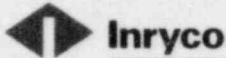


INRYCO, Inc.
Concrete Systems Division
7200 S. Narragansett Avenue
Bedford Park
Chicago, Illinois 60638

312 585 7300 Chicago
312 594 7300 Suburban

TLX-72-1497



January 27, 1983

United States
Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Attention: Director, Regional Office

SUBJECT: Byron/Braidwood Nuclear Plants
Compliance with 10CFR Part 21
Concluding Report
Re: Inryco Letter QA 830126-1

Gentlemen:

The attached documents have been submitted to those clients of Inryco, Inc. who have been supplied 170 wire tendon post-tensioning systems.

While the nonconforming threads may exist for the projects other than Byron/Braidwood, it is our contention that the problem lies not with the nonconforming threads, but more with poor construction technique. We already know that the anchorage threads if conforming, provide no less than 138% of the guaranteed ultimate strength of the tendon. Yet, 100% strength of the coupled threads can be assured if the stressing adaptor is within tolerance, while the minor, major and pitch diameters can be reduced 0.100" from the minimum dimension.

With these facts in mind, we conclude that the nonconforming threads were not responsible for the failures exhibited at the Byron/Braidwood jobsite. As a result of the failures the same controls developed for Byron/Braidwood must be applied to the stressing equipment and construction technique on future surveillance or restressing work on any vessel that used the 170W system.

Sincerely,

Donald W. Waitkus
Supervisor, Quality Assurance

Chester E. Matykiewicz
Responsible Officer

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PDR ADOCK 05000454
S PDR

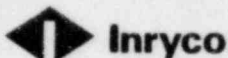
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INRYCO, Inc.
Concrete Systems Division
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Bedford Park
Chicago, Illinois 60638

312 585 7300 Chicago
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TLX-72-1497



January 27, 1983

Metropolitan Edison Co.
TMI Nuclear Station
P.O. Box 480 - Rte. 441 S
Middletown, PA 17057

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Three Mile Island - Unit 1

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

While those anchorages that have been stressed in any containment have met the specification requirements, it should be noted that the Inryco investigative program has shown that potential deficiencies could exist as the result of a lack of control over material, equipment or operations which are normally considered to be of a non-safety related nature.

Anchorage failure is a condition to be avoided by OBSERVING THE FOLLOWING PRECAUTIONS:

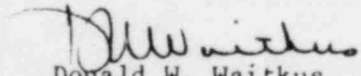
1. BE SURE that the stressing adaptor is an acceptable dimensional match-up with the anchorage to be coupled.
2. BE SURE that the stressing ram adaptor is fully engaged with the anchorage before application of any force.
3. BE SURE that while coupling the stressing adaptor to the anchorage, the bushing (170W15) has not disengaged or partially unthreaded from the shop anchorhead (170W1A).

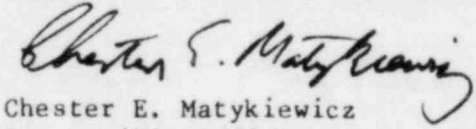
We are including the following procedure for your use in verifying the above stated conditions. These documents should also be included in any bid package for work that would require detensioning or restressing operations; especially In-Service-Inspections or Surveillance of tendons.

1. Procedure QC 1021 - Anchorage Measurement Control
Attachments 1 thru 6

Any questions you may have can be referred to the Inryco Concrete Systems Division Engineering Department. Please return the acknowledgement of receipt.

Sincerely,


Donald W. Waitkus
Supervisor, Quality Assurance

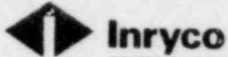

Chester E. Matykiewicz
Responsible Officer

cc: USNRC Region III

INRYCO, Inc.
Concrete Systems Division
7200 S. Narragansett Avenue
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TLX-72-1497



January 27, 1983

Metropolitan Edison Co.
TMI Nuclear Station
P.O. Box 480 - Rte. 441 S
Middletown, PA 17057

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Three Mile Island - Unit 1

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

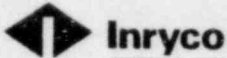
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

While those anchorages that have been stressed in any containment have met the specification requirements, it should be noted that the Inryco investigative program has shown that potential deficiencies could exist as the result of a lack of control over material, equipment or operations which are normally considered to be of a non-safety related nature.

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TLX-72-1497



January 27, 1983

Alabama Power Co.
600 North 18th St.
Birmingham, AL 35291

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Farley - Units 1 & 2

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

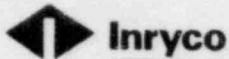
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC245i).

While those anchorages that have been stressed in any containment have met the specification requirements, it should be noted that the Inryco investigative program has shown that potential deficiencies could exist as the result of a lack of control over material, equipment or operations which are normally considered to be of a non-safety related nature.

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TLX-72-1497



January 27, 1983

Union Electric
P.O. Box 149
St. Louis, MO 63166

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Callaway - Unit 1

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

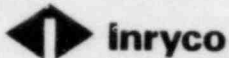
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element or elements being anchored or coupled (CC2451).

While those anchorages that have been stressed in any containment have met the specification requirements, it should be noted that the Inryco investigative program has shown that potential deficiencies could exist as the result of a lack of control over material, equipment or operations which are normally considered to be of a non-safety related nature.

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Chicago, Illinois 60638

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TLX-72-1497



January 27, 1983

South Carolina Electric & Gas
P.O. Box 764
Columbia, SC 29202

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: V. C. Summer

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

While those anchorages that have been stressed in any containment have met the specification requirements, it should be noted that the Inryco investigative program has shown that potential deficiencies could exist as the result of a lack of control over material, equipment or operations which are normally considered to be of a non-safety related nature.

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Bedford Park
Chicago, Illinois 60638

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312 594 7300 Suburban

TLX-72-1497



January 27, 1983

Tennessee Valley Authority
400 Commerce Ave.
Knoxville, TN 37902

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Bellefonte - Units 1 & 2

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

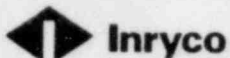
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

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TLX-72-1497



January 27, 1983

Commonwealth Edison Co.
Station Nuclear Engrg. Dept.
One First National Bank Bldg.
P.O. Box 767
Chicago, IL 60690

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Byron - Units 1 & 2
Braidwood - Units 1 & 2

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

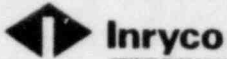
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

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Bedford Park
Chicago, Illinois 60638

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TLX-72-1497



January 27, 1983

Kansas Gas & Electric
P.O. Box 309
Burlington, KS 66839

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Wolf Creek

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

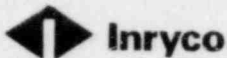
As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

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Concrete Systems Division
7200 S. Narragansett Avenue
Bedford Park
Chicago, Illinois 60638

312 585 7300 Chicago
312 594 7300 Suburban

TLX-72-1497



January 27, 1983

Consumers Power Co.
212 W. Michigan Ave.
Jackson, MI 49201

Attention: Director of Quality Assurance
Director of Power Generation

SUBJECT: INRYCO 170 WIRE ANCHORAGE SYSTEM
USED ON: Midland - Units 1 & 2

POST TENSIONING ENGINEERING BULLETIN

It has been determined that the anchorage thread dimensions for the 170 wire system may not conform to the requirements of Federal Standard H28 Appendix 13 dated 8-31-78.

As a result of a failure of a 170 wire anchorage, when insufficiently coupled to the stressing ram adaptor, Inryco undertook an extensive testing program to evaluate the effectiveness of various thread combinations. Of the unstressed anchorages sampled, it was determined that the worst as-threaded condition would still meet ASME Section III Division 2 CRV&C Code requirements of 110% of the specified minimum ultimate tensile strength of the corresponding prestressing steel element of elements being anchored or coupled (CC2451).

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