No problems were identified during this review. Region inspections also indicate that the effect of corrective action in areas being inspected are also reviewed.

- Report 50-461/84-17 issued a Notice of Violation in the area of document control for a drawing document control problem similar to the deficiency identified by the CAT inspection for updating of the construction Project Procedures Manual and the controlled copies of the mechanical piping specification.

3. Recommendation

The construction inspection procedures for these areas appear to be adequate for the intended scope. Region efforts in the preoperation testing area should be expanded in regard to the licensee's Startup Punch List.

IV. REVIEW OF CLINTON POWER STATION CONSTRUCTION INSPECTION REPORTS

A. Scope

The inspection procedures itemized in IE Manual Chapter (MC) 2512 were reviewed as to which were applicable to the CPS construction site. A 766 Computer System printout was obtained for the entire construction period which identified report numbers, inspection procedures, inspection dates, staff hours, percent complete, and completion status. A review was conducted for which procedures were implemented against the inspection procedures requirements. Attachment II presents a summary of the inspection manhours and completion status of the MC 2512 program for CPS and Attachment III is a more complete inspection history for CPS based on the 766 Computer System data.

The data used for the assessment and summary data represents information in the 766 Computer System as of May 14, 1985. The inspection reports prepared by the region and resident inspectors were evaluated to determine whether they included the required information, were sufficiently comprehensive, were issued in a timely fashion, and were prepared in accordance with MC 0610.

B. Assessment

The review of MC 2512 inspection procedures required to be implemented and the inspection hours recorded by Region III indicate that the construction inspection program is satisfactorily implemented and the program's completion status is commensurate with the stage of construction at the site. In fact, Attachment II shows that over 70 percent of the direct disciplinary inspection effort was for work observation which is concordant with current program policy to emphasize hardware inspections.

However, it appears that several inspection procedures in three areas have not been implemented based on the data available as of August 26, 1985. The three areas are instrumentation and control, reactor coolant pressure boundary pipe welding, and structures and supports welding. The inspection procedures, categorized as Priority I in MC 2512 (dated September 15, 1981), without inspection time assigned to them are listed below and in Attachment II.

Instrumentation and Control	52065B, 52064B, 52066B
Rx Coolant Pressure Boundary Pipe Welding	55071B, 55075B, 55076B
Structures and Supports Welding	55153B, 55154B, 55155B 55156B, 55157B

No significant problems have been identified in these areas by the region or the CAT; however, a number of isolated deficiencies have been found in instrumentation construction by both region and CAT inspectors. Although regional instrumentation inspections had been deferred for resolution of higher priority problems, completion of this portion of the construction inspection program requires regional emphasis.

Inspections of structural welding, reactor coolant pressure boundary pipe welding, and NDE have been performed under the 5506XB, the 5517XB and the 570XO series procedures, respectively. Although there is some duplication of requirements between the 550XX and the 551XX procedures, inspection requirements from both series were considered Priority I. Regional management should assure themselves that all the pertinant inspection requirements for these welding areas have been or will be completed or have been satisfied through the NDE van inspection performed in 1984.

The review of inspection reports for CPS showed that, in addition to accomplishing the construction inspection program, much effort was devoted to allegation investigations and stop work order followup. A random sample of 12 inspection reports (indicated below) shows that they were essentially being prepared in conformance with MC 0610. The reports included pertinent information such as report number, docket number, inspectors, inspection summary, results, details of inspection, persons interviewed, and individuals present at entrance and exit meetings. The inspection reports provided sufficient detail to understand the issues and showed evidence of adequate technical content and review.

MC 0610 suggests that inspection reports be issued 20 days after the last day of inspection or 20 days after the inspection period ends as in the case of monthly resident's reports. The following lists the reports reviewed and the total time elapsed from the end of inspection to issuance of the report. This indicates, on average, the region is meeting the MC 0610 requirement.

Inspection Report Number	Performed By	Days To Issue
84-08	Region	24
84-10	Region	26
84-29	Region	32
84-31	Region	26
84-41	Resident	17
84-42	Region	19
85-02	Region	21
85-07	Region	8
85-08	Region	45
85-12	Resident	4
85-13	Region	19
85-14	Region	19
	AVERAGE	20.8

Report 85-08 details a special allegation inspection conducted by the region and was an especially lengthy report written by one inspector. Discounting report 85-08, the region's average time for issuing reports is less than 19 days. However, the reports do not list on the cover page the inspection procedures applicable to the inspection as suggested by MC 0610.

In addition, the region began performing the proprietary review in house and eliminated the proprietary review statement from the report cover letters in March 1985, commensurate with MC 0611 requirements.

C. Recommendation

Overall, the Region III office has performed satisfactorily in the implementation of the construction inspection program and procedures. Region emphasis on the completion of the 52XXX series of inspection procedures and an assessment of the structural and reactor coolant pipe welding procedures are required to ensure that these areas have been or will be adequately inspected.

The applicable inspection procedures should be identified in the cover page summary or in the detailed portion of the inspection reports.

V. SALP REPORTS

An analysis was made of the two most recent SALP reports, 1981-1982 and 1982-1984, for those areas that were common to both SALP and the CAT inspection. Generally, the SALP reports reflect an average level of licensee performance with mostly Category 2 ratings and only one Category 3 rating for Quality Assurance during the previous SALP period. However, the 1981-1982 SALP report did not rate support systems or electrical power and distribution because of past weaknesses or performance not at least minimally acceptable.

It was during the 1981-1982 SALP period that problems identified by Region III resulted in numerous stop work actions by the licensee. The effective and comprehensive efforts by the region in guiding the licensee through their recovery program led to the improved licensee performance documented in the 1982-1984 SALP report. This improved performance is generally supported by the CAT inspection findings.

The bases of the SALP ratings for both reports are well documented and supported by the region inspection report findings. A great deal of regional inspection effort went into monitoring and evaluating the licensee's recovery program starting in 1982 in consonance with the SALP recommendations.

In most areas assessed in the SALP reports (safety-related components, piping and support systems, soils and foundations, and instrumentation and controls), the regional and CAT findings were generally in agreement.

VI. OVERALL ASSESSMENT CONCLUSIONS

A review of the CPS inspection reports, SALP reports, and 766 Computer System data indicates that, generally, the construction inspection program and modules had been satisfactorily implemented. The inspection reports were written with the necessary scope, depth, and technical content and on the average were issued within the suggested period. However, a few inspection modules require additional attention. An assessment by regional management should be made to ensure that inspection modules in the areas of instrumentation and control are completed in a timely manner and ensure that all pertinent inspection requirements for structural and reactor coolant pipe welding have been completed. An effort by regional management should be made to ensure the identification of applicable inspection procedures in the inspection reports.

A review of the CAT and regional inspection findings shows general agreement. However, the areas which require additional regional attention are the areas of document control (particularly the constructor's project procedures manual, specifications and drawings, and associated design changes), electrical separation of raceways and vendor wiring in control room panels, the resolution of questions on the adequacy of the testing frequency of cadweld operators and on records of structural fill, and the control of entries into the IP Startup Punchlist.

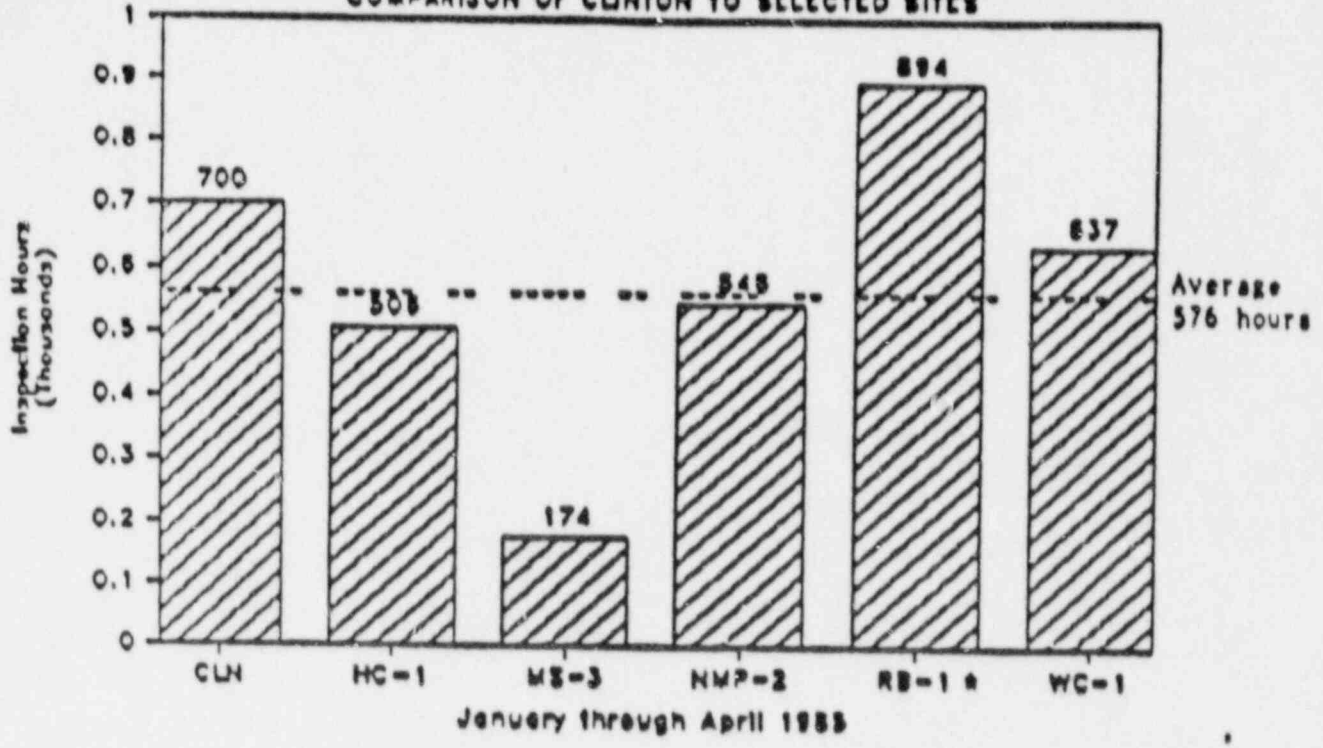
A review of the latest SALP reports indicates that the licensee's performance has improved in several areas and this is supported by the CAT findings. This is indicative of the comprehensive and effective effort performed by the region in guiding the licensee to resolution of severe quality problems in several areas of construction.

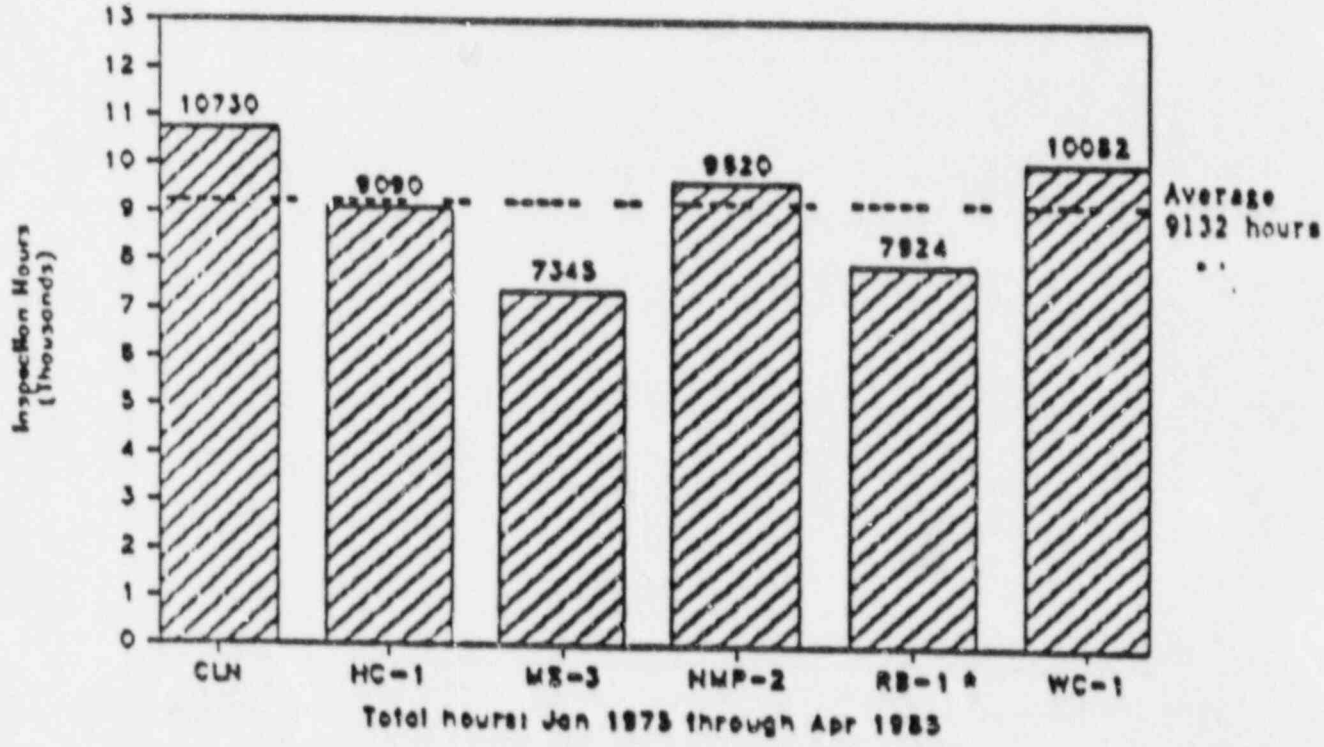
Overall, the regional efforts to oversee the construction activities at CPS are satisfactory. The implementation of the construction inspection program procedures also was satisfactory. Regional management attention will be necessary to ensure completion of the construction inspection program in a few remaining areas and as the project moves into the testing phase.

ATTACHMENT 1

MC 2512 INSPECTION HOURS

COMPARISON OF CLINTON TO SELECTED SITES





CLN: Clinton 1 HC-1: Hope Creek 1 MS-3: Millstone 3
RB-1: River Bend 1 WC-1: Wolf Creek 1

*Hours adjusted to exclude 1984 CAT inspection.

ATTACHMENT II

766 DATA SUMMARY

MC 2512 STATUS OF CLINTON POWER STATION

Summary of Inspection Procedures (IPs) used versus procedures required by MC 2512, and manhour expenditures and distributions. Based on 766 Computer System Data as of April 26, 1985.

Phase 2 (Construction) Procedures Used and Total Hours:

Program	No. of Procedures Used	Hours Used
MC 2512	151	10370

Distribution of Hours per IP Scope:

	Hours	Percentage
Procedure Review IPs	608	12
Work Observation IPs	3658	72
Records Review IPs	784	16
TOTAL	5030	100

Distribution of IPs by Reported Degree of Completion:

Percent Completion	Priority I IPs		Other IPs		TOTAL	
	No.	Percent	No.	Percent	No.	Percent
less than 25%	6	6	6	17	12	9
26 - 50%	3	3	6	17	9	7
51 - 75%	6	6	5	14	11	9
76 - 99%	7	7	2	6	9	7
100%	73	77	16	46	89	68
	95	99*	35	100	130	100

*Less than 100 percent because of rounding error.

Total Hours per Inspection Area for MC 2512:

	Hours	Percentage
Management Meetings	831	8
Quality Assurance	446	4
Design and As-Built	45	<1
Geotechnical	41	<1
Structural Concrete	427	4
Structural Steel	540	5
Piping	265	3
Mechanical Components	786	8
Electrical	1238	12
Instrumentation	268	3
Containment Penetrations	98	1
Welding and NDE	1415	14
Containment Test	10	<1
Fire Prevention	92	1
In-Service Inspection	35	<1
Environmental Protection	33	<1
Followup	1689	16
Independent Inspection	2101	20
Miscellaneous	13	<1
TOTAL	10370	100 (Approx.)

Priority I IPs with No Hours Recorded:

Instrumentation	52056B, 52064B, 52065B, 52066B
Welding and NDE	55071B, 55075B, 55153B, 55154B, 55155B, 55156B, 55157B

ATTACHMENT III

INSPECTION PROGRAM HISTORY FOR CLINTON POWER STATION

The inspection procedures (IPs) marked with an asterick (*), below, had all or part of their inspection requirements categorized as Priority I under MC 2512 dated September 15, 1981.

A. Civil and Structural Procedures

1. Program Requirements

a. IPs 45051B, 45053B, 45055B - Site Preparation - Procedures review to be completed before site work started and records reviewed during site work.

b. IPs 45061B, 45063B, 45065B - Lakes, Dams & Canals - Procedures to be done before start of work and observation of work and review of quality records before work is 50% complete.

c. IPs 46051B, 46055B - Foundations - Procedures to be done before work is 10% complete and review of quality records before work is 60% complete.

d. IPs 46153B - Site Preparation and Foundations - To be done before work is 60% complete.

e. IPs 47051B, 47053B, 47053C, 47054B, 47055B, 47056B - Containment (Structural Concrete) - Procedure review before start of work, observation of work after 10% and 50% and review of records after 10% and 50%.

f. IPs 48051B, 48053B, 48053C, 48055B - Containment (Steel Structures and Supports) - Procedure review before start of work, observation of work and record review before work is 50% complete.

g. IPs 48061B, 48063B, 48063C, 48064B, 48065B, 48066B - Safety-Related Structures (Structural Steel and Supports) - Procedure review before start of work, observation of work at 10% and 50%, and record review at 20% and 50%.

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
a. Site preparation				
45051B	2	7	100	C
45053B	1	4	100	C
45055B	2	6	100	C

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
b. Lakes, Dams and Canals				
45061B	2	9	100	C
45063B	3	8	100	C
45065B	2	7	100	C
c. Foundations				
46051B	1	3	100	C
46053B	1	3	100	C
46055B	1	14	20	
d. IP 46153B - Site Preparation and Foundations - Module not in effect of time of activity. Earlier site preparation and foundations modules completed.				
e. Containment (Structural Concrete)				
47051B*	3	11	100	C/P
47053B*	6	58	90/100	C
47053C	14	175	90	
47054B*	9	82	100	C
47055B*	2	4	100	C
47056B	8	72	100	C
f. Containment (Steel Structures and Supports)				
48051B*	3	40	100	C
48053B*	6	53	100	C/P
48053C	12	186	80	
48055B*	7	54	100	C/P
g. Safety-Related Structures (Structural Steel and Supports)				
48061B*	3	5	100	C
48063B*	3	7	100	C
48063C	17	176	60	
48064B	2	5	100	C
48065B*	4	9	100	C
48066B	2	5	100	C

B. Mechanical Construction Procedures

1. Program Requirements

a. IPs 49051B, 49053B, 49053C, 49054B, 49055B, 49056B - Reactor Coolant Pressure Boundary Piping - Procedure review before start of work, observation of work at 20% and 60% and record review after 20% and 60%.

b. IPs 49061B, 49063B, 49063C, 49065B - Safety-Related Piping - Procedure review before start of work, observation of work at 40% and record review at 50%.

c. IPs 50051B, 50053B, 50053C, 50055B - Reactor Vessel Installation - Procedure review before start of work, observation of work at installation and record review at completion.

d. IPs 50061B, 50063B, 50063C, 50065B - Reactor Vessel Internals - Procedure review before start of work, observation of work during installation and record review after installation.

e. IPs 50071B, 50073B, 50073C, 50074B, 50075B, 50076B - Safety-Related Components - Procedure review before start of work, observation of work at 10% and 50% and record review after 20% and 50% work completion.

f. IPs 50082B, 50083B, 50085B - Site Erected Reactor Vessels - Procedure review before work is 10% complete, work observation at 30% complete and record review at work completion.

g. IPs 50090B, 50090C, - Safety-Related Pipe Support and Restraint Systems. To be implemented before work is 20% complete.

h. IP 50095B - Spent Fuel Storage Racks - Observation of work before work is 50% complete.

i. IP 50100 - Safety-Related Heating, Ventilating, and Air Conditioning (HVAC) Systems (new procedure initiated 10/83).

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
a. Reactor Coolant Pressure Boundary Piping				
49051B*	1*	3	100	C
49053B*	5	53	100	C/P
49053C*	9	70	60	
49054B*	3	6	100	C
49055B*	3	13	100	C
49056B	3	5	100	C
b. Safety-Related Piping				
49061B*	2	5	100	C
49063B*	8	19	100	C
49063C	15	124	60	
49065B*	3	7	100	C

b. IPs 51061B, 51063B, 51063C, 51064B, 51065B, 51066B - Electrical Cables and Terminations - Procedure review before start of work, work observation at 10% and 50% completion and record review at 20% and 50%.

c. IPs 52051B, 52053B, 52054B, 52055B, 52056B - Instrumentation - Components and Systems - Procedure review before start of work, work observation at 10% and 50% and record review at 20% and 50%.

d. IPs 52061B, 52063B, 52063C, 52064B, 52065B, 52066B - Instrumentation - Cables and Terminations - Procedure review before start of work, work observation at 10% and 50% and record review at 20% and 50%.

e. IP 52153C - Instrumentation - Work observation.

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
a. Electrical Components and Systems				
51051B*	8	61	100	C
51053B*	3	60	100	C
51053C	15	194	70	
51054B*	6	128	80	
51055B*	7	53	100	C
51056B*	9	214	70	
b. Electrical Cables and Terminations				
51061B*	7	59	100	C
51063B*	10	92	100	C
51063C	18	233	50	
51064B*	5	58	60	
51065B*	8	53	100	C
51066B*	5	33	70	
c. Instrumentation Components and Systems				
52051B*	3	25	100	C
52053B*	4	78	100	C
52054B*	1	10	10	
52055B*	5	39	100	C

IP 52056B* has not been implemented.

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
d. Instrumentation Cables and Terminations				
52061B*	3	16	100	C
52063B*	5	39	90	
52063C	3	32	10	
52065B*	3	12	90	
52153C	1	17	20	

IPs 52064B* and 52066B* have not been implemented.

D. Containment Penetration Procedures

1. Program Requirements

IPs 53051B, 53053B, 53053C, 53055B - Containment Penetrations - Review of procedures before work is 10% complete, work observation before work is 60% complete, review of records before work is 80% complete.

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
53051B*	3	11	100	C
53053B*	5	32	100	C
53053C*	4	38	30	
53055B*	4	17	100	C

E. Welding and NDE Procedures

1. Program Requirements

a. IP 55050 - Nuclear Welding - General inspection procedure (new procedure issued June 20, 1983).

b. IPs 57050, 57060, 57070, 57090 - Nondestructive Examination - Procedures review, work observation, and records review (new procedures issued June 20, 1983).

c. IPs 55051B, 55053B, 55053C, 55055B - Containment - Structural Steel Welding - Procedure review before start of work, work observation after 20% and record review after 30%.

d. IPs 55061B, 55063B, 55063C, 55064B, 55065B, 55066B - Safety-Related Structures - Welding - Procedure review before start of work, work observation at 10% and 50% and record review at 20% and 50%.

e. IPs 55071B, 55073B, 55073C, 55074B, 55075B, 55076B - Reactor Coolant Pressure Boundary Piping Welding - Procedures review before start of work, work observation at 10% and 40% and record review at 20% and 50%.

f. IPs 55081B, 55083B, 55083C, 55085B - Safety-Related Piping Welding - Procedure review before start of work, work observation at 20% and record review at 30%.

g. IPs 55092B, 55093B, 57100B - Reactor Vessel Internals and Site Erected Vessel Welding and NDE - Observation of work during installation.

h. IPs 55151B, 55152B, 55153B, 55154B, 55156B, 55157B - Steel Structures and Supports - Welding during various stages of construction.

i. IPs 55171B, 55172B, 55173B, 55175B, 55176B, 55177B, 55178B - Reactor Coolant Loop Piping - Welding Activities - To be performed at various stages of construction.

j. IPs 55181B, 55182B, 55183B, 55185B, 55186B, 55187B, 55188B, - Other Safety-Related Piping - Welding Activities - To be performed at various stages of construction.

k. IPs 73051B, 73052B, 73053B, 73055B - Inservice/Preservice Inspection - Program review, work observations at 30% and data review at 50%.

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
a. Nuclear Welding				
55050	1	50		
b. NDE				
57050	1	85		
57060	1	65		
57070	1	50		
57090	1	195		
c. Containment Structural Steel Welding				
55051B*	1	2	100	C
55053B*	5	16	100	C
55053C*	16	196	70	
55055B*	5	16	100	C

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
d. Safety-Related Structures Welding				
55061B*	3	4	100	C
55063B*	3	8	100	C
55063C*	16	255	80	
55064B*	3	8	100	C
55065B*	2	6	100	C
55066B*	3	7	100	C
e. Reactor Coolant Pressure Boundary Piping Welding				
55073B*	1	1	100	C
55073C	7	57	50	
55074B	1	1	100	C
IPs 55071B* and 55075B* have not been implemented.				
f. Safety-Related Piping Welding				
55081B*	1	2	50	
55083B*	2	6	100	C
55083C	13	148	70	
55085B*	1	3	5	
g. Reactor Vessel Internals and Site Erected Vessel Welding and NDE				
55092B*	5	18	5	
55093B*	5	34	100	C
57100B*	6	18	100	C
h. Steel Structures and Supports				
55151B*	1	4	60	
55152B*	1	4	20	
IPs 55153B*, 55154B*, 55155B*, 55156B*, 55157B* have not been implemented.				
i. Reactor Coolant Loop Piping				
55171B*	5	6	100	C/P
55172B*	5	17	100	C
55173B*	5	16	100	C
55175B*	1	6	100	C
55176B*	3	9	100	C
55177B*	4	4	100	C
55178B*	2	2	100	C

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
j. Other Safety-Related Piping Welding				
55181B*	5	37	100	C/P
55182B*	6	16	100	C/P
55183B*	8	23	100	C/P
55185B*	1	6	100	C
55186B*	3	3	100	C
55187B*	6	11	100	C/P
55188B*	1	4	100	C
k. Inservice/Pre-service Inspection				
73051B*	2	2	100	C
73052B*	2	8	100	C
73053B*	2	8	100	C
73955B*	3	17	100	C

F. Miscellaneous Inspection Procedures

1. Program Requirements

a. IPs 30051B, 30702B, 30703B, 30703C, 35051B, 35060B, 35061B, 35100B, 35200B, 37051B, 37055B, 42051C, 63050B, 64051B, 64053B, 80220B, 94600C - Meetings, QA, AS-Built, Fire Protection/ Prevention, Containment SIT, Environmental Protection - During various states of construction or as required.

b. IPs 36100B, 92700, 92700B, 92701B, 92072, 92072B, 92702C, 92703B, 92704B, 92705B, 92706, 92706B, 92706C, 92716B, 93700B - Followup, Independent Inspection - As required.

2. Inspections Conducted at Clinton Power Station

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
a. Meetings, QA, As-Built, Fire Protection/Prevention, Containment SIT, Environmental Protection.				
30051B*	1	20		
30702B	16	243		
30703B*	120	372		
30703C*	32	196		
35051B*	2	15	80	
35060B*	3	105	40	
35061B*	5	146	90	
35100B	1	10	10	
35200B	1	185		
37051B	2	25	20	
37055B*	1	20	10	
42051C	12	87	30	

Procedure Number	Number of Inspections	Total Staff Hours	Reported Percent Completion	Reported Status
63050B*	1	10	30	
64051B	2	5	30	C
64053B	1			C
80220B	4	35	100	C
94600C*	2	10		
b. Followup and Independent Inspection				
36100B	1	3	100	C
92700	1	9		
92700B*	13	171		
92701B*	57	545		
92702	1	5		
92702B*	33	256		
92702C	3	9		
92703B*	14	192		
92704B*	3	19		
92705B*	7	459		
92706	6	119		
92706B*	84	1512		
92706C	37	470		
92716B*	4	29		
93700B*	1	3		