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 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1; Indiana & 05000315
 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
 AUTH. NAME AUTHOR AFFILIATION
 ALEXICH, M. P. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 RECIP. NAME RECIPIENT AFFILIATION
 DAVIS, A. B. NRC - No Detailed Affiliation Given

SUBJECT: Responds to six items in NRC Compliance Bulletin 87-002.
 Plant procedures for non-safety related matls will be
 enhanced. Fastner testing data sheet & mechanical/chemical
 test results encl.

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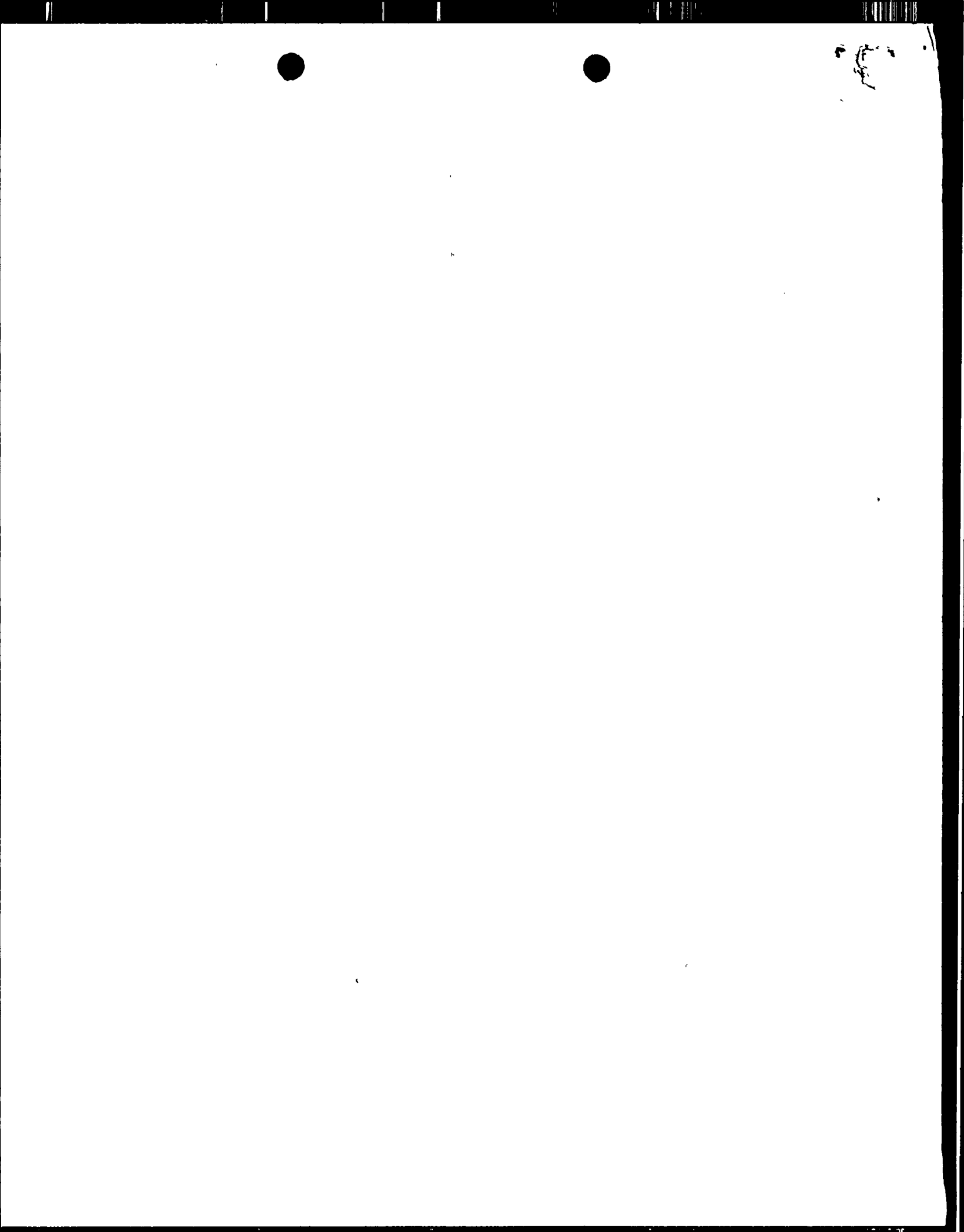
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AEP:NRG:1045

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
NRC COMPLIANCE BULLETIN NO. 87-02: FASTENER TESTING
TO DETERMINE CONFORMANCE WITH APPLICABLE
MATERIAL SPECIFICATIONS

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Attn: A. B. Davis

January 12, 1988

Dear Mr. Davis:

This submittal and its attachments transmit the results of the tests performed on the safety-related and non-safety related fasteners at the Donald C. Cook Nuclear Plant as per the requirements of NRC Compliance Bulletin No. 87-02. Attachment 1 contains the fastener testing data sheet and Attachment 2 contains the mechanical/chemical test results.

The sample of fasteners and corresponding nuts were selected in the presence of the NRC Resident Inspector and were independently tested by Chicago Spectro Service Laboratory, Inc. of Chicago, Illinois. The following is our response to the six items noted in the NRC Bulletin.

1. Describe a) the characteristics currently examined during receipt inspection of fasteners (i.e., head markings for grade and manufacturer symbols, review of certified material test report or certificate of conformance), and b) internal controls utilized during storage and issuance from stock to assure the appropriate use of fasteners.

Response

During the receipt inspection process for fasteners that are safety related, the following steps are followed:

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Mr. A. B. Davis

-5-

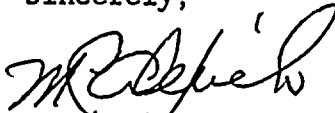
AEP:NRC:1045

6. Based on the results of the testing and review of current procedures, describe any further actions being taken to assure that fasteners used in the plant meet the requisite specifications and requirements and that the operability of safety-related plant components is not affected.

Response

The one exception noted above for a non-safety related stud did not affect any safety-grade equipment. As noted earlier, we will be enhancing the plant procedures for non-safety related materials to preclude such an occurrence in the future.

Sincerely,



M. P. Alexich
Vice President

cm

Attachments

cc: John E. Dolan w/o att.
W. G. Smith, Jr. - Bridgman w/att.
R. C. Callen w/o att.
G. Bruchmann w/o att.
G. Charnoff w/o att.
NRC Resident Inspector - Bridgman w/att.

1. The receipt inspection process is governed by two (2) plant procedures. The purchase order and referenced DCC Specifications provide inspection requirements. Fasteners purchased "N-Grade" have their physical characteristics visually examined. This visual examination includes head markings for grade/manufacture mark, and measurements for length, diameter and thread size. The examination also includes a visual examination for workmanship.
2. Certified material test reports are reviewed against applicable ASTM/ASME values. The certificate(s) of conformance/compliance is reviewed for its contents and applicability prior to acceptance.
3. "N-Grade" fasteners, upon completion of a successful receipt inspection, are assigned an acceptance number (A-Tag). This A-tag number is applied to the material by either of two methods - direct marking or container marking. The fasteners are stored in a controlled area and are issued by Storeroom Personnel, as requested on controlled stock issue forms.

"N-grade" fasteners are issued via a controlled stock issue form. The form is presented to the Stores personnel with a Job Order number, description of work, material and equipment number (stock number), description of material being requested, and quantity already written on the issue form. When the issue is made, the Stores personnel record the A-Tag on the issue form. This provides traceability from the job back to the purchase document. Material is handled/controlled using plant procedures.

2. Select a minimum sample of ten (10) non-safety related fasteners (studs, bolts, and/or cap screws), and ten (10) safety-related fasteners (studs, bolts, and/or cap screws) from current, in use, stock. The sample is to be obtained by the licensee with the participation of an NRC inspector. Fasteners procured to meet the following chemical and mechanical properties are of interest: A-193 grades B7, B8, and B16; SAE J429 grades 5 and 8; A-449; A-325 Types 1, 2 or 3; A-354 grades BB, BC, BD; A-490; A-320 LTM; A-307; A-563; or equivalent.



Response

A sample of ten non-safety related fasteners and ten safety-related fasteners were selected in the presence of the NRC Resident Inspector. The details of the type and materials of the sample of fasteners are given in Attachment No. 1.

3. For the selected sample of fasteners in item 2, include a sample of typical nuts that would be used with each fastener (one-for-one). In particular, nuts purchased to the chemical and mechanical specifications of A-194 are of interest.

Response

For all fasteners selected for testing, a corresponding nut was chosen. The details of the material of the nuts are shown in Attachment 1.

- 4.. Chemical testing shall be performed on all samples. Mechanical testing shall be performed on each safety-related fastener. Hardness testing shall be performed on each nut and non-safety related fastener. All testing shall be performed by a laboratory which the licensee has qualified for this type of testing and appears on the licensee's approved vendor list. Testing performed shall be done in accordance with the requirements of the fastener's specification, grade, and class, and the test shall evaluate the ultimate tensile strength, hardness and chemical properties as required by the fastener's specification, grade, and class. Each sample shall be tagged with the sample's ID number.

Response

The selected fasteners and nuts were independently tested by Chicago Spectro Service Laboratory Inc., of Chicago, Illinois. This testing laboratory is on our Qualified Supplier's List for such service. Based on the test results, the mechanical, chemical and hardness information is presented in Attachment 2.

5. The results of all tests, together with supporting information, are to be reported to the NRC utilizing the format shown in Attachments 1 and 2 of this bulletin. Include the names and addresses of suppliers and manufacturers of safety-related fasteners and, to the extent possible, of non-safety related fasteners. For any fastener found out of specification, provide an evaluation of the safety significance including consideration of the most limiting application.

Response

Attachment Nos. 1 and 2 to this submittal provide the information requested in the above item. Attachment No. 1 was organized for each sample as it was selected from the storeroom. Attachment No. 2 was organized based on the various material specifications applicable to each sample.

The test results for safety-related fasteners including their nuts were found to be within the specification limits for mechanical and chemical properties. For non-safety related fasteners, mechanical and chemical properties were within their respective specification limits with one exception, which is discussed below.

One non-safety-related stud (DCCNP/31-772250; Page 25 of Attachment 1 and Page 9 of Attachment 2) was inventoried as SA-193 Grade B7 alloy steel designation; however, mechanical and chemical testing indicated that it was carbon steel. There is no engineering or safety significance to this finding. The material was originally procured and intended to be used as general purpose steel in a non-safety-related sump pump. Therefore, the installed carbon steel studs satisfy their design function and none of the studs in question were issued for work other than the sump pump. Our investigation indicates that the mislabeling occurred when the unused studs were returned to inventory, and an erroneous part description was assigned. The error went undetected since, for non-safety grade material, the returned coding form was not reviewed against the original purchase specification. All studs purchased with the erroneously labeled stud are accounted for and none were used in a safety grade, or otherwise improper, application. The erroneously labeled studs in the storeroom are currently under a hold tag pending correct coding.

To prevent recurrence of this type of event in non-safety grade material, Cook Nuclear Plant personnel are initiating the practice of reviewing non-safety grade identification coding forms (only safety-grade coding received such a review prior to this) to assure that the returned coding is consistent with the material ordered. This review practice will be incorporated into plant procedures.

When safety-related items are purchased, the order (and as a practice, the coding) undergoes a separate engineering and receipt inspection review to assure the proper material is specified. Safety grade studs cannot be purchased and stocked in the manner of non-safety related studs. We believe that with the existing procedural controls such mislabeling would have been precluded for safety grade items.

Mr. A. B. Davis

-6-

AEP:NRC:1045

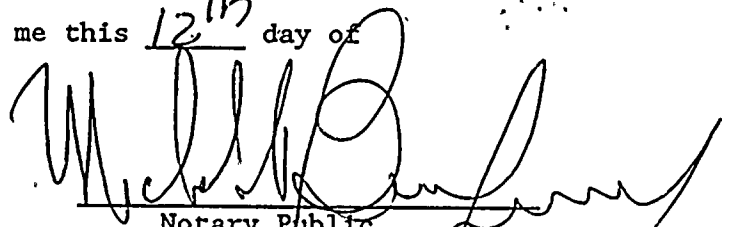
STATE OF OHIO

COUNTY OF FRANKLIN

M. P. Alexich, being duly sworn, deposes and says that he is the Vice President of licensee Indiana Michigan Power Company, that he has read the foregoing response to the NRC Compliance Bulletin No. 87-02 "Fastener Testing to Determine Conformance with Applicable Material Specification" and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.



Subscribed and sworn to before me this 12th day of
January 1988.



Notary Public
COMMISSION expires 3-9-91

ATTACHMENT NO. 1

TO

AEP:NRC:1045

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNF/30-028980/ASP-9703

Fastener Description: 3/4" X 3" ALL THD STUD W/2 HVY HX NUTS

Description of Sample Stock Location: LEVEL B SECURED STORAGE, C039C1

Material Specification as Documented by Licensee Records: ASME SA-193 GR B7
ASME SA-194 GR 2H

Head Marking (Specification and Manufacturer): 87 HARDWARE SPECIALTY "T"
2H "T"

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON
SAFETY RELATED USE

Vendor: HARDWARE SPECIALTY, LONG ISLAND CITY, NEW YORK P.O. #35258-042-7X WRITTEN 6-3-87
4875-36 St.

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE VISUAL EXAM
MARKINGS PER DCCPV105QCN & ASME SECTION III.

Licensee Representative:

Signature

R.E. K...
R.M. Youngblood

Date

11/3/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-029918/ASP-6071

Fastener Description: 1½" X 7½" ALL THD STUD W/2 HVY HX NUTS

Description of Sample Stock Location: LEVEL B SECURED STORAGE, C088E1

Material Specification as Documented by Licensee Records: ASTM A-193 GR B7
ASTM A-194 GR 2H

Head Marking (Specification and Manufacturer): B7 /STUD
2H "S"/NUT

**Class/Procurement Level: QA-N, OL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON
SAFETY RELATED USE

Vendor: NORTH CENTRAL FASTENERS P.O.#40619-042-2X WRITTEN 11-22-82

P.O. Box 1242, Benton Harbor, MI 49022

MFR: Keystone, 7621 Old Rockside Blvd, Cleveland, OH 44131

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE PER DCCPM105QCN & MARKINGS
PG 26 & PG 27 OF 33

Licensee Representative:

Signature

Date

11-1-85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

AL-04: Equivalent to ASME III Pipe Material Class 2

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046489/ASP-9735

Fastener Description: 1" X 3" HX HD BOLT

Description of Sample Stock Location: LEVEL B SECURED STORAGE, A356F2

Material Specification as Documented by Licensee Records: ASME SA-193 GR B7

Head Marking (Specification and Manufacturer): B7 HARDWARE SPECIALTY CO.

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural). GENERIC SAFETY & NON SAFETY RELATED USE

Vendor: HARDWARE SPECIALTY CO. P.O.#35258-042-7X WRITTEN 6-3-87
4875-36th St., Long Island City, New York 11101

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE, MARKINGS, VISUAL EXAM PER DCCPV105QCN

Licensee Representative:

Signature

R. E. K...
R. M. G...

Date

11/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046542/ASP-6110

Fastener Description: 1½" X 4" HEX HD BOLT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A357C2

Material Specification as Documented by Licensee Records: ASTM A-193 GR B7

Head Marking (Specification and Manufacturer): B7 TB TEXAS BOLT

**Class/Procurement Level: QA-N, OL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY AND NON SAFETY RELATED USE.

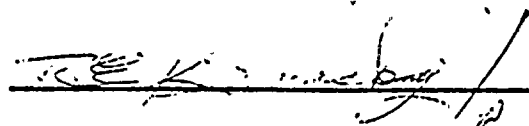
Vendor: NORTH CENTRAL FASTENERS P.O.#30313-043-3X WRITTEN 1-26-83
P.O. Box 1242, Benton Harbor, MI 49022

MFR: Texas Bolt, 3233 West 11 St., Houston, TX 77001

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE, MARKINGS PER DCCPM1050CM
PG. 26 OF 38

Licensee Representative:

Signature



Date

11-15-85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Fastener Testing Data Sheet

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-029939/ ASP-9328

Fastener Description: 1 3/8" X 10" ALL THD SS STUD

Description of Sample Stock Location: LEVEL B SECURED STORAGE, C090F2

Material Specification as Documented by Licensee Records: ASTM A-193 GR B8

Head Marking (Specification and Manufacturer): B8 CARDINAL IND. PROD. MK3 "C"

**Class/Procurement Level: QA-N, OL-05

General Plant Application (e.g., Pressure Boundary, Structural) PRESSURIZER SAFETY RELIEF VALVE FLANGES DCCNP TAG ME 1&2-VKV-SV-045

Vendor: CARDINAL INDUSTRIAL PRODUCTS INC. P.O.#37263-042-7X WRITTEN 10-1-37
3873 W. Oquendo Las Vegas, Nevada 89118

MFR: Same as above.

QA Requirements Imposed on Vendor: CMTR, PT CERT OF CONFORMANCE, VISUAL EXAM, MARKINGS PER DCCPV105QCN

Licensee Representative:

Signature

R. M. L. P. [Signature]

Date 1/5/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046730/ASP-4184

Fastener Description: 3/4" X 1 1/2" SS HX HD BOLT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A358E6

Material Specification as Documented by Licensee Records: ASTM A-193 GR B8

Head Marking (Specification and Manufacturer): B8 "TB" TEXAS BOLT

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON SAFETY RELATED USE

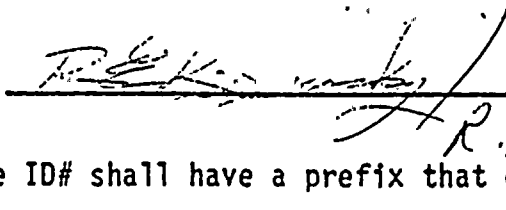
Vendor: TEXAS BOLT P.O. #39882-042-0 WRITTEN 12-3-80
P.O. Box 1211, Houston, TX 77251

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE, MARKINGS PER DCCPM1050CN PG26 OF 38

Licensee Representative:

Signature



Date

11-5-85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046785/ASP-4134

Fastener Description: 1 1/8" X 3" SS HX HD BOLT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A359C3

Material Specification as Documented by Licensee Records: ASTM A-193 GR B8

Head Marking (Specification and Manufacturer): B8 TB TEXAS BOLT

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON SAFETY RELATED USE.

Vendor: TEXAS BOLT P.O.#39832-042-0 WRITTEN 12-3-80
P.O. Box 1211, Houston, TX 77251

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE, MARKINGS PER DCCPM105QCN

Licensee Representative:

Signature

R. M. Gough
R. M. Gough

Date

11-1-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-047030/ ASP 9369

Fastener Description: 7/8" X 6" PIECE ALL THD SS ROD

Description of Sample Stock Location: LEVEL B SECURED STORAGE, .C091B1

Material Specification as Documented by Licensee Records: ASTM A-193 GR 3M

Head Marking (Specification and Manufacturer): 3M NOVA MACHINE "N"

**Class/Procurement Level: QA-N, QL-05

General Plant Application (e.g., Pressure Boundary, Structural) BONNET STUDS & NUTS ON EAST RESIDUAL HEAT REMOVAL PUMP DISCHARGE CHECK VALVE. PP-035

Vendor: NOVA MACHINE P.O. #72032-040-7X WRITTEN 2-5-87
P.O. Box 30287, Middleburg Heights, OH 44130

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE MARKINGS, VISUAL EXAM PER DCCPV105QCN & DCCPV104QCS

Licensee Representative:

Signature

R.E. K... 12/1
A.R.M. Youngblood

Date

11-5-85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-047100/ASP 9366

Fastener Description: 1 5/8" X 8 1/2" SS ALL THD STUD

Description of Sample Stock Location: SECURED LEVEL B STORAGE, C

Material Specification as Documented by Licensee Records: ASME SA-453 GR 660 CLB

Head Marking (Specification and Manufacturer): 660 B "N" "HL9" NOVA MACHINE

**Class/Procurement Level: QA-N, QL-05

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON-SAFETY RELATED USE

Vendor: NOVA MACHINE, P.O. #46904-042-6X WRITTEN 12-23-86
P.O. Box 30287, Middleburg Heights, OH 44130

MFR: Same as above.

QA Requirements Imposed on Vendor: CMTR, PT/MT CERT OF CONFORMANCE, VISUAL EXAM, MARKINGS PER DCCPV1050CH

Licensee Representative:

Signature RE Kincaid Date 1-25-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046625/ASP-3693

Fastener Description: 1" HVY HEX NUT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A359G2

Material Specification as Documented by Licensee Records: ASTM A-194 GR 2H

Head Marking (Specification and Manufacturer): 2H "U" BAYLINE BOLT

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY AND NON SAFETY RELATED USE

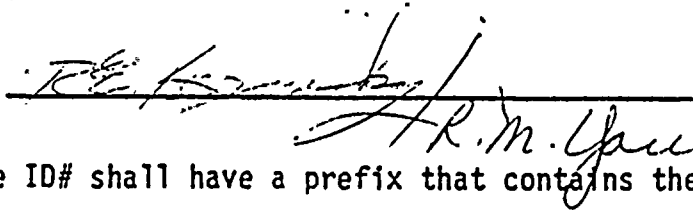
Vendor: NORTH CENTRAL FASTENERS P.O. #39881-042-0X WRITTEN 11-20-30
P.O. Box 1242, Benton Harbor, MI 49022

MFR: Bayline Bolt, 376 Gardenoaks Blvd, Houston, TX 77018

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE, MARKINGS PER DCCPM105QCN
PG 26 & 27 OF 33

Licensee Representative:

Signature



Date

11-5-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2,

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046627/ASP-3631

Fastener Description: 1 1/2" HVY HEX BJT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A357G4

Material Specification as Documented by Licensee Records: ASTM A-194 GR 2H

Head Marking (Specification and Manufacturer): 2H (—) B & G MANUFACTURING

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY AND NON SAFETY RELATED USE.

Vendor: NORTH CENTRAL FASTENERS P.O.#39381-042-0 WRITTEN 11-20-90

P.O. Box 1242, Benton Harbor, MI 49022

MFR: B&G MFRG, P.O. Box 269, 3067 Unionville Pike, Hatfield, PA 19440

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE MARKINGS PER DCCPM105QC:1
PR 27 OF 33

Licensee Representative:

Signature

[Signature] Date 1/5/88
J.R. M. L. [Signature]

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046622/ASP9224

Fastener Description: 5/8" HWY HEX NUT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A357F3

Material Specification as Documented by Licensee Records: ASME SA-194 GR 2H

Head Marking (Specification and Manufacturer): 2H "T" PS3 TEXAS BOLT

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON SAFETY RELATED USE.

Vendor: HARDWARE SPECIALTY P.O. #40910-042-6X WRITTEN 9-2-86

4875-36th St., Long Island City, N.Y. 11101

MFR: Texas Bolt P.O. Box 1211 Houston, Texas 77251

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE, VISUAL EXAM MARKINGS PER DCCPV105QCN

Licensee Representative:

Signature

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-047375/ ASP 9033

Fastener Description: 1 5/8" SS HVY HEX NUT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, C100G2

Material Specification as Documented by Licensee Records: ASME SA-194 GR 3 OR 8F

Head Marking (Specification and Manufacturer): 3 "T" "PN88" TEXAS BOLT

**Class/Procurement Level: QA-N, QL-05

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON SAFETY RELATED USE.

Vendor: CARDINAL INDUSTRIAL PRODUCTS P.O.#39907-042-7X WRITTEN 8-10-37
3873 W. Oquendo Las Vegas, NV 89118

MFR: Texas Bolt P.O. Box 1211, Houston, TX 77251
QA Requirements Imposed on Vendor: CMTR, PT/HT, CERT OF CONFORMANCE, VISUAL EXAM,
MARKINGS PER DCCPV105QCN

Licensee Representative:

Signature

R.M. Youngblood

Date

10/15/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046906/ASP-4184

Fastener Description: 1" 3" SS HVY HEX NUT

Description of Sample Stock Location: SECURED STORAGE LEVEL B, A360C3

Material Specification as Documented by Licensee Records: ASTM A-194 GR8

Head Marking (Specification and Manufacturer): 8 "T" TEXAS BOLT

**Class/Procurement Level: QA-N, QL-04

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC SAFETY & NON SAFETY RELATED USE

Vendor: TEXAS BOLT P.O.#30832-042-0X WRITTEN 12-8-80

P.O. Box 1211, Houston, TX 77251

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF CONFORMANCE, MARKING PER DCCPM105QCN

Licensee Representative:

Signature

R. K. ...

Date

11-5-85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-04: Equivalent to ASME III Pipe Material Class 2.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-046915/ASP-9328

Fastener Description: 1 3/8" SS HVY HEX NUT

Description of Sample Stock Location: LEVEL B SECURED STORAGE, C090F3

Material Specification as Documented by Licensee Records: ASTM A-194 GR 8F

Head Marking (Specification and Manufacturer): 8FB CARDINAL IND. PROD. MJ4 "C"

**Class/Procurement Level: QA-N, QL-05

General Plant Application (e.g., Pressure Boundary, Structural) PRESSURIZER SAFETY RELI
VALVE FLANGES DCCNP TAG ME 182 -VKV-SV-045

Vendor: CARDINAL INDUSTRIAL PRODUCTS P.O.#37203-042-7X WRITTEN 10-1-37
3873 W. Oquendo, Las Vegas, NV 89118

MFR: Same as above.

QA Requirements Imposed on Vendor: CMTR, PT, CERT OF CONFORMANCE, VISUAL EXAM, MARKINGS
PER DCCPV105QCN

Licensee Representative:

Signature *R. E. Kinsley* Date 1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCC:IP/30-046903/ASP9611

Fastener Description: 3/4" SS HVY HEX NUT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, A359H4

Material Specification as Documented by Licensee Records: ASTM A-194 GR 3F

Head Marking (Specification and Manufacturer): 3F "  " HIGHLAND THREADS

**Class/Procurement Level: QA-N; QL-05

General Plant Application (e.g., Pressure Boundary, Structural) RFC-2713
GENERAL SAFETY & NON-SAFETY RELATED USE

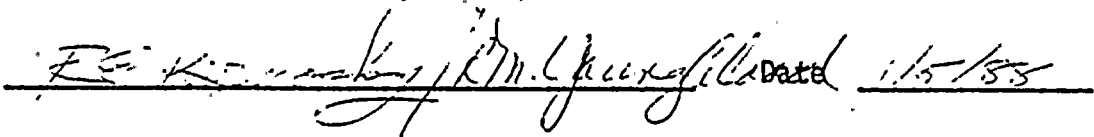
Vendor: HARDWARE SPECIALTY P.O.#01244-041-7 WRITTEN 4-13-87
4875-36th St., Long Island City, N.Y. 11101

MFR: Highland Threads, 708 Tidwell, Houston, TX 77022

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE VISUAL
EXAM MARKINGS PER DCCPV1050CN

Licensee Representative:

Signature



*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1.

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/30-047310/ ASP 0300

Fastener Description: 7/8" SS HWY HEX NUT

Description of Sample Stock Location: SECURED LEVEL B STORAGE, C

Material Specification as Documented by Licensee Records: ASTM A-194 GR 8F

Head Marking (Specification and Manufacturer): 8F B "N" NOVA MACHINE

**Class/Procurement Level: QA-N, QL-05

General Plant Application (e.g., Pressure Boundary, Structural) BONNET STUDS & NUTS ON EAST RESIDUAL HEAT REMOVAL PUMP DISCHARGE CHECK VALVE PP-035

Vendor: NOVA MACHINE P.O.#72032-040-7X WRITTEN 2-5-07

P.O. Box 30287, Middleburg Hts, OH 44130

MFR: Same as above.

QA Requirements Imposed on Vendor: CERT OF COMPLIANCE, CERT OF CONFORMANCE, MARKINGS, VISUAL EXAM PER DCCPV1050CN & DCCPV1040CS

Licensee Representative:

Signature *R. M. Youngblood* Date 1-5-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

QA-N: Safety Related

QL-05: Equivalent to ASME III Pipe Material Class 1

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-242400

Fastener Description: $\frac{1}{2}$ " X $1\frac{1}{2}$ " HX HD BOLT W/NUT

Description of Sample Stock Location: UNSECURED LEVEL B STORAGE, A034F3

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): NONE ON BOLT OR NUT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC USE NON-SAFETY RELATED

Vendor: LAST RECEIPT: FLEXALLOY P.O.#38646-040-7
7951 Zionsville Rd, Indianapolis, IN 46268

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

RE. King

Date

11-5-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.
N/A

QA-S: Non-safety Related

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-248600

Fastener Description: 5/8" X 1 1/2" BLACK HX HD BOLT W/ NUT.

Description of Sample Stock Location: UNSECURED LEVEL B STORAGE, A035D2

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): ☒ ON BOLT/ NONE ON NUT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

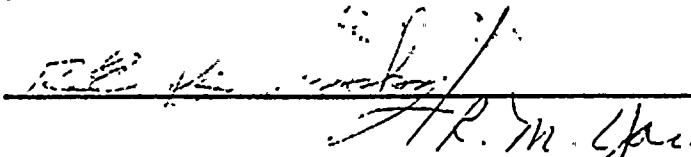
General Plant Application (e.g., Pressure Boundary, Structural) GENERIC USE
NON SAFETY RELATED

Vendor: LAST RECEIPT: ZIEGLERS P.O.#39850-040-7
Ziegler Bolt and Nut House, P.O. Box 80369 STA.C
Canton, OH 44708

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature



Date

1/2/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-253200

Fastener Description: 3/4" X 3" HX HD BOLT W/NUT

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE, A036D1

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): ZBH ON BOLT/ NONE ON NUT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC USE NON-SAFETY RELATED

Vendor: LAST RECEIPT: ZIEGLERS P.O.#42140-042-7
Ziegler Bolt and Nut House
P.O. Box 80369 STA.C, Canton, OH 44708

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

[Handwritten Signature]
[Handwritten Signature]

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-258400

Fastener Description: 7/8" X 4" HX HD BOLT W/HVY HX NUT.

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE, A037D1

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): NONE ON NUT OR BOLT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE.

Vendor: LAST RECEIPT : ZIEGLER P.O.#39494-040-5
Ziegler Bolt and Nut House
P.O. Box 80369 STA.C, Canton, OH 44708

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

Date

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-261580

Fastener Description: 1" X 2" HX HD BOLT W/ HVY HX NUT

Description of Sample Stock Location: UNSECURED LEVEL C, STORAGE, A037F1

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): NONE ON BOLT OR NUT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE.

Vendor: LAST RECEIPT: ZIEGLER P.O.#37424-042-5
Ziegler Bolt and Nut House
P.O. Box 80369 STA.C, Canton, OH 44708

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R.M. Springfield Date 1/5/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-259000

Fastener Description: 7/8" X 6" HX HD BOLT W/HVY HX NUT

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE, A037E2

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): NONE ON BOLT OR NUT

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE.

Vendor: LAST RECEIPT: FLEXALLOY P.O. 38646-040-7
7951 Zionsville Rd
Indianapolis, IN 46268

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R. M. Youngblood

Date

1/15/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-772250

Fastener Description: 1/2" X 2" ALL THD STUD

Description of Sample Stock Location: UNSECURED LEVEL B STORAGE, A106H2

Material Specification as Documented by Licensee Records: ASTM A-193 GR B7

Head Marking (Specification and Manufacturer): NONE

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON SAFETY RELATED USE.

Vendor: I & M MAINT RETURN; Butler Bolt & Nut P.O. #3100-C-182 1986
P.O. Box 3505 3922 West Cleveland Rd. South Bend, Indiana 46619

QA Requirements Imposed on Vendor: UNKNOWN, PRESUMED NONE

Licensee Representative:

Signature

[Handwritten Signature]
H.R.M. Spurgeland

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP-112412 BOLT

Fastener Description: 1½" X 4½" HX HD BOLT

Description of Sample Stock Location: A039G1, UNSECURED LEVEL C STORAGE

Material Specification as Documented by Licensee Records: NOT STOCK ITEM UNKNOWN

Head Marking (Specification and Manufacturer):



**Class/Procurement Level: QA-S

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON SAFETY RELATED USE

Vendor: UNKNOWN

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R. M. Youngblood

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.
N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-930500

Fastener Description: 3/4" X 3 1/2" SQUARE HEAD SS BOLT

Description of Sample Stock Location: UNSECURED LEVEL B STORAGE, A10511

Material Specification as Documented by Licensee Records: TP 304 SS

Head Marking (Specification and Manufacturer): NONE

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE

Vendor: LAST RECEIPT: K&D SELECT FASTENERS P.O.#33572-040-6
2457 American Lane, Elk Grove Village, IL 60007

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R. E. Kinney
R. M. Youngblood

Date

1/5/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

D. C. COOK NUCLEAR PLANT

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/31-930900

Fastener Description: 1" X 2" SS HX HD BOLT W/HVY HX NUT

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE A106J1

Material Specification as Documented by Licensee Records: TP-304 SS

Head Marking (Specification and Manufacturer): NONE

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE.

Vendor: LAST RECEIPT: ACTION THREADED PRODUCTS P.O. #40453-252-8
7440 W. 100th Place, Bridgeview, IL 60455

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

T.E. Kennedy
H.M. Gargallo

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/33-306000

Fastener Description: 1 1/2" HWY HEX NUT

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE, A038G4

Material Specification as Documented by Licensee Records: ASTM A307 GRA

Head Marking (Specification and Manufacturer): H

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON SAFETY RELATED USE

Vendor: FASTENER SYSTEMS P.O.#36228-042-0
5331 W. 86th Street, Indianapolis, IN 46268

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R.E. K...
J.R.M. G...

Date

11-15-88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/12 CS NUT

Fastener Description: 1/2" HX NUT

Description of Sample Stock Location: UNSECURED LEVEL C STORAGE, A034F6

Material Specification as Documented by Licensee Records: ASTM A-307 GRA

Head Marking (Specification and Manufacturer): NONE

**Class/Procurement Level: QA-S STANDARD EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON SAFETY RELATED USE.

Vendor: UNKNOWN-ASSEMBLED W/1/2" BOLTING STOCK

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

DEK
J.R.M. (signature)

Date

5/85

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

Attachment 1

Fastener Testing Data Sheet

*Sample ID# DCCNP/33-513000

Fastener Description: 3/4" SS HVY HEX NUT

Description of Sample Stock Location: UNSECURED LEVEL B STORAGE, A105E2

Material Specification as Documented by Licensee Records: TP 316 SS

Head Marking (Specification and Manufacturer): 316

**Class/Procurement Level: QA-S STANDARD, EXEMPT PRODUCTION MATERIAL

General Plant Application (e.g., Pressure Boundary, Structural) GENERIC NON-SAFETY RELATED USE

Vendor: LAST RECEIPT: ZIEGLER BOLT P.O.#39494-040-5
Ziegler Bolt and Nut House
P.O. Box 80369, STA.C, Canton, OH 44708

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature

R. M. Youngblood

Date

1/5/88

*The sample ID# shall have a prefix that contains the licensee facility initials.

**If applicable, please provide an explanation for your classification system.

N/A

QA-S: Non-safety Related

ATTACHMENT NO. 2

TO

AEP:NRC:1045

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-193 Gr B7 Bolts/Studs

Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>						
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S	Si	Mo	Cr
DCCNP/30-028980/ ASP9708	30.5 Rc	141,500	124,300	0.37	0.72	0.010	0.013	0.22	0.20	0.87
DCCNP/30-029918/ ASP6071	29.5 Rc	133,100	113,200	0.40	0.91					0.012 0.01
DCCNP/30-046489/ ASP9735	27.5 Rc	135,700	116,300	0.35	0.89					0.011 0.01
DCCNP/30-046542/ ASP6110	32 Rc	143,300	127,800	0.44	0.89	0.007			0.023	0.23
DCCNP/30-046403/ ASP9673	29 Rc	138,000	122,700	0.40	0.84	0.006	0.023	0.17	0.20	0.93

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Mo - Molybdenum; Cr - Chromium.

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-193 Gr B8 Bolts/Studs

Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>						
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S	Si	Ni	Cr
DCCNP/30-029989/ ASP9828	89 Rb	83,600	37,400	0.03	1.62	0.025	0.033	0.83	9.44	18.26
DCCNP/30-046730/ ASP4184	87 Rb	106,400	51,000	0.06	0.81	0.013	<0.005	0.65	8.30	18.85
DCCNP/30-046785/ ASP4184	89 Rb	90,900	47,000	0.05	1.78					0.031 0.01

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Ni - Nickel; Cr - Chromium.

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-193 Gr B8M Stud

Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>							
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S	Si	Mo	Ni	Cr
DCCNP/30-047030/ ASP9369	89 Rb	92,700	57,100	0.05	1.40	0.019	0.023	0.18	2.15	12.26	18.00

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Mo - Molybdenum; Ni - Nickel; Cr - Chromium.

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-453 Gr. 660 Cl B Stud

Safety-Related

Mechanical Analysis

Chemical Analysis (%)

ID#	Hardness	UTS(psi)	0.2% YS(psi)	C	Mn	B	P	V	S	Ni	Si	Ti	Mo	Al	Cr
DCCNP/30-047100/ ASP9366	33 Rc	156,600	101,700	0.05	0.13	0.006	.013	0.31	<0.005	24.0	0.01	2.16	1.12	0.20	14.41

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; B - Boron; P - Phosphorus;
V - Vanadium; S - Sulfur; Ni - Nickel; Si - Silicon; Ti - Titanium; Mo - Molybdenum; Al - Aluminum; Cr - Chromium

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-194 Gr 2H Heavy Hex Nuts

Safety-Related

ID#	<u>Mechanical Analysis</u>		<u>Chemical Analysis (%)</u>			P	S
	Hardness		C				
DCCNP/30-028980/ ASP9708							
Nut A	32 Rc		0.47				0.014
Nut B	32 Rc		0.45	0.012	0.022		
DCCNP/30-029918/ ASP6071							
Nut A	26 Rc		0.46	0.007	0.025		
Nut B	26 Rc		0.46	0.007	0.025		
DCCNP/30-046625/ ASP3693	31 Rc		0.44	0.019	0.012		
DCCNP/30-046627/ ASP3631	27 Rc		0.42				0.021
DCCNP/30-046622/ ASP9224	32.5 Rc		0.44				0.010

Note: C - Carbon; P - Phosphorus; S - Sulfur

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-194 Gr 8 Heavy Hex Nuts

Safety-Related

ID#	<u>Mechanical Analysis</u>	<u>Chemical Analysis (%)</u>						
	Hardness	C	Mn	P	S	Si	Ni	Cr
DCCNP/30-047375/ ASP9888	88 Rb	0.06	1.79	0.030	0.018	0.50	8.90	18.10
DCCNP/30-046906/ ASP4184	86.5 Rb	0.06	1.83	0.029	<0.005	0.51	9.13	18.57

Note: C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Ni - Nickel; Cr - Chromium

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-194 Gr 8F Heavy Hex Nuts

Safety-Related

ID#	<u>Mechanical Analysis</u>	<u>Chemical Analysis (%)</u>						
	Hardness	C	Mn	P	S	Si	Ni	Cr
DCCNP/30-046915/ ASP9828	87.5 Rb	0.09	1.91	0.018	0.324	0.39	8.80	17.39
DCCNP/30-046903/ ASP9611	92 Rb	0.05	1.73	0.030	0.166	0.37	8.63	17.54
DCCNP/30-047310/ ASP9369	89 Rb	0.05	1.76	0.030	0.324	0.14	8.54	17.45

Note: C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Ni - Nickel; Cr - Chromium

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

SA-307 Gr A Bolts

Non-Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>			
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S
DCCNP/31-242400	20.5 Rc	94,700	85,200	0.23	0.42	0.018	0.012
DCCNP/31-248600	97.5 Rb	96,800	79,100	0.12	0.67	0.009	0.028
DCCNP/31-253200	92 Rb	98,700	92,900	0.25	0.40	0.016	0.029
DCCNP/31-258400A	82 Rb	68,000	59,100	0.06	0.37	0.012	0.008
DCCNP/31-261580	21.5 Rc	82,600	72,400	0.08	0.51	0.028	0.033
DCCNP/31-259000	82 Rb	67,400	61,700	0.07	0.40	0.020	0.34

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur

ATTACHMENT 2

DONALD G. COOK NUCLEAR PLANT

Data Summary

SA-193 Gr B7 Stud

Non-Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>						
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S	Si	Mo	Cr
DCCNP/31-772250	85.5 Rb	*74,200	* 65,800	*0.07	*0.46	0.006	0.031	*0.01	*0.06	*0.13

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Mo - Molybdenum; Cr - Chromium.

* Properties found out of specification.

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

Carbon Steel Hex Head Bolt

Non-Safety-Related

<u>ID#</u>	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>				
	<u>Hardness</u>	<u>UTS (psi)</u>	<u>0.2% YS (psi)</u>	<u>C</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Si</u>
DCCNP/112412	24.5 Rc	122,800	90,400	0.43	0.99	0.020	0.027	0.24

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

Type 304 Stainless Steel Bolts

Non-Safety-Related

ID#	<u>Mechanical Analysis</u>			<u>Chemical Analysis (%)</u>							
	Hardness	UTS (psi)	0.2% YS (psi)	C	Mn	P	S	Si	Ni	Mo	Cr
DCCNP/31-930500	88 Rb	100,300	39,800	0.06	2.03	0.034	0.015	0.72	8.27	0.27	18.72
DCCNP/31-930900	82.5 Rb	98,400	60,100	0.04	1.50	0.032	0.012	0.54	10.14	0.24	18.83

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Ni - Nickel; Mo - Molybdenum; Cr - Chromium.

ATTACHMENT 2

DONALD G. COOK NUCLEAR PLANT

Data Summary

SA-563 Gr A Heavy Hex Nuts

Non-Safety-Related

ID#	<u>Mechanical Analysis</u>	<u>Chemical Analysis (%)</u>			
	Hardness	C	Mn	P	S
DCCNP/31-242400	96.5 Rb	0.19	0.69	0.007	0.027
DCCNP/31-248600	96 Rb	0.03	0.66	0.014	0.019
DCCNP/31-253200	96.5 Rb	0.02	0.48	0.021	0.009
DCCNP/31-258400A	93 Rb	0.17	0.53	0.011	0.007
DCCNP/31-261580	82.5 Rb	0.21	0.44	0.014	0.011
DCCNP/31-259000	85.5 Rb	0.36	0.69	0.018	0.026
DCCNP/33-306000	65.0 Rb	0.12	0.50	0.011	0.015

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

Type 304 Stainless Steel Heavy Hex Nut

Non-Safety-Related

<u>Mechanical Analysis</u>		<u>Chemical Analysis (%)</u>							
<u>ID#</u>	<u>Hardness</u>	<u>C</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Si</u>	<u>Ni</u>	<u>Mo</u>	<u>Cr</u>
DCCNP/31-930900	21 Rc	0.04	1.78	0.016	0.007	0.45	10.68	0.28	17.41

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Ni - Nickel; Mo - Molybdenum; Cr - Chromium.

ATTACHMENT 2

DONALD C. COOK NUCLEAR PLANT

Data Summary

Type 316 Stainless Steel Hex Nut

Non-Safety-Related

<u>ID#</u>	<u>Mechanical Analysis</u>	<u>Chemical Analysis (%)</u>							
	Hardness	C	Mn	P	S	Si	Ni	Mo	Cr
DCCNP/33-513000	28 Rc	0.02	1.05	0.033	0.016	0.56	11.13	2.03	16.53

Note: UTS - Ultimate Tensile Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; P - Phosphorus; S - Sulfur;
Si - Silicon; Ni - Nickel; Mo - Molybdenum; Cr - Chromium.

