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ILLINOIS POWER COMPANY



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

January 15, 1988

Docket No. 50-461

Mr. A. B. Davis
Region Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Clinton Power Station
Response to NRC Bulletin No. 87-02

Dear Mr. Davis:

This letter is in response to NRC Bulletin Number 87-02 "Fastener Testing to Determine Conformance with Applicable Material Specifications." The Attachments provide information about Illinois Power Company's program for verification of the chemical and mechanical quality of fasteners used at Clinton Power Station, and receipt inspection and internal control procedures for fasteners.

I hereby affirm that the information in this letter is correct to the best of my knowledge.

Sincerely yours,

A handwritten signature in cursive script that reads 'D. P. Hall'.

D. P. Hall
Vice President

REL/ckc

Attachments

cc: J. A. Stevens, NRC Clinton Licensing Project Manager
NRC Resident Inspector
NRC Document Control Desk
Illinois Department of Nuclear Safety

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Attachment 1

The following information contains Illinois Power Company's (IP) Clinton Power Station (CPS) response to the action items referenced in NRC Compliance Bulletin 87-02.

Action Item #1

Describe a) the characteristics currently examined during receipt inspection of fasteners (i.e., head markings for grade and manufacturer symbols, review of certified materials 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:

- a. Procurement of any item at CPS requires a requisition identifying the following information.
 1. A complete description of the item.
 2. The intended end-use of the item, i.e. a specific equipment identification number (EIN) or general application, etc.
 3. Storeroom information: quantities to order, quantities to be kept in stores, etc.
- b. The requisition is forwarded to Nuclear Station Engineering (NSED) Procurement Engineering section for evaluation. NSED establishes the procurement requirements based on the intended end-use and the determination of whether the item performs or impacts a safety-related function of the component. NSED establishes the necessary Quality/Technical requirements the product/item must satisfy for acceptance. Normally this includes receipt inspection criteria (i.e., identification of the item so the description of the purchase order) and documentation required (i.e., Certificate of Compliance/Conformance with Certified Material Test Reports for each lot/batch, etc).
- c. During receipt inspection, the items are inspected to the identified NSED criteria. Inspection of fasteners and similar products at receipt normally consists of the following:
 1. The part/item meets the Quality/Technical requirements identified by NSED (reference section (b), grade marking, length, thread pitch, outside diameter, etc.)

2. Traceability between item and vendor supplied documentation is verified.
 3. The chemical/physical properties are reviewed against the identified specification criteria (i.e., A-193 B7).
 4. A visual inspection of workmanship to ensure the item is free of loose scale, has no excessive burrs, laps, seams, cracks, bursts, voids, or other surface defects which would be detected by visual examination.
 5. Verification that the vendor is on the Qualified Suppliers listing, as applicable.
- d. After material has been accepted by Quality Control (QC), it is forwarded to Materials Management for placing into storeroom stock or direct turnover for work by maintenance personnel. Material needed for a specific maintenance activity is normally identified by IP Stock Code Number (SC) on the Maintenance Work Request (MWR) by the maintenance planner. For quality related MWRs, Quality Engineering normally requires QC to perform parts verification of all parts being installed. This parts verification is comprised of:
1. Verification that the stock code used has been evaluated by NSED for the end-use.
 2. The parts have a QC accept tag as applicable.
 3. Verifying the item being installed is "like for like" wherever possible. When the item cannot be verified as "like for like," the specific reason is noted on the work document.

Action Item #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:

IP selected twenty samples for testing as required by NRC Compliance Bulletin 87-02. The bulletin required ten (10) safety and ten (10) non-safety samples; however, due to Clinton Power Station's effort to eliminate non-safety fastener stock, several of the non-safety samples were substituted with safety related material. During the selection process, IP attempted to provide as many of the specifications and grades of fasteners referenced in the bulletin as possible. Each fastener was obtained from stock with an IP Quality Assurance (QA) Representative and the Senior NRC Resident Inspector present.

Action Item #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:

The selection process for the nuts was identical to the selection process for the fasteners.

Action Item #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 testing facility utilized was St. Louis Testing Laboratories, an approved vendor for IP. Chemical testing was performed on all samples, mechanical testing was performed on each safety related fastener, and hardness testing was performed on each nut and non-safety related fastener. Testing was performed in accordance with each sample's applicable specification, grade and class with the exception of samples CPS-5, CPS-8, CPS-9, CPS-17 and CPS-19.

St. Louis Testing Laboratories utilized a machined specimen for mechanical testing of the fasteners in lieu of performing full size tests as required by the material specifications. The mechanical properties for these samples were evaluated by using the acceptance criteria for tests utilizing machined specimens. Since full size tests were required for the diameters of the fasteners submitted, IP will have additional fasteners tested to the requirement of Bulletin 87-02. The testing was performed in accordance with the requirements of St. Louis Testing Laboratories' QA Program.

Action Item #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 #2 provides the supporting information on the fastener samples. Attachment #3 provides the test results of the fastener samples. Attachment #4 provides the name and address of the suppliers and manufacturers of the fastener samples. Manufacturers could not be identified for all fasteners due to the lack of a head marking on some non-safety samples and a socket head configuration on one safety sample, or due to a head marking which NSED could not identify to the manufacturer. The associated head markings which were traceable to the manufacturers have been identified beside each manufacturer on Attachment #4.

Sample CPS-3 capscrew is identified by the CPS stock code as a SAE J429 Grade 8 body to bonnet capscrew for a non-safety Rockwell International globe valve. The capscrew was described on the purchase order as SAE Grade 8 material with reference to the applicable drawing/item number and valve size and model. Rockwell supplied a capscrew for the applicable valve size and model with reference to a part number. The supplied capscrew was A193 grade B7 material and successfully passed the hardness and chemical testing for this specification.

The yield strength of Sample CPS-18 bolt tested at 80,079 psi which is below the minimum allowable yield strength of 105,000 psi for SA320 Grade L7 material. NSED did not perform an engineering evaluation for impact because no end

use could be identified for the bolts. Based on a physical count of the bolts in the warehouse as compared to the number of bolts received, NSED has determined none of the bolts have been issued for use. Since these bolts were not installed, there was no impact on safe operation of the plant.

The ultimate tensile strength of Sample CPS-19 stud tested at 103,170 psi which is above the maximum allowable tensile strength of 100,000 psi for A307 Grade B bolts. Based on the small deviation in tensile strength (3.1%), NSED has determined the bolt will perform its required function as-is and is not safety significant.

St. Louis Testing reported the hardness of Sample CPS-20 bolt as B97.9 which is above the maximum allowable hardness of B95 for SA307 Grade B bolts. Subsequent testing at the mid-radius of the threaded area revealed a hardness of B96.1 which is also above the maximum allowable hardness. Since the actual tensile strength of the bolt is acceptable and the hardness exceeds the required maximum by only 1.1 which is within the accuracy of the testing device, NSED has determined the bolt is acceptable and is not safety significant.

Action Item #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:

IP has reviewed the fastener test results which included acceptance of all chemical tests and a determination that the mechanical test failures were insignificant. IP has reviewed the applicable procedures at CPS which included procurement, receipt, issuance and installation processes. Based on the above reviews, IP has determined adequate assurance exists at CPS that the fasteners used in our plant meet fastener specification requirements and that operability of safety-related plant components is not affected.

Test failures were documented on a condition report which is used by CPS to determine remedial and generic corrective actions to be taken and to track their completion. The tentative action plan to accomplish this is to evaluate all test result discrepancies; perform additional testing, as required, to substantiate test results; based on the evaluation, determine the disposition of the fasteners affected (i.e., use-as-is/scrap); and determine reportability of failures in accordance with 10CFR Part 21.

Fastener Testing Data Sheet

*Sample ID# CPS-1

Fastener Description: 5/8" - 11 x 2 1/2" Long Hex Bolt

Description of Sample Stock Location: R-M-7-G-5 St. Cd. NW9358

Material Specification as Documented by Licensee Records: SAE J429 Gr. 5

Head Marking (Specification and Manufacturer): Spec $\sqrt{}$ Manf Δ

**Class/Procurement Level: Level III Commercial, I.P. to dedicate for safety applications.

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Service Supply Company

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature Quane Hays 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.

Fastener Testing Data Sheet

*Sample ID# CPS-1

Fastener Description: 5/8" - 11 Heavy Hex Nut

Description of Sample Stock Location: R-B-6-C-4 St. Cd. NA2226

Material Specification as Documented by Licensee Records: A194 Gr. 2H

Head Marking (Specification and Manufacturer): Spec. 2H Manf. F

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Barr-Saunders

QA Requirements Imposed on vendor: None

Licensee Representative:

Signature Quane Huggs 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.

Fastener Testing Data Sheet

*Sample ID# CPS-2

Fastener Description: 3/4" - 10 x 4" Long Socket Head Capscrew

Description of Sample Stock Location: R-C-5-F-3 St. Cd. N29901

Material Specification as Documented by Licensee Records: SAE J429 Gr 8 or equivalent.

Head Marking (Specification and Manufacturer): Spec - None Manf. - None

**Class/Procurement Level: Level IV Non-safety

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Service Supply Company

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature Quane Shiga 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.

Fastener Testing Data Sheet

*Sample ID# CPS-2

Fastener Description: 3/4" - 10 Heavy Hex Nut

Description of Sample Stock Location: PW-4 A-5-9-2 RIR S23700

Material Specification as Documented by Licensee Records: A-563 Gr A

Head Marking (Specification and Manufacturer): Spec - None Manf-C

Additional markings 2H, DH-1

**Class/Procurement Level: ASME Section III Subsection NF Class 1

General Plant Application (e.g., Pressure Boundary, Structural)
Components Supports

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800/NA3700, Appendix B. Part 21

Licensee Representative:

Signature

Dwaine Hyatt

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.

Fastener Testing Data Sheet

*Sample ID# CPS-3

Fastener Description: 1/2" - 13 x 1 3/8" Long Hex Capscrew

Description of Sample Stock Location: R-A-6-E-1 St. Cd. NA1180

Material Specification as Documented by Licensee Records: SAE J429 Gr 8 or equivalent

Head Marking (Specification and Manufacturer): Spec. - B7 Manf. T

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Rockwell International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature Quane Higgs 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.

Fastener Testing Data Sheet

*Sample ID# CPS-3

Fastener Description: 1/2" -13 Heavy Hex Nut

Description of Sample Stock Location: PW-4 A-5-12-12 RIR S22706

Material Specification as Documented by Licensee Records: SA 307 Gr. B

Head Marking (Specification and Manufacturer): Spec. 2H, DH, ² Manf. - C

**Class/Procurement Level: ASME Section III Subsection NF Class 2

General Plant Application (e.g., Pressure Boundary, Structural)
Component Supports

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NA 3700, Appendix B, Part 21

Licensee Representative:

Signature Quane Hygo 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.

Fastener Testing Data Sheet

*Sample ID# CPS-4

Fastener Description: 3/8" - 16 x 3/4" Long Hex Bolt

Description of Sample Stock Location: A-5-13-3 St. Cd. NA0456

Material Specification as Documented by Licensee Records: A449

Head Marking (Specification and Manufacturer): Spec / \, Manf. - None

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Wilkins Pipe

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature *James Dugga* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-4

Fastener Description: 3/8" - 16 Heavy Hex Nut

Description of Sample Stock Location: R-E-4 x -4 St. Cd. NZ0752

Material Specification as Documented by Licensee Records: SA194 Gr. 8

Head Marking (Specification and Manufacturer): Spec. - 8B Manf. CF

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NONE

Licensee Representative:

Signature *Duane Duggs* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-5

Fastener Description: 3/4" - 10 x 3" Long Hex Bolt

Description of Sample Stock Location: PW-4 A-4-17-3 RIR S20311

Material Specification as Documented by Licensee Records: A490 Type 1

Head Marking (Specification and Manufacturer): Spec A490 Manf. LE

**Class/Procurement Level: Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural)
Structural, Component Supports

Vendor: The Fastener House

QA Requirements Imposed on Vendor: Appendix B. Part 21

Licensee Representative:

Signature *Duane Thayer* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-5

Fastener Description: 3/4" - 10 Hex Nut

Description of Sample Stock Location: PW-4 A-5-9-2 RIR S23700

Material Specification as Documented by Licensee Records: A563 Gr. A

Head Marking (Specification and Manufacturer): Spec. - None Manf. - C
Additional Markings 2H DH-1

**Class/Procurement Level: ASME Section III Subsection NF Class 1

General Plant Application (e.g., Pressure Boundary, Structural)
Components Supports

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NA3700, Appendix B, Part 21

Licensee Representative:

Signature

Dwight Hays

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.

Fastener Testing Data Sheet

*Sample ID# CPS-6

Fastener Description: 1/2" - 13 x 3" Long Stud

Description of Sample Stock Location: R-A-6-A-10 St. Cd. NA0002

Material Specification as Documented by Licensee Records: A193 Gr. B7

Head Marking (Specification and Manufacturer): Spec. - B7 Manf. - T

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Crane Valve Company

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature *Duane Schupp* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-6

Fastener Description: 1/2" - 13 Hex Nut

Description of Sample Stock Location: R-A-6-A-10 St. Cd. NA0002

Material Specification as Documented by Licensee Records: A194 Gr. 2H

Head Marking (Specification and Manufacturer): Spec. - 2H Manf. - K

**Class/Procurement Level: Level IV Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural)

Pressure Boundary

Vendor: Crane Valve Company

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature

Quane Stupp

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.


Fastener Testing Data Sheet

*Sample ID# CPS-7

Fastener Description: 3/4" - 10 x 5 5/8" Long Hex Bolt

Description of Sample Stock Location: B-R-31-D-1 St. Cd. NK4020

Material Specification as Documented by Licensee Records: A193 Gr. B7

Head Marking (Specification and Manufacturer): Spec B7 Manf.  or J

**Class/Procurement Level: Non-Safety

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Service Supply Company

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature *Dwaine Huggs* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-7

Fastener Description: 3/4" - 10 Heavy Hex Nut

Description of Sample Stock Location: PW-4 A-2-10-3 RIR S23881

Material Specification as Documented by Licensee Records: SA194 Gr. 4

Head Marking (Specification and Manufacturer): Spec. 4 Manf. C

**Class/Procurement Level: ASME Section III Subsection NF Class 2

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800/NA3700 Appendix B, Part 21

Licensee Representative:

Signature *Duane Hupp* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-8

Fastener Description: 7/8" - 9 x 3" Long Hex Bolt

Description of Sample Stock Location: PW-4 A-4-11-2 S25593

Material Specification as Documented by Licensee Records: A325 Type 1

Head Marking (Specification and Manufacturer): Spec A325, /, Manf. RBW

**Class/Procurement Level: Safety Related Non ASME

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: The Fastener House

QA Requirements Imposed on Vendor: Appendix B, Part 21

Licensee Representative:

Signature

Duane Shyde

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.

Fastener Testing Data Sheet

*Sample ID# CPS-8

Fastener Description: 7/8" - 9 Jam Nut

Description of Sample Stock Location: PW-4 A-5-11-2 RIR S22078

Material Specification as Documented by Licensee Records: SA-307 Gr. B

Head Marking (Specification and Manufacturer): Spec. NONE Manf. BIS

**Class/Procurement Level: ASME Section III Subsection NF Class 2

General Plant Application (e.g., Pressure Boundary, Structural)
Structural, Component Supports

Vendor: Precision Nuclear

QA Requirements Imposed on Vendor: NA3700, Appendix B, Part 21

Licensee Representative:

Signature

Duane Hyatt

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.

Fastener Testing Data Sheet

*Sample ID# CPS-9

Fastener Description: 1" - 8 x 4" Long Hex Bolt

Description of Sample Stock Location: PW-4 A-4-6-2 RIR S25593

Material Specification as Documented by Licensee Records: A325 Type 1

Head Marking (Specification and Manufacturer): Spec A325, 1, Manf. RBW

**Class/Procurement Level: Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural)
Structural

Vendor: The Fastener House

QA Requirements Imposed on Vendor: Appendix B, Part 21

Licensee Representative:

Signature Quora Thynn 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.

Fastener Testing Data Sheet

*Sample ID# CPS-9

Fastener Description: 1" - 8 Heavy Hex Nut

Description of Sample Stock Location: PW-4 A-2-11-2 RIR S20245

Material Specification as Documented by Licensee Records: A194 Gr. 2H

Head Marking (Specification and Manufacturer): Spec. 2H Manf. C
Additional Marking CD

**Class/Procurement Level: Safety-Related NON-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural)
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: Appendix B, Part 21

Licensee Representative:

Signature Duane Skypz 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.

Fastener Testing Data Sheet

*Sample ID# CPS-10

Fastener Description: 5/8" - 11 x 3" Long Stud

Description of Sample Stock Location: PW-4

Material Specification as Documented by Licensee Records: A193 Gr. B7

Head Marking (Specification and Manufacturer): Spec. B7 Manf. None

**Class/Procurement Level: NON-Safety

General Plant Application (e.g., Pressure Boundary, Structural)
Pressure Boundary

Vendor: Unknown

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature *Duane Duggs* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-10

Fastener Description: 5/8" - 11 Jam Nut

Description of Sample Stock Location: PW-4 A-5-14-3 RIR S23953

Material Specification as Documented by Licensee Records: A563 Gr. B

Head Marking (Specification and Manufacturer): None

**Class/Procurement Level: ASME Section III Subsection NB Class 1

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Energy Steel & Supply

QA Requirements Imposed on Vendor: NA3700, Appendix B, Part 21

Licensee Representative:

Signature *Diane Stupp* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-11

Fastener Description: $\frac{1}{2}$ " - 13 X $1\frac{1}{2}$ " Long Hex Bolt

Description of Sample Stock Location: PW-4 A-4-6-3 RIR S21773

Material Specification as Documented by Licensee Records: SA307 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf - C
Additional Marking D-1

**Class/Procurement Level: ASME Section III Subsection NF Class II

General Plant Application (e.g., Pressure Boundary, Structural) Component Supports

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800/NA 3700, Appendix B, Part 21

Licensee Representative:

Signature *Dwaine Shipp* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-11

Fastener Description: $\frac{1}{2}$ " - 13 Jam Nut

Description of Sample Stock Location: PW-4 A-5-6-2 RIR S21766

Material Specification as Documented by Licensee Records: SA307 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf - FC

**Class/Procurement Level: ASME Section III Subsection NF Class 2

General Plant Application (e.g., Pressure Boundary, Structural) Component Supports

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800/ NA 3700, Appendix B, Part 21

Licensee Representative:

Signature Quane Hypp 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.

Fastener Testing Data Sheet

*Sample ID# CPS-12

Fastener Description: 1 1/8" - 8 X 5 1/2" Long Hex Bolt

Description of Sample Stock Location: PW-4 A-2-15-2 RIR S20541

Material Specification as Documented by Licensee Records: SA564 Gr 630 H900

Head Marking (Specification and Manufacturer): Spec 630 Manf - C

**Class/Procurement Level: ASME Section III, Subsection NC, Class II

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Chicago Tube & Iron

QA Requirements Imposed on Vendor: NCA 3800/NA 3700, Appendix B, Part 21

Licensee Representative:

Signature *Dwaine Hogg* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-12

Fastener Description: 1 1/8" - 8 Heavy Hex Nut

Description of Sample Stock Location: PW-4 A-2-15-4 RIR S22278

Material Specification as Documented by Licensee Records: SA194 Gr 2H

Head Marking (Specification and Manufacturer): Spec 2-H Manf - T
Additional Marking OL8

**Class/Procurement Level: ASME Section III, Subsection NC, Class II

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Texas Bolt

QA Requirements Imposed on Vendor: NA 3700 Appendix B, Part 21

Licensee Representative:

Signature *Dwaine Thayer* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-13

Fastener Description: $\frac{1}{2}$ " - 13 X 6" Long Hex Bolt

Description of Sample Stock Location: R-A-21-A-24 St, Cd, SZ0835

Material Specification as Documented by Licensee Records: SA193 Gr B8M

Head Marking (Specification and Manufacturer): Spec B8M Manf C

**Class/Procurement Level: Level I, ASME Section III, Subsection NB,
Class I, and Subsection NF, Class I

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary &
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature Quane Hogg 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.

Fastener Testing Data Sheet

*Sample ID# CPS-13

Fastener Description: $\frac{1}{2}$ " - 13 Heavy hex Nut

Description of Sample Stock Location: R-A-21-A-1 St, Cd. SZ0610

Material Specification as Documented by Licensee Records: SA194 Gr 8M

Head Marking (Specification and Manufacturer): Spec - 8MB Manf C

**Class/Procurement Level: Level I, ASME Section III, Subsection NB,
Class I, and Subsection NF, Class I

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary &
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature

Duane Huggs

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.

Fastener Testing Data Sheet

*Sample ID# CPS-14

Fastener Description: 3/8" - 16 X 1 1/2" Long Hex Bolt

Description of Sample Stock Location: R-C-5-L-4 St Cd SZ9777

Material Specification as Documented by Licensee Records: A307 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf EIS

**Class/Procurement Level: Level II Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Energy Steel & Supply

QA Requirements Imposed on Vendor: Partial Appendix B

Licensee Representative:

Signature *Duane Huggs* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-14

Fastener Description: 3/8" - 16 Heavy Hex Nut

Description of Sample Stock Location: R-C-5-L-4 St Cd S29777

Material Specification as Documented by Licensee Records: A563 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf BIS

**Class/Procurement Level: Level II Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: Energy Steel & Supply

QA Requirements Imposed on Vendor: Partial Appendix B

Licensee Representative:

Signature

Duan Hogg

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.

Fastener Testing Data Sheet

*Sample ID# CPS-15

Fastener Description: 7/8" - 9 X 4½" Long Hex Bolt

Description of Sample Stock Location: PW-4 A-5-13-3 RIR S24045

Material Specification as Documented by Licensee Records: SA193 Gr B7

Head Marking (Specification and Manufacturer): Spec-B7 Manf-J

**Class/Procurement Level: ASME Section III, Subsec III, NF, Class I

General Plant Application (e.g., Pressure Boundary, Structural) Component Supports
"AISC Applications"

Vendor: Basic Engineers

QA Requirements Imposed on Vendor: MA 3700, Appendix B, Part 21

Licensee Representative:

Signature

Richard Hugg

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.

DATA SUMMARY

MECHANICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS
CPS-1 Bolt	C29.8	-	-
CPS-1 Nut	C25.8	-	-

CHEMICAL ANALYSIS

C%	P%	S%
.36	.014	.011
.44	.018	.014

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
P - Phosphorus; S - sulfur

Sample CPS-1 bolt meets the hardness and chemical requirements of SAE J429 Grade 5.
Sample CPS-1 nut meets the hardness and chemical requirements of ASTM A194 Grade 2H.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	P%	S%
CPS-2 Capscrew	C41.2	-	-	.37	.019	.022
CPS-2 Nut	C27.2	-	-	.42	.023	.014

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
P - Phosphorus; S - sulfur

Sample CPS-2 capscrew meets the hardness and chemical requirements of SAE J429
Grade 8.

Sample CPS-2 nut meets the mechanical and chemical requirements of ASTM A563 Grade A.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	P%	S%	Si%	Mn%	Cr%	Mo%
CPS-3 Capscrew	C31.1	-	-	.39	.009	.018	.25	.86	.97	.19
CPS-3 Nut	C28.6	-	-	---	.024	.009	---	---	---	---

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 P - Phosphorus; S - sulfur; Si - Silicon; Mn - Manganese; Cr - Chromium;
 Mo - Molybdenum

Sample CPS-3 capscrew meets the hardness and chemical requirements of ASTM A193 Grade B7.
 Sample CPS-3 nut meets the mechanical and chemical requirements of ASME SA307 Grade B.

DATA SUMMARY

MECHANICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS
CPS-4 Bolt	C27.1	-	-
CPS-4 Nut	B79.0	-	-

CHEMICAL ANALYSIS

C%	Mn%	P%	S%	Si%	Cr%	Ni%
.30	.68	.021	.013	---	---	---
.04	1.69	.028	.021	.37	18.73	9.16

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - sulfur; Si - Silicon; Cr - Chromium;
 Ni - Nickel

Sample CPS-4 bolt meets the hardness and chemical requirements of ASTM A449 Type 1.
 Sample CPS-4 nut meets the hardness and chemical requirements of ASME SA194 Grade 8.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	P%	S%
CPS-5 Bolt	C33.5	163343	-	.38	.010	.012
CPS-5 Nut	C27.6	^A -	-	.41	.028	---

Proof load test, yield strength method, on bolt acceptable.
 Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 P - Phosphorus; S - sulfur

Sample CPS-5 bolt meets the mechanical and chemical requirements of ASTM A490 Type 1.
 Sample CPS-5 nut meets the mechanical and chemical requirements of ASTM A563 Grade A.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%	Si%	Cr%	Mo%
CPS-6 Stud	C27.8	-	-	.41	.89	.016	.019	.23	.99	.19
CPS-6 Nut	C26.2	-	-	.45	---	.010	.019	---	---	---

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
Mn - Manganese; P - Phosphorus; S - sulfur; Si - Silicon; Cr - Chromium;
Mo - Molybdenum

Sample CPS-6 stud meets the hardness and chemical requirements of ASTM A193 Grade B7.
Sample CPS-6 nut meets the hardness and chemical requirements of ASTM A194 Grade 2H.

DATA SUMMARY

MECHANICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS
CPS-7 Bolt	C29.9	-	-
CPS-7 Nut	C27.2	-	-

CHEMICAL ANALYSIS

C%	Mn%	P%	S%	Si%	Cr%	Mo%
.37	.71	.016	.018	.24	.88	.16
.44	.82	.011	.010	.26	---	.21

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - sulfur; Si - Silicon; Cr - Chromium;
 Mo - Molybdenum

Sample CPS-7 bolt meets the hardness and chemical requirements of ASTM A193 Grade B7.
 Sample CPS-7 nut meets the mechanical and chemical requirements of ASME SA194 Grade 4.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%
CPS-8 Bolt	C25.2	125925	-	.37	.91	.010	.029
CPS-8 Nut	B92.0	-	-			.008	.011

Proof load test, yield strength method, on bolt acceptable.
 Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - sulfur

Sample CPS-8 bolt meets the mechanical and chemical requirements of ASTM A325 Type 1.
 Sample CPS-8 nut meets the mechanical and chemical requirements of ASME SA307 Grade B.

DATA SUMMARY

MECHANICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS
CPS-9 Bolt	C34.9	159033	-
CPS-9 Nut	C28.5	-	-

CHEMICAL ANALYSIS

C%	Mn%	P%	S%
.35	.96	.016	.012
.40	---	.028	.021

Proof load test, yield strength method, on bolt acceptable.
 Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - sulfur

Sample CPS-9 bolt meets the mechanical and chemical requirements of ASTM A325 Type 1.
 Sample CPS-9 nut meets the mechanical and chemical requirements of ASTM A194 Grade 2H.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%	Si%	Cr%	Mo%
CPS-10 Stud	C28.2	-	-	.40	.76	.022	.007	.26	.84	.17
CPS-10 Nut	B82.0	-	-	.04	---	.009	---	---	---	---

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
Mn - Manganese; P - Phosphorus; S - sulfur; Si - Silicon; Cr - Chromium;
Mo - Molybdenum

Sample CPS-10 stud meets the hardness and chemical requirements of ASTM A193 Grade B7.
Sample CPS-10 nut meets the mechanical and chemical requirements of ASTM A563 Grade B.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	P%	S%
CPS-11 Bolt	B95.0	68851	-	.013	.019
CPS-11 Nut	C28.9	-	-	.022	.020

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; P - Phosphorus; S - sulfur

Sample CPS-11 bolt meets the mechanical and chemical requirements of ASME SA307 Grade B.

Sample CPS-11 nut meets the mechanical and chemical requirements of ASME SA307 Grade B.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%	Si%	Cr%	Ni%	Cu%
CPS-12 Bolt	C41.4	212431	186620	.04	.76	.021	.012	.65	16.16	4.22	3.34
CPS-12 Nut	C24.3	-	-	.41	---	.026	.017	---	---	---	---

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - sulfur; Si - Silicon; Cr - Chromium;
 Ni - Nickel; Cu - Copper

Sample CPS-12 bolt meets the mechanical and chemical requirements of ASME SA564 Grade 630.
 Sample CPS-12 nut meets the mechanical and chemical requirements of ASME SA194 Grade 2H.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%	Si%	Cr%	Ni%	Mo%
CPS-13 Bolt	B92.7	108527	87949	.01	.80	.029	.004	.04	16.41	11.92	2.08
CPS-13 Nut	B78.0	-	-	.04	1.46	.027	.019	.31	16.68	10.35	2.05

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Cr - Chromium;
Ni - Nickel; Mo - Molybdenum

Sample CPS-13 bolt meets the mechanical and chemical requirements of ASME SA193 Grade B8M.
Sample CPS-13 nut meets the mechanical and chemical requirements of ASME SA194 Grade 8M.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	P%	S%	C%
CPS-14 Bolt	B91.8	96967	-	.007	.010	-
CPS-14 Nut	B95	-	-	.014	.025	.15

Note: UTS - ultimate tensile strength; YS - yield strength; P - Phosphorus; C - carbon;
S - Sulfur

Sample CPS-14 bolt meets the mechanical and chemical requirements of ASTM A307 Grade B.
Sample CPS-14 nut meets the mechanical and chemical requirements of ASTM A563 Grade B.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	Mn%	P%	S%	Si%	Cr%	Mo%
CPS-15 Bolt	C26.2	129056	106340	.37	.78	.014	.014	.24	.86	.17
CPS-15 Nut	C29.4	-	-	.45	---	.019	.031	---	---	---

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Cr - Chromium;
 Mo - Molybdenum

Sample CPS-15 bolt meets the mechanical and chemical requirements of ASME SA193 Grade B7.
 Sample CPS-15 nut meets the mechanical and chemical requirements of ASME SA194 Grade 2H.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	C%	P%	S%	Mn%
CPS-16 Bolt	C33.0	163993	161320	.37	.015	.009	---
CPS-16 Nut	C26.8	-	-	.44	.014	.015	.73

Proof load test on bolt acceptable.
Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
P - Phosphorus; S - Sulfur; Mn - Manganese

Sample CPS-16 bolt meets the mechanical and chemical requirements of SAE J429 Grade 5.

Sample CPS-16 nut meets the mechanical and chemical requirements of IP procurement standard 002 issue date 4-24-86.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.27YS	C%	P%	S%	Mn%
CPS-17 Bolt	C24.0	124681	-	.42	.66	.011	.026
CPS-17 Nut	C26.7	-	-	.41	.66	.020	.018

Proof load test, yield strength method on bolt acceptable.
 Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - Sulfur

Sample CPS-17 bolt meets the mechanical and chemical requirements of ASTM A325 Type 1.
 Sample CPS-17 nut meets the mechanical and chemical requirements of IP procurement standard 002 issue date 4-24-86.

DATA SUMMARY

MECHANICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS
CPS-18 Bolt	-	144105	80079*
CPS-18 Nut	C29.1	-	-

CHEMICAL ANALYSIS

C%	Mn%	P%	S%	Si%	Cr%	Mo%
.40	.86	.011	.025	.24	.98	.20
.38	.79	.020	.018	.20	.91	.16

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; C - carbon;
 Mn - Manganese; P - Phosphorus; S - Sulfur; Si - Silicon; Cr - Chromium;
 Mo - Molybdenum

Sample CPS-18 bolt meets the mechanical and chemical requirements of ASME SA 320 Grade L7 with the exception of yield strength which should be 105,000 PSI minimum.
 Sample CPS-18 nut meets the mechanical and chemical requirements of ASME SA194 Grade 7.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	P%	S%	C%	Mn%
CPS-19 Stud	P ^a 1.8	103170*	-	.016	.023	---	---
CPS-19 Nut	C27.0	-	-	.026	.012	.40	.73

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; P - Phosphorus;
S - Sulfur; C - carbon; Mn - Manganese

Sample CPS-19 stud meets the mechanical and chemical requirements of ASTM A307 Grade B with the exception of ultimate tensile strength which should be between 60 and 100 KSI.

Sample CPS-19 nut meets the mechanical and chemical requirements of IP procurement standard 002 issue date 4-24-86.

DATA SUMMARY

MECHANICAL ANALYSIS

CHEMICAL ANALYSIS

ID	HARDNESS	UTS	0.2%YS	P%	S%	C%	Mn%
CPS-20 Bolt	B96.1*	89380	-	.013	.009	---	---
CPS-20 Nut	C26.1	-	-	.019	.015	.41	.67

Proof load test on nut acceptable.

Note: UTS - ultimate tensile strength; YS - yield strength; P - Phosphorus;
S - Sulfur; C - carbon; Mn - Manganese

Sample CPS-20 bolt meets the mechanical and chemical requirements of ASME SA307 Grade B. with the exception of hardness which should be between B69 and B95.
Sample CPS-20 nut meets the mechanical and chemical requirements of IP procurement standard 002 issue date 4-24-86.

SUPPLIERS AND MANUFACTURERS

Barz-Saunders
Out-of-Business

Basic Engineers
P.O. Box 100
Pittsburgh, PA 15230

Bethlehem Steel Corporation
1 Cumberland Street BIS
Lebanon, PA 17042

Bingham-Willamette
6025 Wildwood Ct.
Highridge, MO 63049

Cardinal Industrial Products
3873 West Ocuendo C,CF,FC
Las Vegas, Nevada 89118

Chicago Tube & Iron
2531 W. 48th Street
Chicago, IL 60632

Crane Valve Company
4100 S. Kedzie Avenue
Chicago, IL 60632

DuBose Steel
Highway 24 Box 1098
Roseboro, NC 28382

Energy Steel & Supply
2715 Paldan
Auburn Hills, MI 48057

The Fastener House
1800 United Lane
Elk Grove Village, IL 60007

General Electric
175 Curtner Avenue
San Jose, CA 95125

Hardware Specialties
48-71 36th Street
Long Island City, NY 11101

Hub, Inc.
2146 Flintstone Drive
Tucker, GA 30084

Lake Erie Screw Corporation
13001 Athens Avenue LE
Lakewood, Ohio 44107

NOVA Machine Products Corp.
Canal Place One, Suite 2300 N
New Orleans, LA 70130

Precision Nuclear
2105 Donley Drive
Suite 104
Austin, TX 78758

Rockwell International
1-S-132 Summit Avenue
Oak Brook Terrace, IL 60181

Russell, Burdsall & Ward Corp.
8100 Tyler Boulevard RBW
Mentor, Ohio 44060

Service Supply Company
1458 N. Calhoun Street
Decatur, IL 62525

Texas Bolt
3233 West 11th Street T, TB
Houston, Texas 77008

Wilkins Pipe
1975 E. Pershing Road
Decatur, IL 62526

Fastener Testing Data Sheet

*Sample ID# CPS-15

Fastener Description: 7/8" - 9 Heavy Hex Nut & Jam Nut

Description of Sample Stock Location: PW-4 A-5-13-3 RIR S24045

Material Specification as Documented by Licensee Records: SA194 Gr 2H

Head Marking (Specification and Manufacturer): Spec 2H Manf-J

**Class/Procurement Level: ASME Section III, Subsection NF, Class I & II

General Plant Application (e.g., Pressure Boundary, Structural) Component Supports
"AISC Applications"

Vendor: Basic Engineers

QA Requirements Imposed on Vendor: NA 3700, Appendix B, Part 21

Licensee Representative:

Signature

Quane Hays

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.

Fastener Testing Data Sheet

*Sample ID# CPS-16

Fastener Description: $\frac{1}{2}$ - 20 X 3" Long Hex Bolt Zinc Plated

Description of Sample Location: 1-1-6-C St Cd SZ9473

Material Specification as Documented by Licensee Records: SAE J429 Gr 5

Head Marking (Specification and Manufacturer): Spec, Manf-Le

**Class/Procurement Level: Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural) Electrical

Vendor: Hardware Specialties

QA Requirements Imposed on Vendor: Appendix B, Part 21

Licensee Representative:

Signature

Lucretia Hugg

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.


Fastener Testing Data Sheet

*Sample ID# CPS-16

Fastener Description: $\frac{3}{8}$ " - 20 Hex Multinut Cadmium Plated

Description of Sample Stock Location: R-A-20-F-9 St Cd SW2126

Material Specification as Documented by Licensee Records: SA194 Gr 2H, SA307 Gr A or B, SA325 Type 1 & SA563 Gr A,B,C,D,DH

Head Marking (Specification and Manufacturer): Spec D,DH,2H,  Manf-C
Additional Marking F

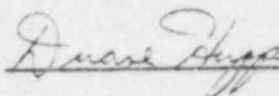
**Class/Procurement Level: Level I ASME Section III, Subsection NB, Class 1, and Subsection NF, Class I

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary & Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

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.

Fastener Testing Data Sheet

*Sample ID# CPS-17

Fastener Description: 1" - 8 X 8 3/4" Long Socket Head Capscrew

Description of Sample Stock Location: R-C-5-J-1 St Cd SG7061

Material Specification as Documented by Licensee Records: A325

Head Marking (Specification and Manufacturer): None

**Class/Procurement Level: Level I Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Retaining

Vendor: Bingham-Willamette

QA Requirements Imposed on Vendor: Appendix B, Part 21

Licensee Representative:

Signature *Duane Dugg* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-17

Fastener Description: 1" - 8 Heavy Hex Multinut

Description of Sample Stock Location: E-R-75-D-3 St Cd SZ0468

Material Specification as Documented by Licensee Records: SA194 Gr 2H, SA307
Gr A or B, SA325 Type 1 & SA563 Gr A,B,C,D,DH

Head Marking (Specification and Manufacturer): Spec-D,DH,2H, ✓ Manf-C

**Class/Procurement Level: Level I ASME Section III, Subsection NB, Class I,
and Subsection NF, Class I

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary &
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature Duane Hygg 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.

Fastener Testing Data Sheet

*Sample ID# CPS-18

Fastener Description: 3/4" - 10 X 3" Long Capscrew

Description of Sample Stock Location: R-C-2-K-2 St Cd SG7488

Material Specification as Documented by Licensee Records: SA320 Gr L7

Head Marking (Specification and Manufacturer): Spec L7 Manf-N
Additional Marking EW9

**Class/Procurement Level: Level I ASME Section III, Subsection ND, Class 3

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: Hub, Inc.

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature *Duane Hugg* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-18

Fastener Description: 3/4" - 10 Heavy Hex Nut

Description of Sample Stock Location: R-C-5-L-4 St Cd SA7327

Material Specification as Documented by Licensee Records: SA194 Gr 7

Head Marking (Specification and Manufacturer): Spec 7 Manf C-U

**Class/Procurement Level: Level I ASME Section III, Subsection ND, Class 3

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: General Electric

QA Requirements Imposed on Vendor: NCA 3800/NA 3700, Appendix B, Part 21

Licensee Representative:

Signature *Duane Hays* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-19

Fastener Description: 3/4" - 10 X 5 3/4" Long Stud

Description of Sample Stock Location: B-R-18-B-1 St Cd SZ8686

Material Specification as Documented by Licensee Records: A307 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf-T

**Class/Procurement Level: Level II Safety Related Non-ASME Material

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary

Vendor: DuBose Steel

QA Requirements Imposed on Vendor: Partial Appendix B

Licensee Representative:

Signature *Duane Hays* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-19

Fastener Description: 3/4" - 10 Heavy Hex Multinut

Description of Sample Stock Location: E-R-75-D-3 St Cd SZ0480

Material Specification as Documented by Licensee Records: SA194 Gr 2H, SA307
Gr A or B, SA325 Type 1, SA563 Gr A,B,C,D,DH

Head Marking (Specification and Manufacturer): Spec D,DH.2H,, , Manf-C

**Class/Procurement Level: Level I, ASME Section III, Subsection NB,
Class 1, and Subsection NF, Class 1

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary &
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature *Duane Shipp* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-20

Fastener Description: 5/8" - 11 X 2½" Long Hex Bolt

Description of Sample Stock Location: B-B-17-B-2 St Cd SZ9728

Material Specification as Documented by Licensee Records: SA307 Gr B

Head Marking (Specification and Manufacturer): Spec - none Manf-TB

**Class/Procurement Level: Level I, ASME Section III, Subsection NF, Class II

General Plant Application (e.g., Pressure Boundary, Structural) Structural

Vendor: DuBose Steel

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature *Duane Hays* 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.

Fastener Testing Data Sheet

*Sample ID# CPS-20

Fastener Description: 5/8" - 11 Heavy Hex Multinut

Description of Sample Stock Location: R-A-21-D-2 St Cd SZ0459

Material Specification as Documented by Licensee Records: SA194 Gr 2H,
SA307 Gr A or B, SA325 Type 1, SA563 Gr A,B,C,D,DH

Head Marking (Specification and Manufacturer): Spec D,DH,2H, ✓, Manf - C
Additional Marking J

**Class/Procurement Level: Level I, ASME Section III, Subsection NB, Class I,
and NF Class I

General Plant Application (e.g., Pressure Boundary, Structural) Pressure Boundary &
Structural

Vendor: Cardinal Industrial Products

QA Requirements Imposed on Vendor: NCA 3800, Appendix B, Part 21

Licensee Representative:

Signature

Dwaine Stuyvesant

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.