



Commonwealth Edison  
Byron Generating Station  
P.O. Box B  
Byron, Illinois 61010

TO: D.W. HAYES  
DPRP  
X 543

November 30, 1983

TO: J. Hinds

FROM: R.P. Tuetken

Per conversation with W. Little, R. Knop and D. Hayes at 2:45 p.m.  
November 28, 1983 and W. Little, R. Knop, D. Hayes and Julian Hinds  
at 1:30 p.m. November 29, 1983

1. When condition exists that a selected inspector fails to achieve the necessary agreement rate (i.e. 90% or 95% as appropriate and without Commonwealth Edison Company Level III review) in the first three month period, and the inspector has no inspections of the failed attribute to reinspect after the first three month period, then substitute the next chronological inspector who performed inspections of the failed attribute in his first three month period and inspect all his inspections of the failed attribute performed in the first three month period.

- 1a. Based on the above status is as follows:

For Hatfield: The next inspector has been identified, appears there will be a population of approximately 8000 welds. The records are being pulled and sent into the field for removal of fireproofing and painting.

For Hunter: The next inspector has been identified, appears there will be a population of approximately 400 welds. The records are being pulled and sent into the field for removal of fireproofing and painting.

2. When condition exists that a selected inspector fails to achieve the necessary agreement rate (i.e. 90% or 95% as appropriate and without Commonwealth Edison Company Level III review) in the second three month period and inspector population expansion is required then expand the population by 50%.

FOIA-88-344

8811140272 881013  
PDR FOIA PDR  
MURPHY88-344

E/36

For PTL this yields:

PTL had twelve inspectors selected in initial population, in order to maintain compliance with program, substitution was inacted due to no reinspectable quantity in certain selected inspectors. This yielded after substitution was executed ten inspectors who had physical work reinspected and two inspectors who had no quantity.

Of the ten above, when the Commonwealth Edison Company Level III results are eliminated, six exceed the necessary threshold and four are short of the necessary threshold.

Of the four, two have no inspections performed after the first three months, one has inspections after the first three months and they are presently being reinspected, one had inspections after the first three months and they have been reinspected and the inspector again failed to achieve the necessary threshold.

Therefore conditions exists that population expansion is required. Initial population of selected inspectors certified in failed attribute (i.e. VWI) was twelve, therefore a population expansion of six inspectors required. There were twenty three inspectors certified in attribute, 23 minus 12 yields 11 inspectors to select from to establish quota of six.

Of the 11:

- |   |   |
|---|---|
| A. Number of inspectors certified in VWI in first three months who have minimum quantity in first three months. (J. Kinchen)                                      | 1 |
| B. Number of inspectors certified in VWI in first three months who have minimum quantity in consecutive three month period.                                       | 0 |
| C. Number of inspectors certified in VWI in first three months who require extension beyond three months to achieve minimum quantity. (M. Troutman)               | 1 |
| D. Number of inspectors certified in VWI after first three months who have minimum quantity in consecutive three month period. (G. Reardon, H. Early, D. Hoffman) | 3 |
| E. Number of inspectors certified in VWI in first three months who do not have minimum quantity in total of all inspections. (M. Anderson)                        | 1 |
| F. Number of inspectors certified in VWI after first three months who do not have minimum quantity in total of all inspections. (R. Toops)                        | 1 |
| G. Number of inspectors certified in VWI who performed no inspections. (J. Harris, G. Huff, K. Klien, L. Young)   | 4 |

Use condition A, C, and D to achieve quota, this fails one short of the required six. The final report will address this with statement that all inspectors with minimum quantity were included in expansion.

R. Tuetken 12/1/53  
R. Tuetken  
Assistant Project Superintendent  
Project Construction Department  
Byron Station

RPT/rc

## Interpretations Summary

1. Taking of Level I data w/o knowing result (HECo)
2. Punch <sup>marks</sup> missing; not reinspectable  
Turn of nut; not reinspectable  
Retorque; Record value snug up  
Type 3 & 4 subsequent inspections } (Hunter)
3. Receiving Inspection not reinspectable (SCI)
4. Structural bolting sample - not reinspectable (PTL)
5. Alloy Steel Bolt Relaxation (Hunter)
6. Hot Functional Testing Substitute Inspections (Hunter)
7. Transco Fire Stops - do not remove (HECo)
8. Reliable Sheet Metal welds not reinspectable (PTL)
9. Minimum quantity of inspections 25/50 (CECo)
10. Class D work not reinspected (Hunter)
11. PTL AWS weld criteria used (PTL)
12. CEA Bolt torque not reinspectable (PTL)
13. As-built tolerance for reinspection  $\pm 3$  inches (HECo)
14. Peabody reports (some) are not traceable (PTL)
15. Missed inspection due to IHF & ILRT shall be reinspected (Hunter)
16. Piping system bolt torque not reinspectable (Hunter)
17. Design Documents not updated per verbal concurrence (HECo)
18. Partial Penetration Weld (NISCO)
19. Weld Gase Tolerance & Full Si of (Hunter)
20. Arc Strikes (HECo)

PAID TO THE COMPANY

QA/QC MEMORANDUM #736

TO: All Lead Inspectors  
FROM: J.K. Buchanan  
DATE: March 12, 1983  
SUBJECT: Managers Instruction 108

INTERPRETATION  
TO BE USED during  
REINSPECTION  
R.B. Klingler  
CEC RD.

Please be advised that all reinspections performed in the scope of Managers Instruction 108 shall be done by taking raw data and comparing same with the previous inspection data. In no case shall we allow the inspector to take the information currently in the file and simply reverify the data.

See me at once if you have any questions concerning this directive.

This direction is a result of a discussion with Bill Forney and Kevin Connaughlar of the U.S.N.R.C.

*J.K. Buchanan*  
J.K. Buchanan

File 1.108  
cc: R.B. Klingler

only related is dimensional data verification  
i.e. for the reinspection inspector with dimensional  
data verification what is expected is that this may include  
the same data as the original.

Bob:

YOU MIGHT CHECK WITH FORNEY &  
ADVISE ALL CONTRACTORS OF  
THIS WISHES!

*Jim*



HUNTER CORPORATION  
INTER-COMPANY CORRESPONDENCE

DATE: April 12, 1983  
TO: Bob Klingler  
FROM: Lee E. Hadick  
SUBJECT: NRC Reinspection Meeting of April 11, 1983

It was my understanding that we will not perform any turn of the nut inspections. They will be shown as inaccessible.

If punch marks are not present on a fit-up inspection (small bore) the inspection will be shown as inaccessible.

Final torque will be verified by using a calibrated wrench. We will tighten each bolt in sequence, stop when the nut begins to turn, and record this data for each stud. We will not bring the bolt up to final torque condition.

On type 3/4 inspections damage will be considered inaccessible. If we are verifying a type 3 inspection and a type 4 was performed, it will be shown as inaccessible. If we are verifying a type 4 inspection and another type 4 (45 day) was performed, it will be shown as inaccessible. If we are verifying a type 4 inspection, we will do it without removing the covering (inplace, intact).

We will proceed in the fashion shown unless otherwise informed.

*Lee E. Hadick*

LEE E. HADICK  
Quality Control Supervisor

cc: M. L. Somsag

LEH/pb

*Interpretation 2*

*Methodology Acceptable  
should be used  
consistently by all  
contractors in  
inspection  
B. Klingler  
4/12/83*

*After R.T.  
by Reto  
Torque r.  
desig  
val*

Johnson Controls, Inc.  
Power Unit-Midwest  
720 Industrial Drive  
Bensenville, IL 60106  
Tel. 312/595 5650

# JOHNSON CONTROLS

Systems Engineering & Construction  
Division

COMMONWEALTH EDISON COMPANY  
Byron Station Construction  
R.R. #1 P.O. Box B  
Byron, Illinois 61010

Attn: Mr. R. Klingler

Date: April 29, 1983

Subject: N.R.C. Re-Inspection Meeting of April 11, 1983

Dear Bob,

It was my understanding that we will not perform any receiving inspections as material has already been used. They will be shown as inaccessible.

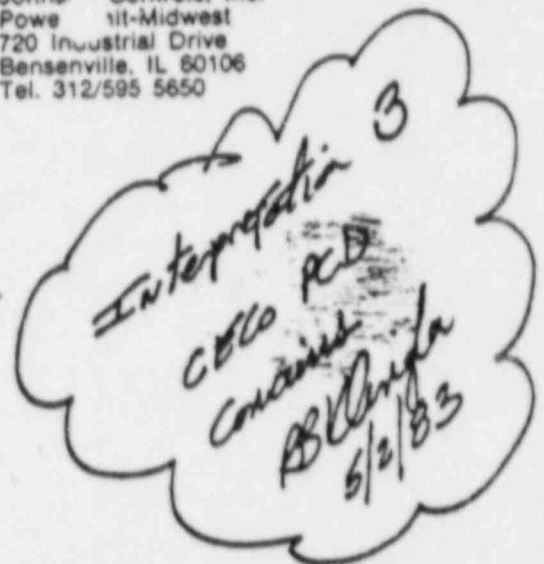
We will proceed in the fashion shown unless otherwise informed.

Sincerely,



Bansi Shah  
QA Manager

BS/lm



FROM:

PITTSBURGH TESTING LABORATORY

Byron Station  
P.O. Box 418  
Byron, IL 61010

SENDER'S NAME

• Don L. Smith

TO:

• Bob Klingler

REPLY ☒ IN WRITING

☐ BY TELEPHONE  
(815) 234-5095

☒ IMMEDIATELY

☐ AS SOON AS ABLE

☐ NOT NECESSARY

BY 5-3 1:00 PM Date 5-2

SUBJECT:

STRUCTURAL Bolting

DATE SENT:

DATE RECEIVED:

DATED ACTED UPON:

DATE RETURNED:

Interpretation A  
CELO RD  
Comments  
RB Klingler  
6/2/83

FOLD

AS PER OUR CONVERSATION, P.T.L. FEEL THAT THERE IS NO WAY TO DO A REINSPECTION OF STRUCTURAL BOLTING. PERABODY'S P.T.L. DOCUMENTATION DOES NOT SHOW THE ITEM <sup>10% SQUARE</sup> THAT WAS INITIALLY INSPECTED, THEREFORE WE FEEL THERE IS NO WAY TO DO A REINSPECTION OF STRUCTURAL BOLTING, PLEASE ADVISE.

SIGNED

*[Signature]*

CELO RD COMMENTS, DO NOT REINSPECT  
STRUCTURAL BOLTED CONNECTIONS

FOLD

5/2/83 RB Klingler

SIGNED



Commonwealth Edison  
Byron Generating Station  
P.O. Box B  
Byron, Illinois 61010

May 11, 1983

TO: Hunter Corporation  
P. O. Box 674  
Byron IL 61010

Powers-Azco-Pope  
P. O. Box 392  
Byron IL 61010

ATTN: B. Krasawaski

ATTN: B. Schulz

SUBJECT: Relaxation of Bolt Torque

Due to the physical phenomena of decrease in bolt stress as a result of creep in the bolt and/or gasket material, activities of reinspection of piping system bolt torque shall use the reduction value identified in the attached Sargent & Lundy letter SLBT-1050.

If you have any questions on the foregoing or attached, please contact us.

Very truly yours,

COMMONWEALTH EDISON CO.

R. Tuetken 5/11/83  
R. Tuetken  
Assistant Superintendent  
Project Construction Dept.

RPT:bg

Attachment

cc: M. Lonmann (1/w1)  
M. Stanish (1/w1)  
B. Klingler (1/w1)  
D. DeMoss (1/w1)  
M. Somsag (1/w1)  
B. Larkin (1/w1)

TORQUE  
Torque  
INTERPRETATION  
TO BE USED during  
Reinspection  
AB Klingler  
CEC  
5/11/83

SARGENT & LUNDY  
ENGINEERS  
CHICAGO

BYRON FIELD TRANSMITTAL FORM

COMMONWEALTH EDISON COMPANY  
Byron Station - Units 1 & 2  
Project Nos. 4391/92

Date 5-06-83  
Trans. No. SLBF-1050  
Page 1 of 1

Subject: Piping System Bolt Torque Relaxation - Alloy Steel Bolts

From: D. A. Gallagher/D. Demoss

To: R. P. Tuetken

Company: Commonwealth Edison

cc: W. C. Cleff - 22

S&L has reviewed piping system bolt torque relaxation and finds reductions in torque of up to 30% of initial torque can occur. If bolt torques are found to be below 70% of initial torque, the bolts should be pulled up to achieve the initial torque. Bolts used include A-193, A-325 and A-490.

Crane Engineering Data Handbook Section 31 - Bolting -- contains an expanded discussion of bolt torque relaxation.

*Demoss*  
*INTERPRETATION 5*  
*Sheet 2 of 2*



## HUNTER CORPORATION

3800 - 179TH STREET, HAMMOND, INDIANA 46323. (219) 845-8000 (312) 731-8000

Date: June 1, 1983

To: Bob Klinger

From: Lee E. Hadick

Subject: NRC Reinspection

INTERPRETATION 6  
To be used during  
Reinspection  
DB Klinger  
CEC/SPD

Per our conversation of May 31, 1983:

When hardware/weld reinspections cannot be performed due to the hot functional testing taking place in Unit 1, we will show it as inaccessible and state why. The inspectors surveillances will be researched sequentially for the next hardware/weld inspection (beyond his first three months) which will then be used in lieu of the original.

We will proceed in the fashion shown unless otherwise informed.

*Lee E. Hadick*

LEE E. HADICK  
Quality Control Supervisor

cc: M.L. Somsag

Lee -  
ok during the  
3 week period  
of testing.  
RB/K  
6/1/83

Hatfield Electric Company

Byron Units 1 & 2

QA/QC Memorandum #876


TO: R. Klingler, CECO P.C.D.  
FROM: J. T. Hill, QA/QC Manager  
DATE: 6-2-83  
SUBJECT: Removal of Transco Firestops for reinspection of Conduit Hanger

INTERPRETATION 7  
To be used  
during  
Reinspection  
B. W. Dyle  
CECO P.C.D.

There are some conduit hangers involved in the N.R.C. reinspection program which have been covered by "Transco" firestops thru floor penetration. Locations are: 451' - 1PA04J, 1PA09J, 1PA10J, 1PA12J, and 1POA22J, Aux. equipment room.

Should we request removal of this material or delete them from the reinspection program? Known hanger population at this time is 27. Removal of this material could possibly damage cables encased in these firestops.

Please Advise:

  
\_\_\_\_\_  
J. T. Hill  
QA/QC Manager

JTH/ljs  
cc: File 9.23  
0188C

Due to possible damage of  
cables when removing a firestop,  
we do not recommend this procedure.  
M. I. Iovitch  
6/20/83.

FROM:

PITTSBURGH TESTING LABORATORY

Byron Station  
P.O. Box 418  
Byron, IL 61010

SEND TO NAME

M.R. Tallent, Jr.

CH-3850

TO:

R.B. Klingler  
CECo PCD

REPLY ☐ IN WRITING

☐ BY TELEPHONE  
(815) 234-5095

☐ IMMEDIATELY

☐ AS SOON AS ABLE

☐ NOT NECESSARY

BY \_\_\_\_\_ Date \_\_\_\_\_

SUBJECT:

Reinspection

DATE SENT:

June 7, 1983

DATE RECEIVED:

DATED ACTED UPON:

DATE RETURNED:

INTERPRETATION &  
to be used during  
reinspection  
RB Klingler  
CECo PCD

FOLD

Per our recent conversation, we are considering that welds for RSM are "not reproduceable" due to the following features:

- 1) The welds have been, and are being, reworked
- 2) We do not have a tracking system to determine reworked items
- 3) We cannot determine, from our reports, which welds on a given hanger were originally inspected.

dlh

SIGNED

*L. J. Smith* 6-7-83

FOLD

*Method Accepted*

SIGNED

*B. Klingler* 6/14/83



Commonwealth Edison  
Byron Generating Station  
P.O. Box 8  
Byron, Illinois 61010

July 7, 1983

TO: Hatfield Electric  
Attn: T. Hill

Hunter Corp.  
Attn: L. Hadick

Blount  
Attn: W. Wills

Powers-Azco-Pope  
Attn: R. Larkin

Pittsburgh Testing Lab/Peabody  
Attn: M. Tallent

NISCO  
Attn: K. Jackson

Johnson Controls Inc.  
Attn: B. Shah

SUBJECT: Quantity of QC Inspector Reinspections  
(Interpretation No. 9)

REFERENCE: Letter Stiede to Keppler dated 2/23/83


During the selection of items <sup>to</sup> to be reinspected for each QC inspector, it is possible that within the initial 90 day period a low quantity of reinspectable items exist.

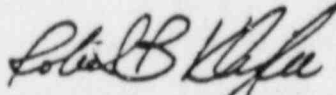
The following minimum quantity of items are to be respected per inspector:

<u>Contractor</u>	<u>Minimum Items</u>
PTL, Peabody	25
Hatfield, Hunter, JCI, Blount, PAP, and Nisco	50

If required the additional items falling outside the initial 90 day period shall be chosen chronologically up to and including the last day of scheduled reinspection for the entire population.

Please contact me if you have any questions or cannot meet this minimum requirement.

Note : An installation (or part of) which requires evaluation to all checklist criteria.

 7/7/83  
Robert B. Klingler  
Project Construction Dept.  
QC Supervisor  
Byron Station

cc: G. Sorensen  
R. Tuetken  
M. Stanish  
File, G9.0; 82-05/82-04



## HUNTER CORPORATION

3800 - 179TH STREET, HAMMOND, INDIANA 46323, (219) 845-8000 (312) 731-8000

Date: July 8, 1983

To: Bob Klinger

From: Lee E. Hadick

Subject: NRC Reinspection

*Interpretation 10  
Reinspection Program*

Class D Inspections have not been included as a part of the NRC Reinspection Program; consequently, they will not be listed on the computer printouts.

Please inform us if this policy is acceptable.

*Lee E. Hadick*

LEE E. HADICK  
Quality Control Supervisor

cc: M. L. Somsag

cj

*Acceptable - unless  
the class D weld  
is made to safety  
Related Structures*

*RB Klinger  
7/10/83*

PTL - CHICAGO

J. A. DUNN, P.E.  
Manager



**Pittsburgh  
Testing  
Laboratory**

July 11, 1983  
Letter #70-83-040

*Interpretation II  
Reinspection Program  
LB Kline*

Mr. R.P. Tuetken  
Asst. Construction Superintendent  
COMMONWEALTH Edison COMPANY  
Byron Nuclear Power Station  
Byron, Illinois 61010

SUBJECT: Reinspection Program

Dear Mr. Tuetken:

We have been carefully evaluating the resultant data obtained from our reinspection activities, and have noticed an item relating to visual welding inspection that causes us some concern.

This concern is as follows:

- 1) We believe the acceptance criteria we are currently using, regarding visual welding inspections made by our Reinspection Team, is not the same as that used in the original inspection.

NOTE: We are aware that AWS D1.1 is the written criteria which was stated as acceptance criteria for the original inspection. However, we believe the original inspectors did not invoke all the criteria of AWS D1.1, Chapter 6 and Para 8.15, as we are now trying to do, plus, the original inspectors were using more "judgement" in their inspections than today's Reinspection Team. This is due, in part, to our practice of now trying to apply the letter of the Code (AWS) rather than the intent.

Based on this concern, we have prepared what we propose to use as acceptance criteria, with justification, for the reinspection of visual welding inspector's work. This data is shown by ATTACHMENT 1 to this correspondence.

Please note that in this correspondence, we are not saying the proposed criteria is necessarily correct or incorrect, merely that this criteria was used in the original inspection.

Mr. R.P. Tuetken  
Asst. Construction Superintendent  
COMMONWEALTH EDISON COMPANY  
Byron Station  
July 11, 1983  
Page -2-

Please review the proposed criteria, and advise of acceptability.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

PITTSBURGH TESTING LABORATORY

*Mr. Tallent*

M.R. Tallent, Jr.  
Site Manager  
Byron Station

dlh  
Attachment

PROPOSED ACCEPTANCE CRITERIA  
FOR  
VWI REINSPECTION

A weld subject <sup>to</sup> visual inspection shall be acceptable if visual inspection shows that:

- 1) The weld has no cracks.
- 2) Thorough fusion exists between weld metal and base metal.
- 3) All craters are filled to the full cross section of the welds.
- 4) Weld profiles shall be in accordance with the following:

A) Undercut shall not exceed 1/32" in depth.

Justification: The 0.01" criteria shown by AWS for certain conditions is dependant upon knowing various design stresses. Our inspectors would have no knowledge of these stresses.

B) Welds shall be free from overlap.

Definition of overlap: Overlap shall be considered as "the protrusion of weld metal beyond the bond at the toe of the weld" (This is to say that overlap exists when unfused weld metal lays on the base metal at the toe of the weld).

Justification: This is standard industry practice and we believe the wording/diagrams/photographs contained in the following documents support this conclusion:

- 1) "Welding Inspection" (Published by AWS)
- 2) ASME Section VIII, Division 1, Appendix III, Titled "Definitions"
- 3) AWS A3.0-80 Figures 27C and 27D

C) Insufficient throat shall be cause for rejection on welds other than fillet welds, and shall be evaluated based on item 6 below for fillet welds.

- 5) The sum of diameters of piping porosity shall not exceed 3/8" in any linear inch of weld and shall not exceed 3/4" in any 12" length of weld.
- 6) Fillet welds in any single continuous weld shall be permitted to underrun the nominal fillet size required by 1/16" without correction provided that the undersize weld does not exceed 10% of the length of the weld. On web-to-flange welds on girders no underrun is permitted at the ends for a length equal to twice the width of the flange.

*Site QA concurs with  
the above criteria for  
the reinspection program  
M. Stawish 7/17/1*

FROM: PITTSBURGH TESTING LABORATORY

Byron Station  
P.O. Box 416  
Byron, IL 61010

SENDER'S NAME

M.R. Tallent, Jr.

CH-3850

TO:

R.B. Klingler  
CECO PCO

REPLY ☐ IN WRITING

☐ BY TELEPHONE  
(815) 234-5095

☐ IMMEDIATELY

☐ AS SOON AS ABLE

☐ NOT NECESSARY

BY \_\_\_\_\_ Date \_\_\_\_\_

SUBJECT:

Torque Inspection of CEA's

DATE SENT:

July 6, 1983

DATE RECEIVED:

DATED ACTED UPON:

DATE RETURNED:

FOLD

We propose to categorize CEA torque inspection as a non-reproduceable item based on the following:

The torque value in a CEA decreases over a period of time, thus making the original inspection for this attribute non-reproduceable.

Please advise as to your acceptance of this proposal.

d1h

SIGNED

*Mr. Tall*

FOLD

REPLY

CEA bolt  
torque is not  
reinspectable

*RB Klingler  
CECO PCO  
400 att  
5/10/83*

SIGNED

**SARGENT & LUNDY**  
**ENGINEERS**

FOUNDED 1891

88 EAST MCNROE STREET

CHICAGO, ILLINOIS 60603

(312) 269-2000

TWX 910-221-2807

ORT  
B.K.

July 28, 1983

Project No. 4391/4392

File Nos. 1.1/5.27

Commonwealth Edison Company  
Byron Station - Units 1 & 2

Re-Inspection Criteria for  
Concrete Expansion Anchors

Mr. R. Tuetken  
Commonwealth Edison Company  
Project Construction  
Byron Station  
Byron, IL 61010

Dear Mr. Tuetken:

We have reviewed Mr. R. Byers request regarding re-inspection of concrete expansion anchors. We were requested to provide the re-inspection torque for expansion anchors installed as long as 5 years ago.

Our test data to establish a re-inspection torque is limited to tests measuring anchor relaxation up to 500 days. Variables that exist in the actual installation that were not considered in the test program include:

- a. The effect of concrete creep in relation to the compressive strength of concrete.
- b. The effect of loading applied to the expansion anchor due to a support attachment to the plate.

It is our understanding that the purpose of this re-inspection program is to show that previous QC inspections were performed adequately. Establishing a re-inspection torque value from the limited test data available will not answer if the original inspection was adequately performed. However, if original installation was being questioned, then retorquing the anchor to the original installation torque would be recommended.

SARGENT & LUNDY  
ENGINEERS  
CHICAGO

Commonwealth Edison Company  
Mr. R. Tuetken

July 28, 1983  
Page 2

If you have any questions on this information, please do not hesitate to call us.

Yours very truly,

  
R. J. Netzel  
Senior Structural Project Engineer

RJN:kg

Copies:

G. Sorensen

R. Cosaro

M. A. Stānish

R. E. Querio

D. L. Leone/W. C. Cleff

B. G. Treece

R. Hooks/D. C. Patel

T. J. Ryan/G. Willman

Hatfield Electric Company

Byron Units 1 & 2

QA/QC Memorandum #959

interpretation  
13  
Reinspection  
Program

Hatfield  
only

TO: R. Klingler, CECO  
FROM: J.T. Hall, QA/QC Manager  
DATE: August 29, 1983  
SUBJECT: Tolerances for "As-Built" Reinspections

At the present time we are using a tolerance of  $\pm 1"$  for location measurements on the "As-Built" reinspection program. However, the original "As-Built" program had no tolerances specified. The  $\pm 6"$  field installation tolerance was the only criteria specified on any drawing. Per J. Kelnusky, S & L, all "As-Built" information received used the  $\pm 6"$  tolerance as a basis for any required calculations on hangers. Can we therefore use  $\pm 6"$  as acceptance criteria for field measurements?

JTH/klh

cc: File 9.07  
0212C

Use  $\pm 3"$  as  
an acceptable  
measurement tolerance

RB Klingler  
8-31-83

FROM: PITTSBURGH TESTING LABORATORY  
Byron Station  
P.O. Box 416  
Byron, IL 61010

SENDER'S NAME

M.R. Tallent, Jr.

CH-3850

TO:

R. Klingler

*Interpretation  
#14  
Reinspection  
Program  
B Klingler  
8-31-83*

REPLY ☐ IN WRITING  
☐ BY TELEPHONE  
(815) 234-5095

☐ IMMEDIATELY  
☐ AS SOON AS ABLE  
☐ NOT NECESSARY

BY \_\_\_\_\_ Date \_\_\_\_\_

SUBJECT:

Reinspection

DATE SENT:

8/31/83

DATE RECEIVED:

DATED ACTED UPON:

DATE RETURNED:

FOLD

Problems with traceability on certain Peabody reports make it impossible to determine the specific welds inspected initially. Based on this data, we request your concurrence to classify these cases as inaccessible. Reports of this nature comprise approximately 80% of the Peabody VWI activities.

NOTE: This memo is to supersede the previous memo on this subject dated 8/16/83.

d1h

SIGNED

*MR Tallent*

*CCECO PCD concurs, remember a minimum of 25 welds is still required per inspector.*

FOLD

SIGNED

*B Klingler 8-31-83  
CCECO PCD*

Area NRC KEINSPECTION

DAILY INSPECTION REPORT

H

INFORMATION

Shift DAY

Inspection  
INTERPRETATION  
15 April 1984HUNTER CORPORATION  
BYRON PROJECT

9 1/2

Page 2 of 3  
Time of day 10:00  
Date 10/10/84

INACCESSIBLE INSPECTIONS, NOT PERFORMED BECAUSE OF HOT CORRUPTION TESTING

INSP	WELDS	DIMENSIONALS	TORQUES
1354	3	0	0
1313	79	6	0
276	3	0	0
1130	0	0	0
1605	0	1	0
1529	5	4	0
9446	9	1	0
1714	1	0	4
1515	1	0	2
9208	9	0	0
9357 LEVEL I	0	0	0
1041 LEVEL I	0	0	0
TOTAL	110	12	6

JAC

10/10/84

Mark M. Abbott



## HUNTER CORPORATION

3800 - 179TH STREET, HAMMOND, INDIANA 46323, (219) 845-8000 (312) 731-8000

September 15, 1983

Commonwealth Edison Company  
4450 North German Church Road  
Byron, Illinois 61010

Attention: Mr. R. Tuetken  
Assistant Superintendent  
Project Construction Dept.

Subject: NRC Reinspection Program, Piping System Bolt Torque Relaxation.

Mr. Tuetken:

In your opinion does the attribute of piping system bolt torque (as it applies to the NRC Reinspection Program) fall within the definition of inaccessible?

Yours very truly,

*Lee E. Hadick*

LEE E. HADICK  
Quality Control Supervisor

☒ Yes ☒ No

checked  
no in error  
*R. Tuetken*  
9/15/83

*R. Tuetken*  
R. Tuetken

date *9/15/83*

cc: M. L. Somsag  
K. Selman  
file

See Attached S-L letter on  
flange bolt relaxation dated Sept. 14, 1983

LEH/pb

*R. Tuetken*  
9/15/83

*Reinspection  
Interpretation  
# 16  
RBK/linde  
9-15-83  
page 1 of 2*

**SARGENT & LUNDY  
ENGINEERS**

(FOUNDED 1891)

55 EAST MONROE STREET

CHICAGO, ILLINOIS 60603

(312) 269-2000

September 14, 1983

Project Nos. 4391/4392-00

Commonwealth Edison Company  
Byron Station - Units 1 & 2

Flange Bolt Torque Relaxation

Mr. G. Sorensen  
Commonwealth Edison Company  
Byron Station  
P. O. Box B  
Byron, Illinois 61010

Dear Mr. Sorensen:

At the request of Mr. R. P. Tuetken, we have reviewed the subject of flange bolt torque relaxation and determined that all flange bolts will experience some degree of torque relaxation. The two mechanisms responsible for bolt torque relaxation are flange bolt relaxation and flange gasket creep and relaxation.

Flange bolt relaxation normally results from piping system operation (pressure and temperature effects) and operating transients. Flange gasket creep and relaxation normally occur immediately following flange bolt torquing. Flange gasket relaxation may also result from plant construction activities and system start-up testing. Even though the phenomena of flange bolt torque relaxation is understood, it is not possible to accurately predict the level of total bolt torque relaxation.

In summary, flange bolt torque values will relax over time. This will result in lower final bolt torque values than initially applied. If you have any additional questions on this subject, please call me.

Yours very truly,

*Dennis Demoss*

Dennis Demoss  
Mechanical Engineer

DD:cl

Copies:

J. T. Westermeier  
R. Cosaro  
M. Lohmann  
R. P. Tuetken

D. L. Leone/W. C. Cleff  
B. G. Treece  
R. J. Netzel  
D. A. Gallagher

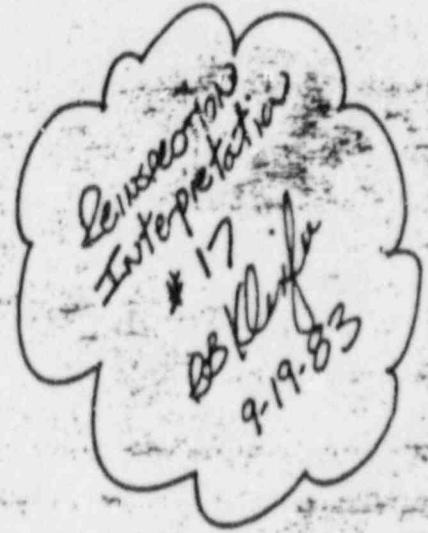
Page 2 of 2

Hatfield Electric Company

Byron Units 1 & 2

QA/QC Memorandum #980

TO: R. Klingler, CECO  
FROM: J.T. Hill, QA/QC Manager  
DATE: September 19, 1983  
SUBJECT: N.R.C. Reinspection Program



During the years 1980 and 1981 many verbal approvals for changes to installation drawings were given by on-site S & L Engineers with paperwork to follow. In some cases these changes did not get incorporated on the applicable drawings. As a result we are experiencing some rejections in the reinspection program because the drawings do not reflect the installations as production was instructed to install them. I do not believe the inspectors should be penalized with rejections because of this. Please advise.

klh  
File 9.09  
0261C

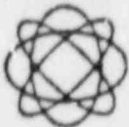
We concur. Include copies of existing memos, sketches, or other documents which reflect the instructions provided by S & L Engineer. These conditions cause the reinspection to be classified as inaccessible - not recreatable.

R. Tuetten  
9/19/83

⊗ for example:

Δ Could not install ESW Hangers as designed  
Δ Could not install pull points as designed on Cross tie  
439 el. UNIT 2

OK  
9-19-83



# NISCO

## NUCLEAR INSTALLATION SERVICES COMPANY

P.O. BOX 752

BYRON, ILL. 61010

TELEPHONE (815) 234-5240

September 19, 1983  
3004-BYC-264

Commonwealth Edison Co  
Project Construction  
PO Box B  
Byron, IL 61010

Attention: R. Klingler

During the QA verification of the Reinspection Program, Pittsburgh Testing identified (4) four full penetration welds which had only been welded partially penetrated.

This incident immediatly made the original inspections of T.J.Pruitt and R.Shultz suspect.

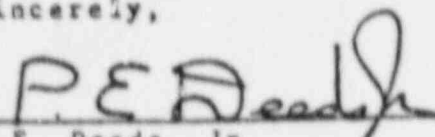
I am submitting the following information to clarify this situation.

The Process Control Sheets which were used for the original inspections called for a Hold Point and QC Inspection of fitup to be done according to Drawing S-844. The final weld was to be Visual Inspected per NISCO's ES-100-5 prior to PT Inspection. The Process Control Sheet step (5.0) five which called for "QC Perform Visual Inspection of Finished Weld" was applied to inspect the front surface condition of the weld for size, undercut, underfill, overfill, weld profile and obvious cracks, prior to PT Inspection.

In this case both the original inspectors and the reinspectors performed the same inspections and found the same acceptable results. Pittsburgh Testing while performing their QA verification found a deficiency with the back surface of these welds.

The deficiency is a result of the clarity of the Process Control Sheet and should not be a reflection on the inspectors ability.

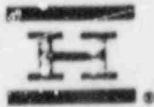
Sincerely,

  
P.E. Deeds, Jr.  
Asst. Corp. QA Manager

Acceptable method to be used for analysis of reinspection data. Deficiency was a function of Process sheet, not inspector action.  
Note that NCR 97 has been disposition as acceptable for use as is.

R. Tustan  
10/3/83

*Reinspection Interpretation #18 BB Klingler 10-3-83*



## HUNTER CORPORATION

3800 - 179TH STREET, HAMMOND, INDIANA 46323, (219) 845-8000  
HC-QA-485

December 15, 1983

Commonwealth Edison Company  
4450 North German Church Road  
Byron, Illinois 61010

Attention: Project Construction Department  
R.P. Tuetken  
Assistant Project Superintendent

Subject: Interpretation for NRC Reinspection

Mr. Tuetken:

The Hunter Corporation requests the following interpretation.

Interpretation No. 1: Is it acceptable to use 2.3.2 and 2.3.2.1 from AWS D1.1-82 for the inspection of fillet welds?

Interpretation No. 2: Attachments 2, 3, and 4 indicate the accuracy of the welding gages we use for the measurement of fillet size. As you can see the best they can offer is  $\pm .025$ ". Telephone conversation with Goodwin Lycan, President of the GAL Gage Co. indicated that there are no commercially manufactured gages that are more accurate than his. Comparison of his fillet gages against like gages manufactured by Fibre Metal have shown differences of up to  $.050$ ". Therefore, using similar gages will it be acceptable to find any fillet weld up to  $.025$ " undersize acceptable under the NRC reinspection program?

Yours very truly

LEE E. HADICK  
Quality Control Supervisor

cc: M.L. Somsag  
K. Selman  
QA Vault

LEH/pb

Reply: Interpretation 1 it is acceptable to use AWS D1.1 articles 2.3.2 and 2.3.2.1 - R. Tuetken 12/16/83

Interpretation 2 when reinspecting fillet weld size, based on the varying accuracy of gauges employed the reinspection measurement shall allow variance up to  $.025$ " undersize to be acceptable. R. Tuetken 12/16/83

Interpretation

19

12-16-83

Page 1 of 5

4/DESIGN OF WELDED CONNECTIONS

(1) having an included angle of 60 deg or greater at the root of the groove when deposited by any of the following welding processes: shielded metal arc, submerged arc, gas metal arc, flux cored arc, or electrogas welding; or

(2) having an included angle not less than 45 deg at the root of the groove when deposited in flat or horizontal positions by gas metal arc or flux cored arc welding.

2.3.1.4 The effective throat thickness for flare groove welds when filled flush to the surface of the solid section of the bar shall be as shown in Table 2.3.1.4.

(1) Random sections of production welds for each welding procedure, or such test sections as may be required by the Engineer, shall be used to verify that the effective throat is consistently obtained.

(2) For a given set of procedural conditions, if the contractor has demonstrated that he can consistently provide larger effective throats than those shown in Table 2.3.1.4, the contractor may establish such larger effective throats by qualification.

(3) Qualification required by (2) shall consist of sectioning the radiused member, normal to its axis, at midlength and terminal ends of the weld. Such sectioning shall be made on a number of combinations of material sizes representative of the range used by the contractor in construction or as required by the Engineer.

2.3.1.5 The minimum effective throat of a partial joint penetration groove weld shall be as specified in Table 2.10.3.

2.3.2 Fillet Welds. The effective area shall be the effective weld length multiplied by the effective throat. Stress in a fillet weld shall be considered as applied to this effective area, for any direction of applied load.

2.3.2.1 The effective length of a fillet weld shall be the overall length of the full-size fillet, including end returns. No reduction in effective length shall be made for either the start or crater of the weld if the weld is full size throughout its length.

2.3.2.2 The effective length of a curved fillet weld shall be measured along the center line of the effective throat. If the weld area of a fillet weld in a hole or slot computed from this length is greater than the area found from 2.3.3, then this latter area shall be used as the effective area of the fillet weld.

2.3.2.3 The minimum effective length of a fillet weld shall be at least four times the nominal size, or the size of the weld shall be considered not to exceed one fourth its effective length.

2.3.2.4 The effective throat shall be the shortest distance from the root of the face of the diagrammatic weld. See Appendix A. Note: See Appendix B for formula governing the calculation of effective throats for fillet welds in skewed T-joints. A convenient tabulation of measured legs (W) and acceptable gaps (G) related to effective throats (E) has been provided for dihedral angles between 60 deg and 135 deg.

2.3.3 Plug and Slot Welds. The effective area shall be the

nominal area of the hole or slot in the plane of the faying surface.

2.3.4 The effective throat of a combination partial joint penetration groove weld and a fillet weld shall be the shortest distance from the root to the face of the diagrammatic weld minus 1/8 in. (3.2 mm) for any groove detail requiring such deduction (see Appendix A).

## Part B Structural Details

### 2.4 Fillers

2.4.1 Fillers may be used in

2.4.1.1 Splicing parts of different thicknesses.

2.4.1.2 Connections that, due to existing geometric alignment, must accommodate offsets to permit simple framing.

2.4.2 A filler less than 1/4 in. (6.4 mm) thick shall not be used to transfer stress but shall be kept flush with the welded edges of the stress-carrying part. The sizes of welds along such edges shall be increased over the required sizes by an amount equal to the thickness of the filler (see Fig. 2.4.2).

2.4.3 Any filler 1/4 in. (6.4 mm) or more in thickness shall extend beyond the edges of the splice plate or connection material. It shall be welded to the part on which it is fitted, and the joint shall be of sufficient strength to transmit the splice plate or connection material stress applied at the surface of the filler as an eccentric load. The welds joining the splice plate or connection material to the filler shall be sufficient to transmit the splice plate or connection material stress and shall be long enough to avoid overstressing the filler along the toe of the weld (see Fig. 2.4.3).

### 2.5 Partial Joint Penetration Groove Welds

Partial joint penetration groove welds subject to tension normal to their longitudinal axis shall not be used where design criteria indicate cyclic loading could produce fatigue failure. Joints containing such welds, made from one side only, shall be restrained to prevent rotation.

# G.A.L. Gage Co.

Post Office Box 23  
2953 Hinchman Road  
Stevensville, Michigan 49127  
616-465-5750

ATTACHMENT 2

interpretation  
19  
Page 3 of 5

November 23, 1982

Mr. Lee Hadick  
c/o Hunter Corp.  
P. O. Box 674  
Byran, IL 61010

Subject: 72 Partial Sets Fillet Weld Gage  
P. O. #265003

Dear Mr. Hadick,

The manufactures tolerance of the Fillet Weld Gage on your  
P. O. #265003 are within the  $.025_{\pm}$  range.

The welding gage is intended for general dimensional inspection  
of welded fabrication where close tolerances are not expected.  
It should not be compared in precision with gages where a high  
degree of accuracy is required.

Sincerely,  
G.A.L. Gage Co.

*Goodwin A. Lycan*

Goodwin A. Lycan  
President

GAL/jkh

MANUFACTURERS  
OF THE "HI-LO"  
WELDERS GAGE



AN INDISPENSIBLE  
TOOL FOR FIT-UPS  
AND RADIOGRAPHED WELDS.

G.A.L. Adjustable Fillet Weld Gage

# MEASURE ANY FILLET WELD TO 1/32" ACCURACY WITH JUST ONE SIMPLE-TO-USE GAGE.

Measuring fillet welds used to be a trial with complicated or inaccurate gages. Not anymore. Now you can measure fillet welds from 1/4" to 1" (with 1/32" accuracy) with one economical, simple-to-understand gage.

The G.A.L. Adjustable Fillet Weld Gage uses an offset arm which slides at a 45° angle to make fillet weld length measurements. Simply adjust the arm until it touches the toe of the vertical leg. The gage is calibrated to 1/32nds.

32nds, with metric equivalents given, so you get more accurate readings. Four screws hold the offset arm in position for future adjustments.

This gage also measures weld throat thicknesses to 1/32nds of an inch by adjusting a pointer until it touches the center of the weld. A thumb screw holds the

pointer in position for future reference. If the weld is concave, more filler material can be added to build the weld throat up to standard. The G.A.L. Adjustable Fillet Weld Gage is made of durable, rust resistant stainless steel. Its 2 1/2" x 3" slim design weighs only 1 1/2 oz., fits easily into a shirt pocket. And because there is just one gage needed to make all measurements, the chance of losing essential fillet weld gage blades is eliminated. Fumbling through seven different, inaccurate gage blades is also eliminated.

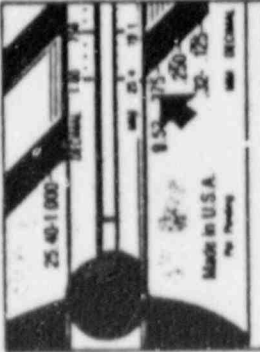
## G.A.L. Adjustable Fillet Weld Gage is easy to use.



To measure fillet welds place irregular curve edge flush to horizontal toe of weld so the straight edge is in line with the horizontal member.



Adjust the offset arm up or down along the diagonal slots until the tip of the arm touches the top of the weld.



Read the weld size indicated. The increments are in 1/32" and 1/16" markings up to 1". All numerals are etched into the surface and filled for easier reading.



To measure weld throat thickness place the 45° angle end flush to the horizontal and vertical members. Loosen the thumb screw and slide the pointer until it touches the face of the weld.



Tighten the thumb screw and read the measurement from the 1/32" calibrations along the pointer. A quick, sure way to find correct or concave welds and to correct them with additional filler material to meet standards.



U.S. patents pending.  
Gages available through your welding supply distributor, or contact:

**G.A.L.  
Gage Co.**

G.A.L.  
Adjustable Fillet  
Weld Gage measures both  
leg lengths and weld throat  
fillet weld thickness.

P.O. Box 23, Stevensville, Michigan 49127 Telephone 616/465-5750 TELEX 725453 GAL GAGE STVL

Interpretation is page 4 of 3 ATTACHMENT 3

ATTACHMENT 4  
interpretation 19  
Page 5 of 5

WELDING GAUGE

## IMPORTANT NOTICE

The Welding Gauge is intended for general dimensional inspection of welded fabrications where close tolerances are not expected. It should not be compared in precision with gauges used for measuring machined components and, where a high degree of accuracy is required, machine shop type measuring instruments will need to be used.

The Welding Institute Abington Hall Cambridge CB1 6AL

01/80

Hatfield Electric Company

Byron Units 1 & 2

QA/QC Memorandum #1135

Interpretation 20  
Penetration Program  
B. Bluffe  
1-25-84

TO: Bob Klingler  
FROM: J.D. Spangler  
DATE: January 25, 1984  
SUBJECT: NRC Reinspection

In HECO's Procedure 13AE, Rev. O, Issue I, dated 2-8-79, which is used in the reinspection of Peter Lane. Paragraph 5.2 states that deviations from the requirements of the welding procedure will constitute unacceptability. In the welding Procedure 13AA, Rev. O, Issue I, dated 6-1-78, paragraph 5.8.5, states that cracks or blemishes cause by arch strikes should be ground to a smooth contour.

Could you please interpret the acceptance criteria and corrective action for arch strikes.

Action to be taken  
if arc strike is:  
⚠ on weld itself;  
count as unacceptable  
⚠ on base metal only;  
count as acceptable &  
notify production to  
grind to smooth  
contour.

J Duane Spangler 1-25-84

1-25-84



## QUALITY ASSURANCE MANUAL

## AUDIT REPORT

Type Audit: ☐ Program Audit ☐ Product Inspection Point  
☐ Records ☒ Special

To: R. B. Klingler, PCD QC Supervisor

Project Byron Visit Date 11/14-17/83 Report Date 11/28/83

System N/A Component Identification N/A

Material Description N/A

Vendor N/A Location N/A

Subcontractor N/A Location N/A

Contacts See Attachment "B"

P.O. No. N/A Spec. No. N/A

Recommended Inspections: 6 mos 3 mos 1 mo

Other: As specified

Notes: Please respond with  
1. Corrective action  
2. Action to prevent recurrence  
3. Date of completion for the above items for Finding #1 by December 15, 1983

Prepared by Irvin A. Simon Date 11-30-83

Auditor J. S. Hale Date 12/1/83

J. S. Hale - Lead Auditor  
Reviewed R. A. Danning Date 12/1/83

LAS:tj:0437A  
Attachments

cc: Manager QA  
Manager Projects  
Project Manager  
Eng. Manager  
Director QA Construction  
Site Construction Superintendent  
Site QA  
Auditee  
Site QA Supervisor  
JSH

FOIN-88-344

-E/38

QUALITY ASSURANCE AUDIT  
BYRON SITE REINSPECTION PROGRAM  
NOVEMBER 14-17, 1983  
#6-83-93

INTRODUCTION AND PURPOSE:

From November 14 to November 17, 1983, the Commonwealth Edison Byron Quality Assurance conducted an audit on the Byron Site's Reinspection Program. The purpose of the audit was to assure that conclusions drawn from the Reinspection Program are valid and reliable.

SCOPE:

The scope of the audit covered the following areas:

1. Accuracy of Reinspection Program results as reported to the NRC in the Interim Report.
2. The design basis for the engineering evaluation of Visual Weld Inspection Discrepancies as described in the Interim Report.
3. Qualifications of the third party inspectors.
4. Documentation of third party inspections.
5. Basis for PCD "Interpretations" in regards to the Reinspection Program.
6. Correction of deficiencies identified as a result of the Reinspection Program.

AUDIT AGENDA:

An entrance meeting was conducted and the audit started on November 14, 1983. The audit lasted four (4) days with two (2) exit meetings held on November 17, 1983. Attendees of entrance and exit meetings are listed in Attachment "A". A list of those personnel contacted during the audit is given in Attachment "B".

AUDIT TEAM:

The audit team consisted of J.S. Hale, Lead Auditor, L.A. Simon, Auditor and T.J. Mitoraj, Observer.

GENERAL EVALUATION:

The following four (4) areas were reviewed at each of the seven (7) contractors involved in the reinspection Program.

1. Correction of discrepancies - All contractors with the exception of PTL and Hatfield Electric Co. were found to have identified and have or are correcting deficiencies in accordance with their approved nonconformance procedure. PTL and Hatfield have taken these actions on some deficiencies but have refrained on items in which an engineering evaluation is to be performed.
2. Expansion of an inspector's reinspection sample size and the number of inspectors to be reinspected upon a failure as defined by the Stiede-Keppler letter of February 1983 - All contractors were found to have expanded sample size accordingly with those results given in the Interim Report.
3. Independence of the Reinspection Personnel - The reinspection personnel at each contractor were verified to have not been involved in the reinspection of work that they had originally inspected or had reviewed and accepted.
4. Accuracy of results reported in the Interim Report - The items reviewed during the audit at all contractors matched up with the exception of JCI and PTL. Differences identified at these contractors are discussed in Attachment "C" under Observation #1 and Finding #1 respectively.

Also reviewed during the course of the audit were the following areas which were directed towards the Project Construction Department in their implementation of this program.

The engineering evaluation of the Visual Weld Discrepancies performed by Sargent and Lundy was reviewed for adequate design basis. Calculations which support the evaluation were performed in accordance with appropriate "Structural Design Standards" and the approved Design Control Summary. The Design Control Summary outlines assumptions to be followed in performing the calculations. These assumptions appeared to be based on industry standards and practices. This approach was presented to the NRC on September 22, 1983.

Those individuals who performed the third party review of subjective deficiencies were properly qualified for the task. Additionally, adequate documentation of these inspections exists.

Lastly, those Interpretations offered by the Project Construction Department during the Reinspection Program have adequate basis and fall between the guidelines of the program.

ASSESSMENT:

On the basis of this audit, it appears that conclusions drawn from the Reinspection Program results will be valid and reliable.

ATTACHMENT "A"

BYRON REINSPECTION PROGRAM  
AUDIT #6-83-93

ENTRANCE MEETING  
11/14/83

<u>NAME</u>	<u>TITLE</u>	<u>ORGANIZATION</u>
J.S. Hale	Lead Auditor	CECo. QA
L.A. Simon	Auditor	CECo.
T.J. Mitoraj	Observer	CECo.
R.B. Klingler	PCD QC Supervisor	CECo.

EXIT MEETING  
11/17/83

<u>NAME</u>	<u>TITLE</u>	<u>ORGANIZATION</u>
J.L. Woldridge	QA Supervisor	CECo.
E.L. Martin	QA Supervisor	CECo.
R.B. Klingler	PCD QC supervisor	CECo.
J.S. Hale	Lead Auditor	CECo.
L.A. Simon	Auditor	CECo.
W.E. Wolber	QA Inspector	CECo.
M.R. Tallent	Site Manager	PTL
D. Smith	Supervisor	PTL
S. Pearson	QA Level II	JCI
R.L. Byers	PCD Field Engineer	CECo.
R.H. Bay	QA/QC Manager	BBC
T.J. Mitoraj	Observer	CECo.

ATTACHMENT "B"

BYRON REINSPECTION PROGRAM  
AUDIT #6-83-93

PERSONNEL CONTACTED DURING AUDIT

<u>Name</u>	<u>ORGANIZATION</u>
R.B. Klingler	CECo. PCD
R.J. Netzel	S&L
R. Marshalla	S&L
S. Bertheau	S&L
S. Pearson	JCI
D. Smith	PTL
M. Tallent	PTL
W. Willis	BBC
M. Provezano	S&L

ATTACHMENT "C"

BYRON REINSPECTION PROGRAM  
AUDIT #6-83-93

OBSERVATION #1 - JOHNSON CONTROLS INC.

Although minor, discrepancies exist between the number of subjective rejections identified by third party inspector and those given in the Interim Report.

Discussions:

The Interim Report listed S. Pearson as having thirty-two (32) subjective rejects. A review of the documentation of third party reviews showed their concurrence on thirty-two (32) welds and twelve (12) items. At the time of the audit, it could not be determined if the items were applicable to subjective reject. Additionally, D. Lindblom was accredited with only twenty-one (21) subjective rejects; third party concurrence was received for twenty-three (23) welds.

Corrective Action:

JCI will review the results and make any needed correction to the numbers given by December 1, 1983.

Action To Prevent Recurrence:

N/A

FINDING #1 - Pittsburgh Testing Laboratory

Contrary to Stiede-Keppler letter dated February 21, 1983, during reiterations of the Reinspection Program, Pittsburgh Testing Laboratory overrode third party concurrence on some welding rejects.

Discussion:

After implementation of Interpretation 11 given in the Reinspection Program which changed the visual weld inspection criteria in the areas of overlap and undercut, a review was performed by PTL on reinspections performed for applicability of the interpretation. In this review, PTL changed the deficient status of some welds which were rejected for reasons other than those changed by the interpretation. The welds had already received third party concurrence for true rejectability as defined in the Stiede-Keppler letter of February, 1983.

Request response providing Corrective Action and Action to Prevent Recurrence.

(0437A)

## AUDIT CLOSE OUT

QF: 2783.22.2

Report No. 5607

Date 1-10-84

Contractor/Organization: Johnson Controls Inc.

Although minor, discrepancies exist between the number of subjective rejections identified by third party inspector and those given in the Interim Report.

DISCUSSION:

The Interim Report listed S. Pearson as having thirty-two (32) subjective rejects. A review of the documentation of third party reviews showed their concurrence on thirty-two (32) welds and twelve (12) items. At the time of the audit, it could not be determined if the items were applicable to subjective reject. Additionally, D. Lindblom was accredited with only twenty-one (21) subjective rejects; third party concurrence was received for twenty-three (23) welds.

CORRECTIVE ACTION:

JCI will review the results and make any needed correction to the numbers given by December 1, 1983.

FOLLOW-UP ACTION:

1-10-84 - Items as referred to above are considered to be objective in nature - stiffeners missing, installation gap exceeded, etc. The objective evidence supporting the reinspection program results was reviewed and it is concluded that those items were included in the number of objective rejects. Two of the subjective rejects accredited to D. Lindblom should and were accredited to S. Pearson.

This surveillance and Observation #1 of Audit #6-83-93 are closed.

Prepared by Jim Simon Date 1-17-84Approved by J. P. O'Malley Date 1-20-84

LAS:tc:1625S

cc: W.J. Shewski/G.F. Marcus  
Q.A. Supt./File  
Contractor  
Q.A. Audit Staff Desg.  
PCD Supt.  
Project Manager  
LAS

FOIA - 88-344

E/39

DHF  
BYRON SITE QA SURVEILLANCE

AUDIT CLOSE OUT

QF: 2834.22.1

Report No. 5795

AUDIT No. 6-83-91

Date 2-15-84

Contractor/Organization: NISCO

FINDING #1:

Contrary to Commonwealth Edison letter dated March 17, 1983, from R. B. Klingler to all on-site contractors, NISCO does not maintain a minimum of 40 hours OJT in each area of QC certifications.

DISCUSSION:

Mr. Connor, QA/QC Supervisor, is certified to visual welding, mechanical, receiving, and documentation review, which are considered four separate areas of certification. Eighty hours of OJT is documented in Mr. Connor's qualification package. The applicability of the eighty hours OJT was not clearly defined. Forty hours, as a minimum, is required for certification in each of the four areas.

CORRECTIVE ACTION:

P. E. Deeds stated during the supplementary exit meeting that forty hours OJT will be administered to Mr. Connor in each discipline of certification. The eighty previous hours of OJT was categorized to each specific inspection procedure and where deficient additional more OJT will be administered and completed by 11/18/83.

A letter from Mr. Deeds was submitted on 11-18-83 verifying this OJT was given. This is considered acceptable. No formal response is required. This item will remain open until corrective action is reviewed by C.E.Co. QA.

FOLLOW-UP ACTION:

2-15-84 - Verified that inspections performed by Mike Connor before his certification date, 11/18/83, were reinspected. A review of approximately 50 NISCO PCS's found that Mike Connor had signed off for documentation review before his certification in that area. The deficient PCS's were rereviewed by Paul Deeds and are listed below.

<u>PCS</u>	<u>Date Reviewed</u>	<u>Date Re-reviewed by P. Deeds</u>
1535	10-13-83	11-18-83
1536	10-14-83	11-18-83
1537	11-12-83	11-18-83
1539	10-26-83	11-18-83

<u>PCS</u>	<u>Date Reviewed</u>	<u>Date Re-reviewed by P. Deeds</u>
1541	11-08-83	11-18-83
1542	11-03-83	11-18-83
1544	11-17-83	11-18-83
1545	11-17-73	11-18-83
1546	11-11-83	11-18-83
1547	11-10-83	11-18-83
1548	11-12-83	11-18-83
1549	11-16-83	11-18-83
1551	11-18-83	11-18-83

Paul Deeds of NISCO QA/QC stated that Document Control was the only area that Mike Connor had reviewed.

The corrective action for Finding #1 of Audit 6-83-91 is complete and acceptable.

This finding and Surveillance are closed.

-----  
Prepared by Roman Q. Davis Date 2/12/84  
Approved by J. Z. McDermott Date 2-20-84

RAG:jc:tj:1760S

cc: W.J. Shewski/G.F. Marcus  
Q.A. Supt./File  
Contractor  
Q.A. Audit Staff Desg.  
PCD Supt.  
Project Manager  
RAG

BYRON SITE Q.A. SURVEILLANCE

QF: 2790.22.2.1

Report No. 5682

Date: 01/21/84

Contractor/Organization : Matfield Electric Co.

SUBJECT: Reinspection Program Results

OBSERVATIONS:

Reviewed the tallying of the "reinspection" results for Peter Lanes' first ninety (90) days of inspections after his certification in the visual welding area. This review entailed a review of the reinspection record and the third party concurrence for 20% of the Weld Travellers to verify that the numbers listed were accurate. Those items reviewed are highlighted on the attached list. With the exception of Weld Traveller 22438, the results given were accurate. For Weld Traveller 22438, the number of welds rejected by the HECO, reinspector total eighteen (18) not twenty-eight (28). The correction has been made to the data base. This error did not impact true rejectability as determined by the third party.

This surveillance is closed.

Reported by Phil A. Senior Date 1-23-84  
Approved by R. J. Hawking Date 1/24/84

LAS:tj:1647S

Attachment

cc: W.J. Shewski/G.F. Marcus  
QA Supt./Site Q.A. File  
Contractor  
PCD Supt  
LAS

FOIA - 88-344

E/41

TIME: 3:00 P.M.  
DATE: 01-20-84  
WPS ID.00360

-1-

PETER LANES - 1st 90 Days - REJECTED

W/T	Amt	HECo Rej	Third Party	Inspection Date	# Cds	Comments
✓20410K	6	2	1	79-02-26	1	
20724	32	6	3	79-03-05	1	
27711	39	1	1	79-03-05	1	
31026	12	7	7	79-03-05	1	
22359	4	2	2	79-03-06	1	
✓22360K	2	1	1	79-03-06	1	
32028	20	1	1	79-03-06	1	
22686	4	1	1	79-03-07	1	
31944	18	0	0	79-03-08	1	
28301	30	15	14	79-03-10	1	
✓22374K	8	6	4	79-03-12	1	
22455	33	2	2	79-03-12	1	
27010	39	1	1	79-03-13	1	
27023	20	4	4	79-03-13	1	
28226	4	1	1	79-03-13	1	
✓22353K	6	2	2	79-03-14	1	
22355	8	2	2	79-03-14	1	
22460	4	2	2	79-03-14	1	
22690	4	3	3	79-03-14	1	
22479	2	1	1	79-03-15	1	
✓21861K	4	2	2	79-03-15	1	
22461	18	7	7	79-03-16	1	
20442	8	1	1	79-03-20	1	
26678	6	1	1	79-03-20	1	
26851	4	3	3	79-03-20	1	
✓27008K	21	3	2	79-03-20	1	
27009	26	1	1	79-03-20	1	
28115	4	1	1	79-03-20	1	
28136	4	3	3	79-03-20	1	
28145	1	1	1	79-03-20	1	
✓22477K	5	2	3	79-03-22	1	
22481	7	2	2	79-03-22	1	
22482	4	2	2	79-03-22	1	
23380	10	4	4	79-03-22	1	
22366	12	4	4	79-03-26	1	
✓22605K	8	1	1	79-03-26	1	
22665	8	2	2	79-03-26	1	
22669	6	3	2	79-03-27	1	
22601	24	2	0	79-03-28	1	
22603	12	1	0	79-03-28	1	
✓21402K	8	1	1	79-03-29	1	
22491	2	1	1	79-03-29	1	
26854	6	3	3	79-03-29	1	
27247	8	1	1	79-03-29	1	
28955	11	3	2	79-03-29	1	
✓28957K	0	0	0	79-03-29	1	OK See W/T 29012
29039	8	1	0	79-03-29	1	
22606	8	2	2	79-04-02	1	
22439	12	2	1	79-04-03	1	
22494	4	3	2	79-04-03	1	
✓22502K	10	4	4	79-04-03	1	

\* - THESE WELDS WERE REPAIRED BEFORE S/L COULD GIVE AN EVALUATION.

TIME: 3:00 P.M.  
DATE: 01-20-84  
WPS ID.0036D

-2-

PETER LANES - 1st 90 Days - REJECTED

W/T	Amt	HECo Rej	Third Party	Inspection Date	# Cds	Comments
30892	6	2	2	79-04-03	1	
22489	6	4	5	79-04-03	1	
27499	2	1	0	79-04-05	1	
22500	12	4	2	79-04-05	1	
23532OK	4	2	2	79-04-05	1	
25513	24	1	1	79-04-05	1	
28966	11	4	4	79-04-05	1	
28968	8	2	2	79-04-05	1	
29011	8	8	7	79-04-05	1	
20775OK	8	2	2	79-04-06	1	
29012OK	8	7	7	79-04-06	1	
23367	6	2	2	79-04-09	1	
23371	16	2	2	79-04-09	1	
23372	6	2	2	79-04-09	1	
23373OK	4	1	0	79-04-09	1	
23531	16	8	8	79-04-09	1	
20724	8	1	0	79-04-10	1	
29010	40	2	3	79-04-10	1	
29033	10	1	2	79-04-10	1	
29650OK	8	2	2	79-04-10	1	
22495	4	3	2	79-04-11	1	
22696	8	4	0	79-04-11	1	
22504	6	6	4	79-04-13	1	
26782	16	2	2	79-04-13	1	
26850OK	28	22 2 1/2 1-21-84	3	79-04-13	1	
26855	16	5	5	79-04-13	1	
29034	8	1	0	79-04-16	1	
23376	16	3	2	79-04-17	1	
23534	4	1	0	79-04-17	1	
26692OK	11	7	6	79-04-17	1	
26693	14	6	6	79-04-17	1	
26780	33	5	4	79-04-17	1	
27063	12	1	1	79-04-17	1	
28046	6	2	0	79-04-17	1	
27696OK	21	1	1	79-04-19	1	
27697	8	1	1	79-04-19	1	
27698	32	2	0	79-04-19	1	
22582	8	1	1	79-04-20	1	
26847	8	6	5	79-04-20	1	
28062OK	2	1	0	79-04-23	1	
28064	6	3	1	79-04-23	1	
28965	8	7	7	79-04-24	1	
28993	33	6	5	79-04-24	1	
21372	11	1	1	79-04-25	1	
21651OK	11	2	2	79-04-25	1	
21676	16	1	1	79-04-25	1	
26515	2	2	1	79-04-25	1	
26827	20	5	4	79-04-25	1	
27057	20	1	1	79-04-25	1	
21702OK	14	3	3	79-04-25	1	
29393	8	2	3	79-04-25	1	

\* - THESE WELDS WERE REPAIRED BEFORE S/L COULD GIVE AN EVALUATION.

TIME: 3:00 P.M.  
DATE: 01-20-84  
WPS ID.0036D

-3-

PETER LANES - 1st 90 Days - REJECTED

W/T	Amt	HECo Rej	Third Party	Inspection Date	# Cds	Comments
29399	10	6	6	79-04-25	1	
29413	6	6	4	79-04-25	1	
29636OK	241	36	19	79-04-25	1	
29637OK	0	0	0	79-04-25	1	See W/T 29636
29639	16	3	3	79-04-25	1	
29640	0	0	0	79-04-25	1	Sec W/T 29636
29647	8	5	4	79-04-25	1	
20727	8	2	2	79-04-26	1	
22210OK	2	2	2	79-04-26	1	
22211	4	2	1	79-04-26	1	
22212	4	2	1	79-04-26	1	
22298	2	2	1	79-04-26	1	
22299	4	4	2	79-04-26	1	
26222OK	4	3	3	79-04-26	1	
26226	2	1	1	79-04-26	1	
29391	7	2	2	79-04-26	1	
29662	9	1	1	79-04-26	1	
21626	10	3	3	79-04-30	1	
26684OK	4	1	1	79-04-30	1	
26818	6	1	1	79-04-30	1	
27710	33	1	1	79-04-30	1	
28981	17	11	11	79-05-01	1	
22016	30	2	8	79-05-02	1	
22020OK	4	2	2	79-05-02	1	
22832	4	1	1	79-05-02	1	
22834	4	2	2	79-05-02	1	
22842	2	1	1	79-05-02	1	
26815	6	4	4	79-05-02	1	
26817OK	10	2	1	79-05-02	1	
26819	8	1	0	79-05-02	1	
26820	8	1	0	79-05-02	1	
27706	12	2	2	79-05-02	1	
28980	8	1	1	79-05-02	1	
20692OK	8	1	1	79-05-03	1	
20723	8	1	1	79-05-03	1	
20732	11	2	2	79-05-03	1	
22886	13	1	1	79-05-03	1	
26860	16	14	14	79-05-03	1	
29367OK	8	4	4	79-05-03	1	
29656	0	0	0	79-05-03	1	See W/T 29636
29658	0	0	0	79-05-03	1	See W/T 29636
26541	8	1	0	79-05-04	1	
26646	16	1	1	79-05-04	1	
27705OK	15	4	4	79-05-06	1	
21371	8	2	2	79-05-07	1	
29231	11	3	3	79-05-07	1	
29233	19	8	9	79-05-07	1	
27216	4	3	2	79-05-09	1	
22013OK	2	2	2	79-05-10	1	
27014	2	1	1	79-05-10	1	
23991	8	1	1	79-05-10	1	

\* - THESE WELDS WERE REPAIRED BEFORE S/L COULD GIVE AN EVALUATION.

TIME: 3:00 P.M.  
DATE: 01-20-84  
WPS ID.0036D

-4-

PETER LANES - 1st 90 Days - REJECTED

W/T	Amt	HECo Rej	Third Party	Inspection Date	# Cds	Comments
23993	80	12	6	79-05-10	1	
23995	47	4	4	79-05-10	1	
29648	7	5	4	79-05-10	1	
29649	8	2	1	79-05-10	1	
29652	8	5	3	79-05-10	1	
33862	3	3	3	79-05-10	1	
27795	8	3	2	79-05-11	1	
27796OK	8	4	3	79-05-11	1	
27799	6	4	4	79-05-11	1	
20661	8	3	1	79-05-16	1	
22840	4	3	3	79-05-16	1	
22651	6	1	1	79-05-16	1	
29653OK	8	2	0	79-05-16	1	
29654	6	6	4	79-05-16	1	
33866	6	1	1	79-05-16	1	
21674	10	2	0	79-05-17	1	
22024	20	3	2	79-05-17	1	
22026OK	2	1	0	79-05-17	1	
22028	8	3	3	79-05-17	1	
22388	2	2	2	79-05-17	1	
22389	2	2	2	79-05-17	1	
22397	6	6	6*	79-05-17	1	
22398OK	12	12	12* - NOTE	79-05-17	1	
22446	4	4	4	79-05-17	1	
22447	2	2	2	79-05-17	1	
22448	4	4	3	79-05-17	1	
22449	2	2	2	79-05-17	1	
22451OK	2	2	2* - NOTE	79-05-17	1	
22452	2	2	2	79-05-17	1	
22453	4	4	4*	79-05-17	1	
22755	10	3	2	79-05-17	1	
22819	2	2	2	79-05-17	1	
27683OK	14	4	3	79-05-17	1	
37356	8	8	8	79-05-17	1	
37360	10	6	6	79-05-17	1	
37367	8	4	4	79-05-17	1	
21648	24	2	2	79-05-18	1	
22391OK	14	6	4	79-05-21	1	
27127	20	3	2	79-05-21	1	
27682	32	4	4	79-05-21	1	
37363	16	2	2	79-05-21	1	
23282	34	5	3	79-05-22	1	
23983OK	113	9	6	79-05-22	1	
26946	2	1	1	79-05-22	1	
29666	8	1	1	79-05-22	1	
37357	16	4	4	79-05-22	1	
37358	16	4	4	79-05-22	1	
37362OK	12	4	4	79-05-22	1	
21625	16	3	3	79-05-23	1	
21647	12	3	0	79-05-23	1	
21677	10	3	2	79-05-23	1	

NOT TO  
DETAIL

\* - THESE WELDS WERE REPAIRED BEFORE S/L COULD GIVE AN EVALUATION.

TIME: 3:00 P.M.  
DATE: 01-20-84  
WPS ID.0036D

-5-

PETER LANES - 1st 90 Days - REJECTED

<u>W/T</u>	<u>Amt</u>	<u>HECo Rej</u>	<u>Third Party</u>	<u>Inspection Date</u>	<u># Cds</u>	<u>Comments</u>
22438?	37	<del>28-25</del> 18	LS 1-21-84	18 - <del>OTO NOT</del> ADDRESS ALL 20 WELDS	1	
✓ 27600OK	8	5	5	79-05-23	1	
27117	4	2	2	LS 79-05-23	1	
27118	6	6	6	1-21-84 79-05-23	1	
27122	6	5	4	79-05-23	1	
27123	6	4	4	79-05-23	1	
✓ 27130OK	4	1	1	79-05-23	1	
27207	8	3	2	79-05-23	1	
29638	24	2	1	79-05-23	1	
29659	6	4	2	79-05-23	1	
29661	8	1	1	79-05-23	1	
<hr/>						
	2,646	700	5/7	215		

\* - THESE WELDS WERE REPAIRED BEFORE S/L COULD GIVE AN EVALUATION.

BYRON SITE Q.A. SURVEILLANCE

QG: 54.3

Report No. 5700

Date: -23-84

Contractor/Organization : Project Construction Dept.

SUBJECT: Reinspection Program Interpretations

OBSERVATIONS:

Quality Assurance has reviewed Interpretation 19 issued by the Project Construction Department to be used in the implementation of the Reinspection Program. In light of the information supplied (attached), this interpretation is reasonable and will not affect the validity of the reinspection results.

This surveillance is closed.

Reported by Bill Surina

Date 1-24-84

Approved by K.A. Hanson

Date 1-25-84

LAS:jc:l667S

cc: W.J. Shewski/G.F. Marcus  
QA Supt./Site Q.A. File  
Contractor  
PCD Supt  
LAS

FOIA- 88-344

E/42

**HUNTER CORPORATION**

3800 - 179TH STREET, HAMMOND, INDIANA 46323, (219) 845-8000  
HC-QA-485

December 15, 1983

Commonwealth Edison Company  
4450 North German Church Road  
Byron, Illinois 61010

Attention: Project Construction Department  
R.P. Tuetken  
Assistant Project Superintendent

Subject: Interpretation for NRC Reinspection

Mr. Tuetken:

The Hunter Corporation requests the following interpretation.

Interpretation No. 1: Is it acceptable to use 2.3.2 and 2.3.2.1 from AWS D1.1-82 for the inspection of fillet welds?

Interpretation No. 2: Attachments 2, 3, and 4 indicate the accuracy of the welding gages we use for the measurement of fillet size. As you can see the best they can offer is  $\pm .025"$ . Telephone conversation with Goodwin Lycan, President of the GAL Gage Co. indicated that there are no commercially manufactured gages that are more accurate than his. Comparison of his fillet gages against like gages manufactured by Fibre Metal have shown differences of up to  $.050"$ . Therefore, using similar gages will it be acceptable to find any fillet weld up to  $.025"$  undersize acceptable under the NRC reinspection program?

Yours very truly

*Lee E. Hadick*

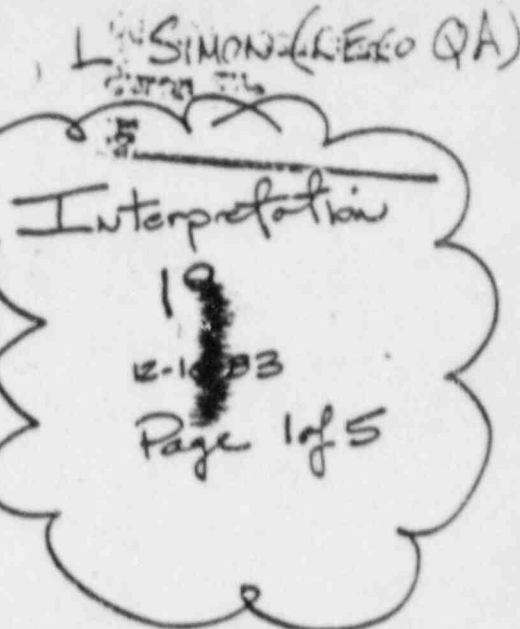
LEE E. HADICK  
Quality Control Supervisor

cc: M.L. Somsag  
K. Selman  
QA Vault

LEH/pb

*Reply: Interpretation 1 it is acceptable to use AWS D1.1 articles 2.3.2 and 2.3.2.1. R. Tuetken 12/16/83*

*Interpretation 2 when reinspecting fillet weld size, based on the varying accuracy of gauges employed the reinspection measurement shall allow variance up to  $.025"$  undersize to be acceptable. R. Tuetken 12/16/83*



4/DESIGN OF WELDED CONNECTIONS

(1) having an included angle of 60 deg or greater at the root of the groove when deposited by any of the following welding processes: shielded metal arc, submerged arc, gas metal arc, flux cored arc, or electrogas welding; or

(2) having an included angle not less than 45 deg at the root of the groove when deposited in flat or horizontal positions by gas metal arc or flux cored arc welding.

2.3.1.4 The effective throat thickness for flare groove welds when filled flush to the surface of the solid section of the bar shall be as shown in Table 2.3.1.4.

(1) Random sections of production welds for each welding procedure, or such test sections as may be required by the Engineer, shall be used to verify that the effective throat is consistently obtained.

(2) For a given set of procedural conditions, if the contractor has demonstrated that he can consistently provide larger effective throats than those shown in Table 2.3.1.4, the contractor may establish such larger effective throats by qualification.

(3) Qualification required by (2) shall consist of sectioning the radiused member, normal to its axis, at midlength and terminal ends of the weld. Such sectioning shall be made on a number of combinations of material sizes representative of the range used by the contractor in construction or as required by the Engineer.

2.3.1.5 The minimum effective throat of a partial joint penetration groove weld shall be as specified in Table 2.10.3.

2.3.2 Fillet Welds. The effective area shall be the effective weld length multiplied by the effective throat. Stress in a fillet weld shall be considered as applied to this effective area, for any direction of applied load.

2.3.2.1 The effective length of a fillet weld shall be the overall length of the full-size fillet, including end returns. No reduction in effective length shall be made for either the start or crater of the weld if the weld is full size throughout its length.

2.3.2.2 The effective length of a curved fillet weld shall be measured along the center line of the effective throat. If the weld area of a fillet weld in a hole or slot computed from this length is greater than the area found from 2.3.3, then this latter area shall be used as the effective area of the fillet weld.

2.3.2.3 The minimum effective length of a fillet weld shall be at least four times the nominal size, or the size of the weld shall be considered not to exceed one fourth its effective length.

2.3.2.4 The effective throat shall be the shortest distance from the root of the face of the diagrammatic weld. See Appendix A. Note: See Appendix B for formula governing the calculation of effective throats for fillet welds in skewed T-joints. A convenient tabulation of measured legs (W) and acceptable gaps (G) related to effective throats (E) has been provided for dihedral angles between 60 deg and 135 deg.

2.3.3 Plug and Slot Welds. The effective area shall be the

nominal area of the hole or slot in the plane of the facing face.

2.3.4 The effective throat of a combination partial joint penetration groove weld and fillet weld shall be the shortest distance from the root to the face of the diagrammatic weld minus 1/8 in. (3.2 mm) for any groove detail requiring such deduction (see Appendix A).

Part B  
Structural Details

2.4 Fillers

2.4.1 Fillers may be used in

2.4.1.1 Splicing parts of different thicknesses.

2.4.1.2 Connections that, due to existing geometric alignment, must accommodate offsets to permit simple framing.

2.4.2 A filler less than 1/4 in. (6.4 mm) thick shall not be used to transfer stress but shall be kept flush with the welded edges of the stress-carrying part. The sizes of welds along such edges shall be increased over the required sizes by an amount equal to the thickness of the filler (see Fig. 2.4.2).

2.4.3 Any filler 1/4 in. (6.4 mm) or more in thickness shall extend beyond the edges of the splice plate or connection material. It shall be welded to the part on which it is fitted, and the joint shall be of sufficient strength to transmit the splice plate or connection material stress applied at the surface of the filler as an eccentric load. The welds joining the splice plate or connection material to the filler shall be sufficient to transmit the splice plate or connection material stress and shall be long enough to avoid overstressing the filler along the toe of the weld (see Fig. 2.4.3).

2.5 Partial Joint Penetration Groove Welds

Partial joint penetration groove welds subject to tension normal to their longitudinal axis shall not be used where design criteria indicate cyclic loading could produce fatigue failure. Joints containing such welds, made from one side only, shall be restrained to prevent rotation.

# G.A.L. Gage Co.

Post Office Box 23  
2953 Hinchman Road  
Stevensville, Michigan 49127  
616-465-5750

ATTACHMENT 2

interpretation  
19

Page 3 of 5

November 23, 1982

Mr. Lee Hadick  
c/o Hunter Corp.  
P. O. Box 674  
Byran, IL 61010

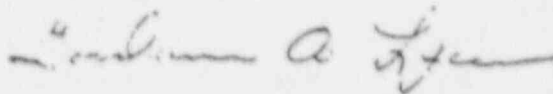
Subject: 72 Partial Sets Fillet Weld Gage  
P. O. #265003

Dear Mr. Hadick,

The manufactures tolerance of the Fillet Weld Gage on your  
P. O. #265003 are within the  $.025\pm$  range.

The welding gage is intended for general dimensional inspection  
of welded fabrication where close tolerances are not expected.  
It should not be compared in precision with gages where a high  
degree of accuracy is required.

Sincerely,  
G.A.L. Gage Co.



Goodwin A. Lycan  
President

GAL/jkh

MANUFACTURERS  
OF THE "HI-LO"  
WELDERS GAGE



AN INDISPENSIBLE  
TOOL FOR FIT-UPS  
AND RADIOGRAPHED WELDS.

## G.A.L. Adjustable Fillet Weld Gage

# MEASURE ANY FILLET WELD TO 1/32" ACCURACY WITH JUST ONE SIMPLE-TO-USE GAGE.

Measuring fillet welds used to be a trial with complicated or inaccurate gages. Not anymore. Now you can measure fillet welds from 1/4" to 1" (with  $\pm 1/32$ " accuracy) with one economical, simple-to-understand gage.

The G.A.L. Adjustable Fillet Weld Gage uses an offset arm which slides at a 45° angle to make fillet weld length measurements. Simply adjust the arm until it touches the toe of the vertical leg. The gage is calibrated to

32nds, with metric equivalents given, so you get more accurate readings. Four screws hold the offset arm in position for future adjustments.

This gage also measures weld throat thicknesses to 1/8". By adjusting a pointer on an inch scale, you can touch the center of the weld. A thumb screw holds the

pointer in position for future reference. If the weld is concave, more filler material can be added to build the weld throat up to standard. The G.A.L. Adjustable Fillet Weld Gage is made of durable, rust resistant stainless steel. Its 2 1/4" x 3" slim design weighs only 1 1/4 oz., fits easily into a shirt pocket. And because there is just one gage needed to make all measurements, the chance of losing essential fillet weld gage blades is eliminated. Fumbling through seven different, inaccurate gage blades is also eliminated.

## G.A.L. Adjustable Fillet Weld Gage is easy to use.



To measure fillet welds place irregular curve edge flush to horizontal toe of weld so the straight edge is in line with the horizontal member.



Adjust the offset arm up or down along the diagonal slots until the tip of the arm touches the top of the weld.



Read the weld size indicated. The increments are in 1/16" and 1/8" markings up to 1". All numerals are etched into the surface and lined for easier reading.



In measure weld throat thickness place the 45° angle end flush to the horizontal and vertical members. Loosen the thumb screw and slide the pointer until it touches the face of the weld.



Tighten the thumb screw and read the measurement from the 1/16" calibrations along the pointer. A quick, sure way to find corners or concave welds and to correct them with additional filler material to meet standards.



U.S. patents pending.  
Gages available through  
your welding supply  
distributor, or contact:

**G.A.L.  
Gage Co.**

P.O. Box 23, Stevensville, Michigan 48127

Telephone 616/485-5750

TELEX 729453 GAL GAGE STVL

G.A.L.  
Adjustable Fillet  
Weld Gage measures both  
leg lengths and weld throat  
fillet weld thickness.

Interpretation is page 4 of  
ATTACHMENT 3

ATTACHMENT 4  
interpretation 19  
Page 5 of 5

WELDING GAUGE

## IMPORTANT NOTICE

The Welding Gauge is intended for general dimensional inspection of welded fabrications where close tolerances are not expected. It should not be compared in precision with gauges used for measuring machined components and, where a high degree of accuracy is required, machine shop type measuring instruments will need to be used.

The Welding Institute Abington Hall Cambridge CB1 6AL

01/80

D. W. HAYES

To: D. W. Hayes  
From: K. Connaughtan-Byron

J. M. HINDS, JR SRI Byron 1/25/84

COMMENTS ON BYRON REINSPECTION PROGRAM

FINAL REPORT

1. Have not seen PCD "Interpretations" alluded to on Page 19 of report. The report states that QA found adequate bases for these interpretations and that they "fall between the guidelines of the program" (?).
2. PAP, PTL, and PT do not meet criteria for subjective attributes:
  - PAP - all reinspectable items reinspected 19/21 inspectors
  - PTL - all reinspectable inspectors included 23/85
  - PT - all reinspectable items reinspected 6/37 inspectors
  - a. How can PTL not expand population to include all reinspectable items?
  - b. What can be said for quality/acceptability of items not considered reinspectable? (applies to all 3 contractors)
3. Hunter - only 1/6 piping inspectors reinspected (17%)  
Hatfield - only 2/14 equipment installation inspectors reinspected (14%)  
Hatfield - only 2/12 equipment modification inspectors reinspected (17%)  
Hatfield - only 1/21 cable pan inspectors reinspected (5%)  
Hatfield - only 2/22 cable pan hanger inspectors reinspected (9%)  
Hatfield - only 1/11 A-325 bolting inspectors reinspected (9%)  
  
These areas may be statistically weak.
4. Hunter - 6% of total inspection months reinspected.  
Hatfield - 11% of total inspection months reinspected.  
\*PTL - 11% of total inspection months reinspected.  
\*PT - 11% of total inspection months reinspected.  
  
\*Majority of remaining work inaccessible or nonrecreatable.  
  
These areas may be statistically weak.
5. Hunter - 1 failure (subjective) was this piping? *No VWI*  
Was substituted individual certified to failed attribute? *Yes*  
  
Hatfield - 1 failure (VWI - subjective) substitute results not available.  
  
Powers Asco Pope - 5 failures (objective) see comment 2b  
Powers Asco Pope - 10 failures (subjective)  
  
Pittsburg Testing - 1 failure (objective) okay after second 90 days  
Pittsburg Testing - 3 failures (subjective) 1 okay after second 90 days  
2 had no second days  
expansion - 1 failure (subjective) after second 90 days - all work reinspected.

FOIA-88-344

5/44

4 okay after first 90 days.  
See comment 2b

6. Audit 6-83-66 June 21 through July 6, 1983

Finding 1: Hunter, MECo, PTL, Blount had not established means for correcting discrepant items.

This finding and its subsequent resolution are relevant to the ASLB's concern that Hunter was not identifying nonconforming items found during the reinspection by Nonconformance Reports. Further details on this are needed, at least, with respect to Hunter.

7. Audit 6-83-124 August 24 through September 1, 1983.

Hatfield: This audit was responsive to NRC staff concerns expressed during an August 4, 1983 meeting and documented in Inspection Report 454/83-38. The ASLB cited these concerns as one reason that the reinspection program's effectiveness in addressing deficiencies in MECo's QA program was questionable. Additional details of how it was assured that the reinspection statistics were valid must be obtained to address the ASLB's concern.

8. Audit 6-83-93 November 14-17, 1983

PTL final results do not yet have third party concurrence. What will this do to the results?

9. PTL surveillances of contractors reinspections yielded correlations in results ranging from 94% to 100%. Was or should a third party review be applied to resolve differences?
10. PCD resolution of PTL discrepancy PTL-21 (PTL Discrepancy Report 6146) states "Anchor satisfies torquing requirement, therefore sufficient capacity is developed by nut". The discrepancy was that an anchor bolt did not project beyond the nut; (i.e. the nut was not fully engaged). The basis for the determination of acceptability is inadequately specified.
11. RIII can not make a final analysis of the non-specific discrepancies discussed in Paragraph 2 of page 1 of the cover letter until the supplement containing the "additional engineering evaluation" is submitted to RIII for review and the discrepancies are identified.
12. The MECo response fails to address the methodology employed by the contractor company's QA departments to assure that any specified inspector has not reinspected his own work. In order to add credibility to the report, the response should describe the methodologies employed by the applicable contractors to provide this assurance where required.