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DMB

ILLINOIS POWER COMPANY

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

August 6, 1985

PRIORITY ROUTING

First	Second
MA	RC
DRA	ETC
EP	SGA
CRS	ML
DPSS	DL
DRMA	OT
	OPAO

FILE

Docket No. 50-461

Mr. James G. Keppler
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Illinois Power (IP) Company Request for Concurrence to Remove Additional Commodities from the Overinspection Program

Dear Mr. Keppler:

Illinois Power Company hereby requests NRC concurrence to terminate the Overinspection Program for heating, ventilating and air conditioning (HVAC) duct and duct supports. The technical justification for this request is set forth in Enclosure 1 to this letter.

The NRC letter dated April 11, 1985 (J. G. Keppler to IP Attn: W. C. Gerstner), stated in Enclosure 3 that the questions and comments, concerning the February 1985 IP report entitled "Results of Quality Programs for Construction of Clinton Power Station" and contained in Enclosure 2 to that NRC letter, should be addressed by IP for any future proposal to terminate the Overinspection Program for additional commodities. Enclosure 2 to this letter contains IP's answers to the NRC questions and comments set in Enclosure 2 to the NRC's April 11, 1985, letter.

IP believes that the enclosures provide a complete base of information for an NRC Region III decision on the subject IP request for concurrence at the earliest possible time.

Sincerely yours,

D. P. Hall
Vice President

JEK/jsp

Enclosures

cc: Director, Office of I&E, USNRC, Washington, D.C. 20555
B. L. Siegel, NRC Clinton Licensing Project Manager
NRC Resident Office
Illinois Department of Nuclear Safety
Allen Samelson, Assistant Attorney General, State of Illinois

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ENCLOSURE 1
TECHNICAL JUSTIFICATION FOR IP'S REQUEST
FOR NRC CONCURRENCE TO TERMINATE
THE OVERINSPECTION PROGRAM FOR
ADDITIONAL COMMODITIES

References:
1) IP Report, "Update to Results of Quality Programs for Construction of Clinton Power Station", April 1985.
2) NRC letter (J. G. Keppler to IP Attn: W. C. Gerstner), dated April 11, 1985.
3) NRC letter (J. G. Keppler to IP Attn: W. C. Gerstner), dated June 28, 1985.

This IP request for NRC concurrence to terminate the Overinspection Program covers HVAC duct and duct supports.

The basic data and evaluations that support this request have been previously provided to NRC in reference 1. Reference 1 reported the results of the Overinspection Program for all commodities as of December 31, 1984, and included engineering evaluations of the safety significance of all nonconforming conditions identified by the Overinspection Program through that date.

The NRC letter, Reference 2, forwarded questions on IP's March 29, 1985, request for concurrence to terminate the Overinspection Program for Piping and Mechanical Supports. Enclosure 3 to that letter stated (NRC Comment A) that IP should provide answers to the applicable questions contained in Enclosure 2 to that letter for commodities other than piping and mechanical supports with any future requests to terminate the Overinspection Program for additional commodities. The following Enclosure 2 provides the answers to applicable NRC questions and comments in Enclosure 2 to Reference 2.

The technical justification for this request is provided below, as follows:

- Part A - A statement of the criteria for termination that incorporates the NRC position set forth in Reference 3.
- Part B - The pertinent results of the Overinspection Program as of December 31, 1984, for the commodities that are the subject of this request.
- Part C - The basis for the conclusions that the termination criteria are met for each commodity, and that IP's request should be granted.

A. The Termination Criteria

All of the following criteria shall be satisfied before the reinspection of a safety-related commodity under the Over-inspection Program is terminated.

1. A sufficient number of reinspections have been conducted to provide high confidence that the results of reinspections are representative of overall quality for a specific commodity.

2. In the aggregate, the reinspections for a commodity did not identify a significant number of nonconforming attributes. This criterion will be satisfied if the rate of conforming attributes is at least 95%.

3. The reinspections for a commodity did not identify any nonconformance which had safety-significance with generic implications. A safety-significant nonconformance is defined as a nonconformance which, were it to have remained unidentified by the Overinspection Program, could have resulted in the loss of capability of a structure, system, or component to perform its intended safety function. This criterion will be satisfied by an engineering evaluation, similar to that performed for the "Results of Quality Programs for Construction of Clinton Power Station".

B. The Results of the Overinspection Program through December 31, 1984

The results of the Overinspection Program through December 31, 1984, are reported in Reference 1. The Field Verification results pertinent to Criterion 1, above, are presented in the following table:

Table 1

Commodity	Total Plant[2]	Reinspected By FV	Items With NCRs	Safety Significant NCRs	Reliability Based on 95% Confidence[1]
HVAC Duct	9,811	1,752	821	0	99%
HVAC Supports	2,762	745	291	0	99%

[1] Reliabilities are calculated using the equation:

$$R = 1 - \frac{2.995}{n}$$ where,

R = Reliability at 95% confidence level assuming an infinitely sized lot
n = Number of items inspected

[2] Duct is in number of pieces, supports are in units

Based on the number of attributes inspected for each commodity, Figure 1 shows that the uncertainty associated with the reinspections are low, and further inspections are not expected to significantly reduce this uncertainty. In addition, Figure 2 shows that the 95/95 criterion, which is the basis for Overinspection Program sample inspection, is also satisfied for HVAC duct and duct supports.

Based on the number of items reinspected, the associated low uncertainties and the fact that the 95/95 criterion has been satisfied, IP Criterion 1 for termination of reinspection has been met.

The Field Verification results pertinent to Criterion 2 above are presented in the following table:

Table 2

Commodity	Attributes Inspected	Nonconforming Attributes	Conformance Rate
HVAC Duct	187,955	2,034	98.9%
HVAC Supports	109,117	872	99.2%

For HVAC duct and supports, the 95% conformance criterion is satisfied.

In regard to Criterion 3, above, the engineering evaluations of all nonconformances identified by the Overinspection Program, as reported in Reference 1, Chapter V and Appendix D, show that none of the nonconformances were safety significant, and thus Criterion 3 is satisfied. Additional qualitative and quantitative information concerning these evaluations is presented in Enclosure 2, IP Responses to Enclosure 2 NRC Question A.3 and Comment C.3. The results of the engineering evaluations are summarized as follows:

Table 3

Commodity	Number of Nonconforming Conditions	Number of Safety Significant Nonconforming Conditions	Reliability[1] Based on 95% Confidence
HVAC Duct	2,038	0	99%
HVAC Supports	877	0	99%

FIGURE 1

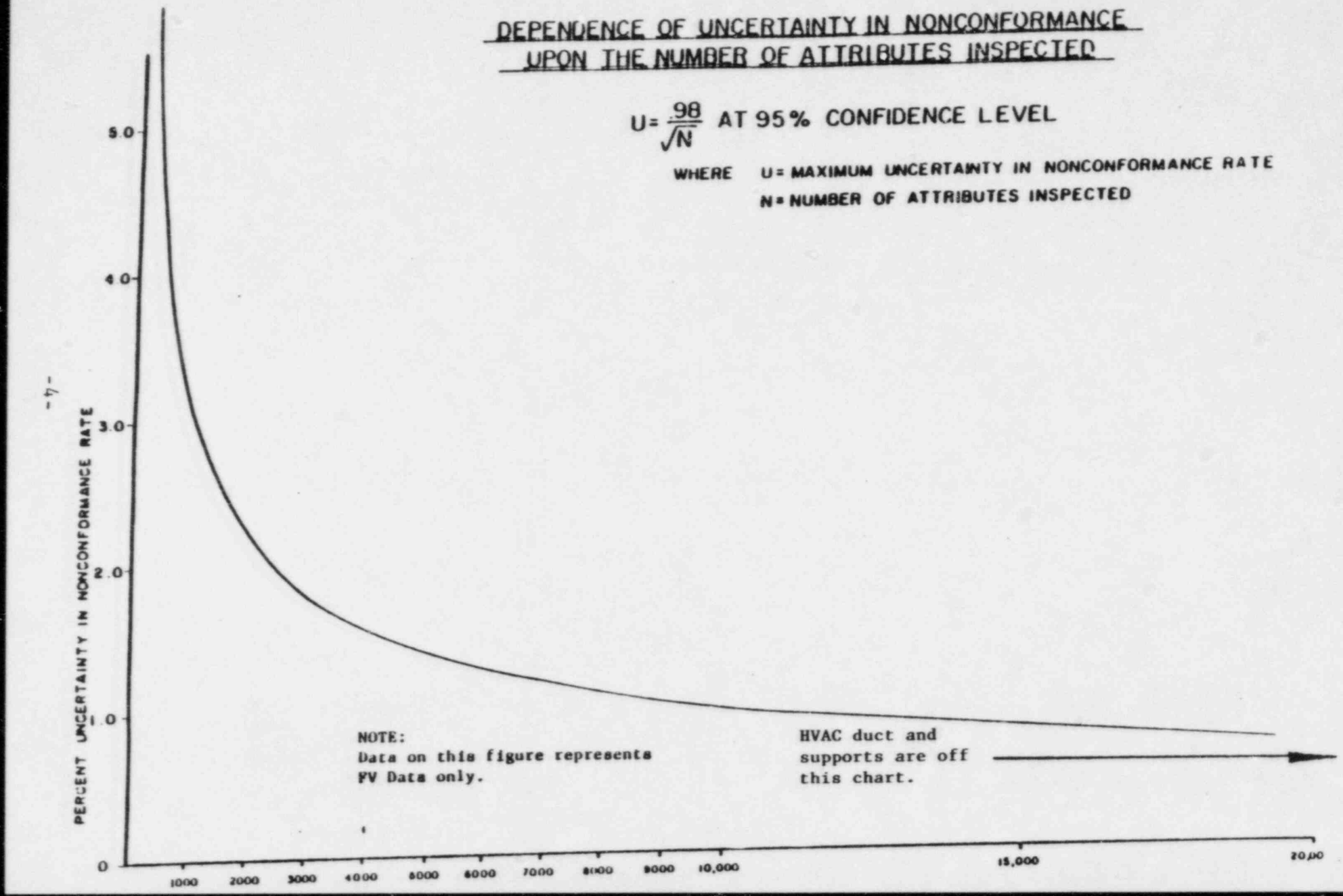
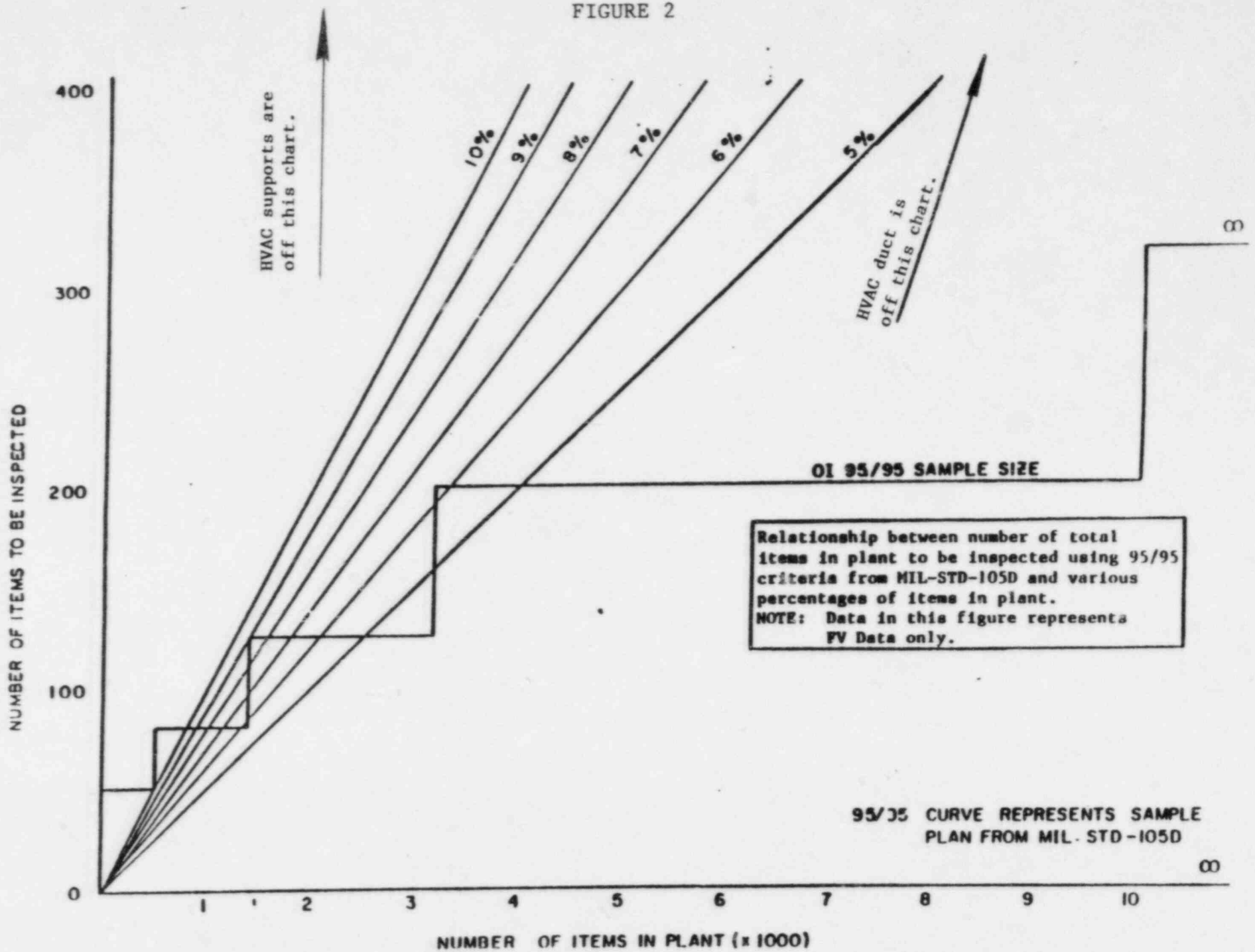

DEPENDENCE OF UNCERTAINTY IN NONCONFORMANCE UPON THE NUMBER OF ATTRIBUTES INSPECTED
U = 98/√N AT 95% CONFIDENCE LEVEL
WHERE U = MAXIMUM UNCERTAINTY IN NONCONFORMANCE RATE
N = NUMBER OF ATTRIBUTES INSPECTED
PERCENT UNCERTAINTY IN NONCONFORMANCE RATE
5.0
4.0
3.0
2.0
1.0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10,000
15,000
20,000
NOTE:
Data on this figure represents FV Data only.
HVAC duct and supports are off this chart.

FIGURE 2


400
300
200
100
0
NUMBER OF ITEMS TO BE INSPECTED
HVAC supports are off this chart.
10%
9%
8%
7%
6%
5%
HVAC duct is off this chart.
∞
OI 95/95 SAMPLE SIZE
Relationship between number of total items in plant to be inspected using 95/95 criteria from MIL-STD-105D and various percentages of items in plant.
NOTE: Data in this figure represents FV Data only.
95/95 CURVE REPRESENTS SAMPLE PLAN FROM MIL-STD-105D
∞
1
2
3
4
5
6
7
8
9
10
NUMBER OF ITEMS IN PLANT (x 1000)

[1] Reliabilities are calculated using the equation:

$$R = 1 - \frac{2.995}{n}$$ where,

R = Reliability at 95% confidence level assuming an infinitely sized lot
n = Number of items inspected

C. Conclusions

As shown in Table 1 above, the criterion for extent of inspection is satisfied for the commodities subject to this request.

As shown in Table 2 above, the criterion for conformance rate (95) is satisfied for the commodities subject to this request.

As shown in Reference 1, Chapter V and Appendix D and Table 3 above, the criterion for safety significance (no safety significant nonconformances) is satisfied for the commodities subject to this request.

These results and conclusions are based upon reinspection of a substantial portion of the plant for the subject commodities. The engineering evaluations provide high confidence in the ultimate capability of plant components to perform their intended safety function. The results of the Overinspection Program through December 31, 1984, confirm the quality of Clinton Power Station construction in general and the subject commodities in particular. NRC should grant IP's request to terminate the Overinspection Program for these commodities.

ENCLOSURE 2

ILLINOIS POWER RESPONSE TO NRC QUESTIONS
IN ENCLOSURE 3 TO NRC'S APRIL 11, 1985, LETTER
CONCERNING REQUESTS TO TERMINATE THE OVER INSPECTION PROGRAM
FOR COMMODITIES OTHER THAN PIPING AND MECHANICAL SUPPORTS

This enclosure responds to the NRC questions and comments regarding Illinois Power (IP) Report entitled, Results of Quality Programs for Construction of Clinton Power Station, Chapter V and Appendix D. The NRC comments and questions are quoted directly from Enclosure 2 of the NRC letter from J. G. Keppler to IP, attention W. C. Gerstner, dated April 11, 1985, and are followed by the IP responses. Where two or more questions are related to a single topic, these are grouped together and a single IP response is provided. It is noted that the NRC Questions as quoted relate to piping and mechanical supports. IP responses provide information relative to HVAC duct and duct supports which are the subject of this request.

* *

ENCLOSURE 2 NRC COMMENT A.1: One of the objectives of the Overinspection (OI) Program is to prove that the structures, systems, and components (SSCs) at the Clinton Power Station (CPS) are properly installed in order to assure safety of operation. The data presented in references 2 and 3 concerning piping and mechanical supports are defined in terms of attributes which are sub-elements of plant SSCs. Plant SSCs are composed of varying quantities of these attributes, depending upon commodity and degree of complexity. In addition, some of these attributes do not necessarily act independently in achieving the safety function of the SSCs to which they apply (i.e., some attributes of a pipe support, would have a greater impact on the integrity of that support when taken together than when considered separately).

ENCLOSURE 2 NRC QUESTION A.1: Provide OI program results for piping and mechanical supports (including confidence factors) in terms of plant SSCs rather than SSC sub-elements.

IP RESPONSE TO ENCLOSURE 2 QUESTION A.1: The table below provides the requested data.

Data as of December 31, 1984

Commodity	Total Plant	Reinspected By FV	Items With NCRs	Safety Significant NCRs	Reliability Based on 95% Confidence[1]
HVAC Duct	9,811	1,752	821	0	> 99%
HVAC Supports	2,762	745	291	0	> 99%

[1] Reliabilities are calculated using the equation:

$$R = 1 - \frac{2.995}{n}$$ where:

R = Reliability at 95% confidence level assuming an infinitely sized lot
n = Number of items inspected

* *

ENCLOSURE 2 NRC COMMENT A.2: Reference 2, attachment 2, provides IP's response to open item 461/84-37-01. That response is data in terms of percent complete and number of attributes inspected for safety related piping and mechanical supports.

ENCLOSURE 2 NRC QUESTION A.2: Provide more detailed information concerning piping and mechanical supports which forms the basis for the data provided (e.g., total linear feet of safety related large bore piping and the number of feet actually inspected; total number of safety related pipe supports and the number actually inspected, etc.).

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION A.2: The information is provided in response to Enclosure 2 NRC Question A.1 above.

* *

ENCLOSURE 2 NRC COMMENT A.3: The data presented in references 2 and 3 related to piping and mechanical supports are presented quantitatively with only limited qualitative information. This presentation does not provide a meaningful basis for an independent reviewer to judge the actual significance of OI findings.

ENCLOSURE 2 NRC QUESTION A.3: Provide additional qualitative data related to piping and mechanical supports which was the basis for statements contained in references 2 and 3 regarding the significance of OI findings (e.g., refer to

the Byron report provided to IP at the meeting in Region III last October 25; Exhibit C-2, page 8 of 15, Table CE-9). The response should consider all applicable attributes inspected.

ENCLOSURE 2 NRC COMMENT B.3: Because of the dependent nature of certain sub-elements (attributes) of plant SSCs, the actual confidence achieved in terms of the ability of an individual SSC to perform its intended safety function has not been clearly established. For example, a pipe support may be composed of a concrete foundation, a base plate, anchor bolts, nuts, several structural shapes arranged in a defined geometry, interconnecting welds, connecting rods, U bolts, clamps, etc.. These individual parts of the support have attributes defined by IPOI. IP has demonstrated a high degree of confidence in the conformance of these individual attributes. However, the support must act as a unit in order to perform its safety function.

ENCLOSURE 2 NRC QUESTION B.3: Can IP demonstrate a high degree of confidence in piping and mechanical supports when the individual attributes are arranged as a unit (or item), considering the dependency of certain attributes, using the data obtained to date under the OI program? Provide the detailed analytical results.

ENCLOSURE 2 NRC QUESTION B.4: Considering the response to item [B.3] above, is the conformance criterion sufficient when applied to piping and mechanical supports without restriction?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION A.3, B.3 and B.4: The objective of the engineering evaluations performed on the nonconformances was to determine the potential significance to plant safety had the nonconforming condition(s) been undetected by the Overinspection Program. These engineering evaluations demonstrated that the identified nonconformances would not have impaired the ability of the components to perform their safety related design function. The design margins of each component, considering the reported nonconformances, were determined to be within the specified design limits.

The engineering evaluations considered the potential effect that all identified nonconforming attributes may have had on the components. This evaluation addressed both singular and cumulative effects.

The results of the engineering evaluations on a component basis have been divided into the three categories described below, and are summarized in the table following the description of the three categories. These categories have

been developed in order to quantify the significance of the nonconformances with respect to the design or design margins. It should be noted that previous IP letters on this subject divided nonconformances into four categories. Category B was subdivided into B1 and B2 based on the reduction in weld capacity or component design margin. For those components which are the subject of this request, this subdivision is not appropriate.

Category A — The nonconforming attribute(s) reported on the components are acceptable because they do not affect the structural integrity or functional capability of the component. These items are not significant with respect to the plant design and, therefore, have no effect on the plant safety.

Category B — The nonconforming attribute(s) reported on the components resulted in an acceptable reduction in the functional capability or structural integrity of the component.

Category C — The nonconforming attribute(s) resulted in a reduction in functional capability or structural integrity beyond that allowed by the plant design basis. There are no components in this category.

SIGNIFICANCE OF IDENTIFIED NONCONFORMING CONDITIONS EXPRESSED IN TERMS OF CAPACITY OR DESIGN MARGIN REDUCTION:

Data as of December 31, 1984

Commodity	Category A (No Impact)		Category B		Category C		Total	
HVAC Duct	284	(34%)	540	(66%)	0	(0%)	824	(100%)
HVAC Supports	174	(59%)	121	(41%)	0	(0%)	295	(100%)
TOTAL	458	(41%)	661	(59%)	0	(0%)	1119	(100%)

CATEGORY A NONCONFORMANCES

Nonconformances that were classified as Category A were those that could be shown to have no effect on an item's ability to meet its design basis parameters or tolerances by comparison with the current design basis or consideration of mandatory programs which demonstrate compliance with the design basis. Typical nonconformances identified by the

Overinspection Program that resulted in a Category A classification are cosmetic weld defects, loose and incomplete installation, incorrect orientation or configuration, construction tolerance violations, and minor documentation errors.

Cosmetic weld defects were comprised mostly of weld spatter and arc strikes that did not cause a reduction in base metal.

Documentation errors, missing and damaged identification tags are typical discrepancies grouped under documentation. Since proper identification was established or recovered from other files, they were classified as Category A and no further evaluation effort was required to demonstrate design basis compliance.

Documentation discrepancies involving incorrect fabrication or construction drawings were, in most cases, previously reviewed for design impact by the originating design organization and decisions were made to utilize the as-installed configuration ("use-as-is") and make the appropriate corrections to the design drawings to reflect the "as-built" condition. These were readily determined to have no impact on design based on the disposition of the original NCR and, hence, were classified as Category A.

CATEGORY B NONCONFORMANCE

Nonconformances classified as Category B involved those nonconformances which required the comparison of the discrepancy to the weld capacity or component design margin. Engineering analysis was not required due to the revision of the design criteria subsequent to the performance of the Overinspections. When compared to these revised design criteria, the items were acceptable.

The most prominent example of Category B nonconformances involved welding. Weld related deficiencies of this type included such nonconformances as weld size, lack of fusion, undercut and overlap. In most cases, the defective weld could be ignored and the remaining welds would be adequate to maintain the system integrity. No nonconforming conditions were found to result in excessive stresses in the ductwork or support system.

Installation nonconformances were comprised of hardware that was either loose, missing, or the wrong size. These attributes involved primarily nuts and bolts used to connect duct companion angles which were not tightened adequately, were installed crooked, or were missing from the connection. Wrong hardware was reported primarily for incorrectly sized duct access door assemblies.

Physical damage to HVAC ductwork and supports consisted mostly of scratches, gouges, arc strikes and grinding marks and pin holes. All cases of physical damage were evaluated to determine if the integrity of the duct system was violated or if a reduction in strength of a duct support occurred as a result of base metal damage.

* *

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION B.3: As noted in the response to Question A.3 above, cumulative effects were considered where appropriate. Therefore, IP has demonstrated a high degree of confidence in the components that are the subject of this request (See response to Enclosure 2 NRC Question A.1 above).

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION B.4: Yes. Considering the responses to Enclosure 2 NRC Questions A.3 and B.3 above, the conformance criterion proposed in IP's letter of March 29, 1985, is sufficient when applied to the components that are the subject of this request.

* *

ENCLOSURE 2 NRC COMMENT A.4: The data presented in references 2 and 3 related to piping and mechanical supports does not provide sufficient relevant information (e.g., numbers of SSCs inspected, numbers of inspections performed, and OI findings broken down by discipline, by building and elevation, and by old vs. new work).

ENCLOSURE 2 NRC QUESTION A.4: Quantify OI results for piping and mechanical supports in terms of numbers of SSCs inspected, and numbers of inspections performed broken down by discipline, by building and elevation, and by old vs. new work.

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION A.4: The data requested are provided on the following charts, except for the craft discipline information requested. No specific data is available for this information. However, for HVAC duct and duct supports, the work is essentially all performed by boilermakers and sheetmetal workers. As is demonstrated by these charts, the results of the Overinspection Program provide a representative sample of all buildings and elevations containing the components that are the subject of this request. This, coupled with the number of inspections performed, demonstrates that a large random sample has been reinspected and therefore the results represent the quality of these components at CPS.

* *

HVAC DUCT

OVERINSPECTION PROGRAM INSPECTIONS BY:

- BUILDING - ELEVATION
- ITEM - ATTRIBUTE
- BA FV - IP OI
- OLD - NEW
- 12-31-84 DATA

HVAC DUCT

SCREEN HOUSE (BUILDING 22)

(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
699	0	65	0	41	0	4391	0	1884
657	0	0	0	0	0	0	0	0

HVAC DUCT

TURBINE BUILDING (BUILDING 25)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
847	0	0	0	0	0	0	0	0
800	0	26	0	2	0	2965	0	6
781	0	0	0	0	0	0	0	0
762	0	6	0	4	0	181	0	12
737	0	6	0	2	0	156	0	6
712	0	5	0	1	0	129	0	3

HVAC DUCT

AUXILIARY BUILDING (BUILDING 26)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
781	0	0	0	0	0	0	0	0
762	0	3	0	0	0	269	0	0
737	0	2	0	0	0	284	0	0
702	0	19	0	2	0	2349	0	74

HVAC DUCT

REACTOR BUILDING (BUILDING 27)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
828	0	56	0	4	0	6587	0	243
755	0	64	0	1	0	6834	0	61
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC DUCT

FUEL BUILDING (BUILDING 28)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
755	0	32	0	0	0	4932	0	0
737	0	9	0	0	0	954	0	0
712	0	3	0	0	0	331	0	0

HVAC DUCT

DIESEL GENERATOR AND HVAC BUILDING (BUILDING 29)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	157	0	6	0	18779	0	381
737	0	255	0	26	0	22982	0	1317
712	0	134	0	7	0	11363	0	642

HVAC DUCT

CONTROL BUILDING (BUILDING 30)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
825	0	3	0	0	0	564	0	0
800	0	715	0	40	0	80714	0	2216
781	0	1	0	1	0	41	0	84
762	0	9	0	0	0	1311	0	0
737	0	28	0	5	0	2688	0	392
719	0	115	0	52	0	15749	0	4043
702	0	1	0	0	0	10	0	0

HVAC DUCT

RADWASTE BUILDING (BUILDING 31)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	8	0	4	0	355	0	10
737	0	22	0	5	0	2222	0	15
702	0	8	0	5	0	815	0	13

HVAC DUCT

OVERINSPECTION PROGRAM NONCONFORMANCES BY:

- BUILDING - ELEVATION
- ITEM - ATTRIBUTE
- BA FV - IP OI
- OLD - NEW
- 12-31-84 DATA

HVAC DUCT

SCREEN HOUSE (BUILDING 22)

(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
699	0	71	0	0	0	284	0	0
657	0	0	0	0	0	0	0	0

HVAC DUCT

TURBINE BUILDING (BUILDING 25)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
847	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0
781	0	0	0	0	0	0	0	0
762	0	1	0	0	0	2	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC DUCT

AUXILIARY BUILDING (BUILDING 26)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
781	0	0	0	0	0	0	0	0
762	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
702	0	2	0	0	0	2	0	0

HVAC DUCT

REACTOR BUILDING (BUILDING 27)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
828	0	19	0	0	0	31	0	0
755	0	22	0	0	0	39	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC DUCT

FUEL BUILDING (BUILDING 28)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
755	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC DUCT

DIESEL GENERATOR AND HVAC BUILDING (BUILDING 29)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	46	0	1	0	83	0	1
737	0	138	0	0	0	260	0	0
712	0	49	0	0	0	97	0	0

HVAC DUCT

CONTROL BUILDING (BUILDING 30)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
825	0	1	0	0	0	4	0	0
800	0	339	0	2	0	846	0	3
781	0	3	0	0	0	7	0	0
762	0	0	0	0	0	0	0	0
737	0	8	0	0	0	21	0	0
719	0	100	0	0	0	312	0	0
702	0	0	0	0	0	0	0	0

HVAC DUCT

RADWASTE BUILDING (BUILDING 31)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	4	0	0	0	6	0	0
737	0	11	0	0	0	19	0	0
702	0	7	0	0	0	21	0	0

HVAC SUPPORTS

OVERINSPECTION PROGRAM INSPECTIONS BY:

- BUILDING - ELEVATION
- ITEM - ATTRIBUTE
- BA FV - IP OI
- OLD - NEW
- 12-31-84 DATA

HVAC SUPPORTS

SCREEN HOUSE (BUILDING 22)

(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
699	0	30	0	9	0	3855	0	1963
657	0	0	0	0	0	0	0	0

HVAC SUPPORTS

TURBINE BUILDING (BUILDING 25)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
847	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0
781	0	0	0	0	0	0	0	0
762	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

AUXILIARY BUILDING (BUILDING 26)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
781	0	0	0	0	0	0	0	0
762	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
702	0	1	0	0	0	150	0	0

HVAC SUPPORTS

REACTOR BUILDING (BUILDING 27)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
828	0	25	0	0	0	2575	0	0
755	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

FUEL BUILDING (BUILDING 28)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
755	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

DIESEL GENERATOR AND HVAC BUILDING (BUILDING 29)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	33	0	3	0	6258	0	431
737	0	268	0	3	0	29247	0	550
712	0	38	0	3	0	5299	0	519

HVAC SUPPORTS

CONTROL BUILDING (BUILDING 30)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
825	0	0	0	0	0	0	0	0
800	0	224	0	14	0	43841	0	3122
781	0	0	0	0	0	0	0	0
762	0	1	0	0	0	141	0	0
737	0	1	0	0	0	147	0	0
719	0	122	0	29	0	17435	0	5681
702	0	1	0	0	0	137	0	0

HVAC SUPPORTS

RADWASTE BUILDING (BUILDING 31)
(12-31-84 DATA)

ELEV	QUANTITY INSPECTED				ATTRIBUTES INSPECTED			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	1	0	0	0	32	0	0
737	0	0	0	0	0	0	0	0
702	0	0	0	0	0	0	0	0

HVAC SUPPORTS

OVERINSPECTION PROGRAM NONCONFORMANCES BY:

- BUILDING - ELEVATION
- ITEM - ATTRIBUTE
- BA FV - IP OI
- OLD - NEW
- 12-31-84 DATA

HVAC SUPPORTS

SCREEN HOUSE (BUILDING 22)

(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
699	0	22	0	1	0	88	0	2
657	0	0	0	0	0	0	0	0

HVAC SUPPORTS

TURBINE BUILDING (BUILDING 25)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
847	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0
781	0	0	0	0	0	0	0	0
762	0	1	0	0	0	2	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

AUXILIARY BUILDING (BUILDING 26)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
781	0	0	0	0	0	0	0	0
762	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
702	0	1	0	0	0	1	0	0

HVAC SUPPORTS

REACTOR BUILDING (BUILDING 27)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
828	0	3	0	0	0	3	0	0
755	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

FUEL BUILDING (BUILDING 28)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
755	0	0	0	0	0	0	0	0
737	0	0	0	0	0	0	0	0
712	0	0	0	0	0	0	0	0

HVAC SUPPORTS

DIESEL GENERATOR AND HVAC BUILDING (BUILDING 29)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	16	0	0	0	62	0	0
737	0	39	0	0	0	74	0	0
712	0	13	0	0	0	44	0	0

HVAC SUPPORTS

CONTROL BUILDING (BUILDING 30)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
825	0	0	0	0	0	0	0	0
800	0	132	0	0	0	407	0	0
781	0	0	0	0	0	0	0	0
762	0	0	0	0	0	0	0	0
737	0	1	0	0	0	4	0	0
719	0	60	0	3	0	179	0	3
702	0	1	0	0	0	4	0	0

HVAC SUPPORTS

RADWASTE BUILDING (BUILDING 31)
(12-31-84 DATA)

ELEV	QUANTITY NONCONFORMING				ATTRIBUTES NONCONFORMING			
	BA FV		IP OI		BA FV		IP OI	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
762	0	0	0	0	0	0	0	0
737	0	2	0	0	0	4	0	0
702	0	0	0	0	0	0	0	0

ENCLOSURE 2 NRC COMMENT B.1: Ten thousand attributes inspected does not appear to be a consistent criterion which can be meaningfully applied to different plant SSCs. For example, a simple beam installation may consist of 150 sub-elements (attributes) while a complex beam installation may consist of 800 or more attributes. Thus the 10,000 attributes criterion may be satisfied by inspecting as few as 13 complex beam installations or 67 simple beam installations. Neither number of installations appears to be an adequate basis for obtaining reasonable assurance in the total population of safety related beam installations at CPS. This comment is equally applicable to piping and mechanical supports.

ENCLOSURE 2 NRC QUESTION B.1: Quantify the minimum number of mechanical supports and the minimum number of feet of large and small bore pipe which would have to be inspected in order to achieve the 10,000 attributes criterion. Is that number an adequate basis for obtaining reasonable assurance in the total population of similar plant SSCs? Provide the technical basis for your determination.

IP RESPONSES TO ENCLOSURE 2 NRC QUESTION B.1: Considering the NRC's position on generic termination criteria and IP's response, this question is no longer germane.

* *

ENCLOSURE 2 NRC COMMENT B.2: Five percent of the items (SSCs) inspected may be a reasonable basis for extrapolating confidence in the total population of similar SSCs installed, provided that:

1) The total population of similar SSCs is sufficiently large, or;

2) An adequate level of confidence can be established with smaller total populations of similar SSCs on some other basis.

3) Provided the 5% sample is a random sample of old work (pre-July 1982).

The basis for any determination regarding small populations of similar SSCs must be clearly established.

ENCLOSURE 2 NRC QUESTION B.2: Can IP demonstrate that required confidence levels will be achieved using the 5% criterion even when small total populations of SSCs are inspected under the OI program?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION B.2: Considering the NRC's position on generic termination criteria and IP's response, this question is no longer germane.

* *

ENCLOSURE 2 NRC COMMENT B.5: Criterion C (related to defense in depth) appears to be a valid criterion, subject to the veracity of the engineering evaluations performed (see comment C.2).

ENCLOSURE 2 NRC QUESTION B.5: Can IP demonstrate that this criterion is met for piping and mechanical supports when the engineering evaluations performed for safety significance conform to the stated premises (refer to comment C.1. for premises)?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION B.5: Considering the information provided in response to Enclosure 2 NRC Questions A.1, A.3, and B.3 above and to Enclosure 2 NRC Question C.1 below, IP concludes that the criterion has been fully satisfied for HVAC duct and duct supports.

* *

ENCLOSURE 2 NRC COMMENT C.1: In the engineering evaluations documented in reference 2, attachment 2, third page last paragraph, and in reference 3, Chapter V, paragraph C.2.b.2)(f) and (j), IP takes credit for future activities, the scope, depth, and quality of which may be undefined. For example, the reference 2 paragraph states in part:

> Installation nonconformances on pipe supports involved loose or incomplete hardware installation, incorrect adjustment of supports, lack of clearance or interference, and construction tolerance non-conformances. Each nonconforming condition was evaluated to determine if the nonconformance was of a type that would be specifically examined in subsequent preoperational testing. Consequently, these nonconformances were not significant because they would not have been left unidentified and uncorrected if the Overinspection Program had not been performed (emphasis added).

This methodology for evaluating construction deficiencies is not in accordance with 10CFR50.55(e), and does not appear to be consistent with a premise stated in reference 2, attachment 2, first page, last paragraph, as follows:

> Although S&L evaluated each nonconformance identified by the Overinspection Program to determine whether it was safety significant, it should be emphasized that most of the nonconforming items have been reworked in accordance with applicable design drawings and specifications and the remainder have been determined to be acceptable as they are. Consequently, the evaluations below were performed to determine the safety significance of the nonconformances assuming they had been left uncorrected (emphasis added).

In addition, this methodology appears to depart from a stated premise in reference 3, Chapter V, paragraph C.2.a., as follows:

> For purposes of this report, a safety significant nonconformance is defined as a nonconformance which, were it to have remained unidentified by the Overinspection Program (emphasis added), could have resulted in the loss of capability of a structure, system, or component to perform its intended safety function.

Reference 3 adopts the above premise by reference.

ENCLOSURE 2 NRC QUESTION C.1: Does IP intend that engineering evaluations of OI findings conform to the requirements of 10CFR50.55(e) and the above premises? If so, what are the results of IP's evaluations of OI findings concerning piping and mechanical supports when performed in accordance with the stated requirements and premises?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.1: NCRs initiated under the Overinspection Program are reviewed with respect to 10CFR50.55(e) criteria as part of the normal IP corrective action program. These evaluations have been conducted taking no "credit for future activities" and no nonconformances were reportable under 10CFR50.55(e).

The engineering evaluation of Overinspection Program results reported in the February 1985 IP report entitled "Results of Quality Programs for Construction of Clinton Power Station" (Results Report) and the April 1985 IP Report entitled "Update to Results of Quality Programs for Construction of Clinton Power Station" (Updated Results Report) was not undertaken for the purpose of satisfying the requirements of 10CFR50.55(e). Those evaluations were performed assuming that the nonconformances had not been corrected as a result of the Overinspection Program. "Credit for future activities" was taken only for purposes

of these evaluations. If there was a downstream program or procedure in place as part of the normal quality assurance program (startup, testing or plant walkdowns, for example) which could reasonably be expected to identify and correct the nonconforming condition, IP concluded that the condition would not represent a safety significant condition at CPS even if the Overinspection Program did not exist.

It is not IP's intent that the Overinspection Program be the only mechanism used to identify and correct nonconforming conditions at CPS. As stated in the Overinspection Program Plan, the Overinspection Program supplements but does not replace the Quality Assurance Program for CPS. This is also reflected in the definition of safety significance provided in Reference 3, Chapter V, Paragraph C.2.a which is cited above. The IP Updated Results Report contains language revisions which should clarify this matter and eliminate any potential inconsistencies.

* *

ENCLOSURE 2 NRC COMMENT C.2: Reference 3, Chapter 5, pages. V-9 through V-10, states:

> For cases in which one NCR documented nonconformances on different items or in which one item contained nonconforming attributes of differing natures (e.g., loose bolt and arc strike), separate evaluations of the impact of the nonconforming attributes on each item were conducted to ensure that all possible adverse impacts were addressed.

This statement seems to imply that multiple nonconforming conditions identified on a single item were treated separately.

ENCLOSURE 2 NRC QUESTION C.2: If this is what was intended by the statement above, can IP justify the methodology used in light of the dependent nature of certain attributes (as discussed in A.1. and B.3. above)?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.2: As discussed in the response to Enclosure 2 NRC Question A.3 above, both singular and cumulative effects were considered, as appropriate, for the nature of the reported nonconforming attributes and the affected components.

* *

ENCLOSURE 2 NRC COMMENT C.3: Reference 3, Chapter 5, paragraph C.2.b.2)(c), Arc Strikes, does not differentiate between superficial and severe arc strikes. A severe arc

strike may reduce piping wall thickness substantially and/or include a localized crack, usually at the bottom of the pit created by the strike.

ENCLOSURE 2 NRC QUESTION C.3: Provide both qualitative and quantitative analytical results from the engineering evaluations performed on arc strikes identified on piping and mechanical supports.

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.3: As discussed in the response to Question A.3 above, arc strikes were evaluated to determine their potential effect on the ductwork and duct supports. In no case were any localized cracks reported that were a result of the arc strike. Therefore, only the effect on the arc strike on the ductwork thickness, duct supports section modulus or weld size, required evaluations.

The tables below summarize the results of the evaluations. As is evident from the table, the majority of arc strikes had little or no effect on the affected component.

NUMBER OF COMPONENTS
WITH REPORTED ARC STRIKES
(Data as of 12/31/84)

Significance	HVAC Duct	HVAC Supports
Category A	7	2
Category B	34	22
Category C	0	0

* *

ENCLOSURE 2 NRC COMMENT C.4: Reference 3, Chapter 5, paragraph C.2.b.2)(d) provides the engineering evaluation of missing or incorrect identification markings. That evaluation does not appear to consider the potential impact of missing or incorrect identification on the correct performance of operating activities (operations, maintenance, and surveillance).

In addition, there is no indication as to the type of criteria applied by S&L in evaluation of missing or incorrect material markings. This is of particular importance in view of the substance of IP's 10CFR50.55(e) reports 55-84-02 and 55-84-18.

ENCLOSURE 2 NRC QUESTION C.4(1): Provide the following additional information related to engineering evaluations performed on missing or incorrect identification markings:

(1) The results of evaluations performed related to the impact of missing or incorrect component identification markings (related to piping and mechanical support components) on the correct performance of operating activities.

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.4(1): As is discussed in IP's February 1985 Report entitled "Results of Quality Programs for Construction of Clinton Power Station" (Results Report), Chapter V, paragraph C.2.b.2(d), "S&L evaluated all cases of missing, incorrect, or damaged identification markings to assure that the proper identity had subsequently been established. In all cases, the correct items were installed. Therefore, it was determined that there was no impact on plant performance or operating activities.

ENCLOSURE 2 NRC QUESTION C.4(2): The criteria used by S&L in dispositioning nonconformance reports dealing with missing or incorrect material identification markings on piping and mechanical supports.

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.4(2): Three HVAC related NCRs were initially identified as lacking traceability. These three NCRs deal with non-hardware, procedural violations involving unauthorized work being done on tagged material. The tagging nonconformances were previously evaluated as part of the normal documentation process and no further evaluation for acceptance of these nonconformances was required.

* *

ENCLOSURE 2 NRC COMMENT C.5.a: S&L form 350-A (seismic) states that the actual design attachment of equipment to a structure must be simulated in mounting the equipment for a test.

ENCLOSURE 2 NRC QUE[illegible]N C.5.b: Has IP considered the impact of OI findings [illegible]n the results of seismic testing and analyses performed? Wh[illegible]t are your results?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.5.b: S&L form 350-A (Seismic) does require equipment to be seismically tested or analyzed to verify that the actual design attachment of the equipment to the structure is properly simulated. This requirement does not apply to HVAC duct or supports. For duct systems, a simplified dynamic analysis is performed which includes the appropriate seismic coefficients. The seismic loading for the supports and the ductwork were considered in each overinspection evaluation where a reduction in strength resulted from a nonconforming condition. For all ductwork and duct supports evaluated, the components were determined to be acceptable.

* *

ENCLOSURE 2 NRC QUESTION C.5.c: Has IP quantified the impact of engineering analyses performed under the Over-inspection Program in terms of reduction in safety margin on piping and mechanical supports? What are your results?

IP RESPONSE TO ENCLOSURE 2 NRC QUESTION C.5.c: There has been no reduction in safety margin, in terms of IP's definition of safety significance, for the components that are the subject of this request as determined by the engineering evaluations. Quantified results for capacity and design margin for each commodity are provided in the response to Enclosure 2 NRC Question A.3 above.