GPU Nuclear

GPU Nuclear Corporation
Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

February 26, 1988

Mr. William T. Russell, Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Russell:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Response to NRC Compliance Bulletin 87-02;
Fastener Testing to Determine Materia' Conformance

NRC Compliance Bulletin 87-02 requested that designed fastener types be randomly selected and tested for conformance to requisite standards. Enclosure 1 to this letter meets the reporting requirements of that bulletin.

If any further information is required, please contact Mr. John Rogers of my staff at (609)971-4893.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF/JR/dmd
(0444A)
Enclosure

Sworn to and Subscribed before me
this 26th day of February 1988.

Diana M. DeBlasio
A Notary Public of New Jersey
DIANA M. DEBLASIO
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 6/5/91

cc: Mr. Alexander W. Dromerick, Project Manager
U.S. Nuclear Regulatory Commission
Washington, DC 20555

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

IE11
1/1

Enclosure 1

The following NRC requests and GPU Nuclear responses have been numbered to correspond to the format utilized in NRC Compliance Bulletin 87-02.

Request:

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:

1a. Receipt inspection requirements of safety related fasteners have been specified in the GPUN Quality Assurance Plan (Attachment 4) and two GPUN Inspection Surveillance Plans: R-6133-2062.2, and R-6133-2074.1. The attributes inspected and evaluated include: identification, marking, physical damage, physical properties, dimensions, workmanship, and documentation. Non-safety related (NSR) fasteners are not within the scope of the Quality Assurance Plan, but are receipt inspected when the procurement documents specify that a receipt inspection is required.

1b. After receipt inspection, safety related fasteners are tagged to provide requisite traceability from receipt through installation. NSR fasteners are stored in accordance with appropriate ANSI standards, but are not tagged for traceability.

Request:

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 grade 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.

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:

2., 3. Fastener Testing Data Sheets and Laboratory Test Result Certificates of Conformance have been included as Attachments 1 and 3. Bolts, studs, and screws have been assigned Oyster Creek Identification Nos. OC-001 through OC-010 and OC-021 through OC-030. Nuts have been assigned Identification Nos. OC-011 through OC-020 and OC-031 through OC-040, including OC-038a which was an additional selection at the request of the NRC Senior Resident Inspector.

Request:

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:

4. The results of the laboratory tests are included in Attachment 3, Certificates of Conformance.

   Please note that the Certificate of Conformance for sample no. OC-021 was corrected on February 18, 1988. The original document contained an error which was identified during the data review process.

Request:

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:

5. Required data are included in Attachments 1 and 2 to this response.

Nonconformances:

- I.D. OC-002 was the only safety related fastener that did not meet the laboratory acceptance criteria. This fastener was procured for generic use and was only out of specification in hardness. It was determined that this fastener could be susceptible to increased stress corrosion cracking if used in the reactor vessel environment. However, due to the short potential in-service time and the unlikely use of this fastener in this application, continued operation was justified until a more detailed evaluation could be performed and/or specific use determined.

- I.D. OC-021 was a non-safety related generic use screw that was out of specification in chemical, hardness, and elongation. Since this screw could not have been used in a reactor vessel environment due to programmatic controls, failure due to the lower elongation is the major concern. The likelihood of a missile hazard from non-safety equipment due to the failure of this fastener is extremely low and is under further evaluation.

- I.D. OC-022 and I.D. OC-023 were non-safety related generic use fasteners that were out of specification in hardness and/or chemical requirements. It was determined that these fasteners were subject to increased stress corrosion cracking but that they were not a safety concern since they could not have been used in the reactor vessel environment.

- I.D. OC-038 was a non-safety related fastener that was out of specification in hardness. It was determined that this fastener would meet its intended function (body to bonnet nut on a non-safety related valve).

Request:

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:

Oyster Creek has had a program to assure the quality of fasteners procured for safety related applications since 1986. The one safety related fastener with the non-conformance had been procured prior to the initiation of this program. Additionally, the procurement of NSR fasteners has been minimized. Therefore, as an on-going program to assure the acceptability of fasteners is in place, no additional corrective actions are required.

PREFACE TO

ATTACHMENT 1

All "Safety Related" fasteners are bought from Vendors on the GPUN QA Approved Vendor's list. Products were generally considered to be Commercial Grade and the Purchase Orders designated as Nuclear Safety Related or Important to Safety.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-001

Fastener Description: 1/4" - 20 x 1.50, Hex Cap Screw

Description of Sample Stock Location: I48I, Vidmar, Sliding Draw Cabinet

Material Specification as Documented by Licensee Records: ASTM-A 193 B8M

Head Marking (Specification and Manufacturer): N B8M

**Class/Procurement Level: NSR

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

Vendor: NOVA Machine

QA Requirements Imposed on Vendor: C.M.T.R.'s

Licensee Representative:

Signature John Soldevera Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-002

Fastener Description: 5/16" - 18-2.00 Hex Cap Screw

Description of Sample Stock Location: I48G Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 B8M

Head Marking (Specification and Manufacturer): 316

**Class/Procurement Level: NSR

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

Vendor: Allied Nut and Bolt

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Schakewerz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-003

Fastener Description: 3/8 - 16 x 2.25 Hex Cap Screw

Description of Sample Stock Location: I 50 F. Vidmar Cabine

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

Head Marking (Specification and Manufacturer): TB B7

**Class/Procurement Level: NSR

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

Vendor: Allied Nut and Bolt

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salaiewicz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-004

Fastener Description: 7/16" - 14 x 1.00" Hex Cap Screw

Description of Sample Stock Location: I50E Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 B7

Head Marking (Specification and Manufacturer): 9 B7

**Class/Procurement Level: NSR

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

Vendor: Hardware Specialty Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Slakmeyer Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-005

Fastener Description: 1/2" - 13 x 2.00" Heavy Hex Screw

Description of Sample Stock Location: I50 C Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 B7

Head Marking (Specification and Manufacturer): TB B7

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Silberberg Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-006

Fastener Description: 9/16" - 12 x 1.00" Screw Heavy Hex

Description of Sample Stock Location: I48E Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A 193 B8M

Head Marking (Specification and Manufacturer): NF B8M

**Class/Procurement Level: NSR

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

Vendor: Alliet Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Silafrieurg Date 7/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-007

Fastener Description: 5/8" - 11 x 6.00", Screw Heavy Hex

Description of Sample Stock Location: I 48 C Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 B8M

Head Marking (Specification and Manufacturer): NF B8M

**Class/Procurement Level: ITS

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

Vendor: Allied Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's not available, requested from vendor

Licensee Representative:

Signature for J. Schleifer Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-008

Fastener Description: 3/4" - 10 X 2.00" Heavy Hex Screw

Description of Sample Stock Location: I52E Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 B7

Head Marking (Specification and Manufacturer): J B7

**Class/Procurement Level: ITS

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

Vendor: Allied Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Schlueter Date 2/26/88

*The sample ID shall have a prefix that contains the licensee facility initials. If not, please provide an explanation for your classification system.

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-009

Fastener Description: 7/8" - 9 x 3.00" Screw Heavy Hex

Description of Sample Stock Location: I52C Vidmar Cabinets

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

Head Marking (Specification and Manufacturer): J B7

**Class/Procurement Level: ITS

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

Vendor: Hardware Specialty Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Falkiewicz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-010

Fastener Description: 1" - 8 x 2.50" Screw Heavy Hex

Description of Sample Stock Location: I 48A Vidmar Cabinets

Material Specification as Documented by Licensee Records: ASTM- A 193 B8M

Heat Marking (Specification and Manufacturer): NF B8M

**Class/Procurement Level: NSR

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

Vendor: Allied Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salakeury Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-011

Fastener Description: 1/4" - 20 Heavy Hex Nut

Description of Sample Stock Location: I54D Waldmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 8M

Head Marking (Specification and Manufacturer): B 8M

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salaburry Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-012

Fastener Description: 5/16" - 18 Nut Heavy Hex

Description of Sample Stock Location: I54F Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 8M

Head Marking (Specification and Manufacturer): 316

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salabsury Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-013

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

Description of Sample Stock Location: I54C Vidmar Cabinet

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

Head Marking (Specification and Manufacturer): T 2H

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Products

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salaberry Date 2/26/98

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-014

Fastener Description: 7/16" - 14 Nut Heavy Hex

Description of Sample Stock Location: I54C Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): NH 2H

**Class/Procurement Level: NSR

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

Vendor: Hardware Specialty Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John S. Calmurg Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-015

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

Description of Sample Stock Location: I54B Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): NH 2H

**Class/Procurement Level: NSR

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

Vendor: Allied Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salaburg Date 2/26/93

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-016

Fastener Description: 9/16" - 12 Nut Heavy Hex

Description of Sample Stock Location: I54E Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 8M

Head Marking (Specification and Manufacturer): J 8M

**Class/Procurement Level: NSR

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

Vendor: Allied Nut & Bolt Co.

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salaheurz Date 2/26/93

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-017

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

Description of Sample Stock Location: I54E Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 8M

Head Marking (Specification and Manufacturer): T 8M

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Products

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Schabowski Date 2/6/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID: OC-018

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

Description of Sample Stock Location: I54A Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): D 2H

**Class/Procurement Level: NSR

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

Vendor: Nova Machine Products

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Salkeuing Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-019

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

Description of Sample Stock Location: L 72M Boxed on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): D 2H

**Class/Procurement Level: ITS

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

Vendor: Nova Machine Products

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Takamura Date 2/26/93

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-020

Fastener Description: 1" - 8 Nut Heavy Hex

Description of Sample Stock Location: I54D Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A194 8M

Head Marking (Specification and Manufacturer): ~~(—)~~ 8M

**Class/Procurement Level: ITS

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

Vendor: Lone Star Screw

QA Requirements Imposed on Vendor: CMTR's

Licensee Representative:

Signature John Sikatzkewycz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-021

Fastener Description: Screw, Hex Cap 1/2" - 13 x 2 1/2"

Description of Sample Stock Location: Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 GRB8

Head Marking (Specification and Manufacturer): 1/(Two Hash Marks)

**Class/Procurement Level: NITS

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

Vendor: Schnitzer Alloy Inc.

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Salaberry Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-022

Fastener Description: Screw, Hex Cap 5/16" - 18 x 1 1/2"

Description of Sample Stock Location: Vidmar Cabinet

Material Specification as Documented by Licensee Records: BIS B7

Head Marking (Specification and Manufacturer): NITS

**Class/Procurement Level: NITS

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

Vendor: Diversified Speciality

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Salaheura Date 2/26/85

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-023

Fastener Description: Screw, Hex Cap 1/2" - 13 x 1 1/4

Description of Sample Stock Location: Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A193 GR B8

Head Marking (Specification and Manufacturer): 1 _ H

**Class/Procurement Level: NITS

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

Vendor: Schnitzer Alloy

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Schafmeyer Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-024

Fastener Description: Stud, 5/8"-11 x 4" Bolt, Full Thread (UNC 2A)

Description of Sample Stock Location: On Shelf in Box

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

Head Marking (Specification and Manufacturer): MB7

**Class/Procurement Level: NITS

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

Vendor: Diversified Speciality

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Schabrieng Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-025

Fastener Description: Stud, Bolt Full Thread 1 1/8 - 7 x 6 1/2"

Description of Sample Stock Location: On Shelf in Box

Material Specification as Documented by Licensee Records: ASTM-A193 B7

Head Marking (Specification and Manufacturer): (None, Cut Rod)

**Class/Procurement Level: NITS

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

Vendor: Diversified Specialties Co.

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Schlueter Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-026

Fastener Description: Bolt, 3/4" - 10 x 4 1/2

Description of Sample Stock Location: Vidmar Cabinet

Material Specification as Documented by Licensee Records: ASTM-A325

Head Marking (Specification and Manufacturer): UNY A325 (3 Hash Marks)

**Class/Procurement Level: NITS

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

Vendor: Diversified Specialties Inc.

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Falabrino Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-027

Fastener Description: Stud, Continuous Thread 7/8-9 x 4.00

Description of Sample Stock Location: Vidmar Cabinets

Material Specification as Documented by Licensee Records: Not documented on P.O., Marking on Item "VB7" = ASTM-A193 B7

Head Marking (Specification and Manufacturer): V, B7

**Class/Procurement Level: NITS

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

Vendor: Fisher Controls International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schlueter Date 2/26/85

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-028

Fastener Description: Stud, Continuous Thread 3/8-16 x 1.15

Description of Sample Stock Location: Bagged in Bin (Shelf Bin)

Material Specification as Documented by Licensee Records: Not Documented on P.O., Marking on item "VB7" = ASTM-A194 B7

Head Marking (Specification and Manufacturer): V, B7

**Class/Procurement Level: NITS

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

Vendor: Fisher Control International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schleuning Date 3/6/85

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-029

Fastener Description: Screw, Square Head 1 1/4" - 8 x 10"

Description of Sample Stock Location: In box on Shelf

Material Specification as Documented by Licensee Records: ASTM-A193 GR B7

Head Marking (Specification and Manufacturer): CFS B7

**Class/Procurement Level: NITS

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

Vendor: Shall Cross Bolt Co.

QA Requirements Imposed on Vendor: n/a

Licensee Representative:

Signature John Salakeurg Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-030

Fastener Description: Stud, Continuous Thread 1 1/2 - 8 x 9 1/4"

Description of Sample Stock Location: On Shelf in Box

Material Specification as Documented by Licensee Records: ASTM-A193 B7

Head Marking (Specification and Manufacturer): D B7

**Class/Procurement Level: NITS

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

Vendor: Leonard Jed Co.

QA Requirements Imposed on Vendor: n/a

Licensee Representative:

Signature John Salisbury Date 2/27/85

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-031

Fastener Description: Nut, Hex 1 1/4" - 8

Description of Sample Stock Location: In Box on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): FC 2H

**Class/Procurement Level: NITS

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

Vendor: Diversified Specialties Inc.

QA Requirements Imposed on Vendor: n/a

Licensee Representative:

Signature John Salakowski Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-032

Fastener Description: Nut, Hex 1 1/2" - 8

Description of Sample Stock Location: In Box on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): JS 2H

**Class/Procurement Level: NITS

General Plant Application (e.g. ~~ssure Boundary, Structural~~)

Vendor: Williams and Co.

QA Requirements Imposed on Vendor: N/A

Licensee Representative:

Signature John Salakiewicz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-033

Fastener Description: Nut, 7/8 - 9

Description of Sample Stock Location: Bagged, Boxed on Shelf

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

Head Marking (Specification and Manufacturer): HN, 2H

**Class/Procurement Level: NITS

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

Vendor: Crane Co.

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schlatterer Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-034

Fastener Description: Nut, Hex 1 - 3/8" - 8

Description of Sample Stock Location: In Box on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): JS 2H

**Class/Proc ement Level: NITS

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

Vendor: Williams and Co.

QA Requirements Imposed on Vendor: n/a

Licensee Representative:

Signature John Schwartz Date 2/21/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-035

Fastener Description: Nut, Hex 1 1/2" - 8

Description of Sample Stock Location: In Box on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): O 2H

**Class/Procurement Level: NITS

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

Vendor: Leonard Jed Co.

QA Requirements Imposed on Vendor: n/a

Licensee Representative:

Signature John Salaburg Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-036

Fastener Description: Nut, Heavy Hex 1" - 8

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): J, 2H

**Class/Procurement Level: NITS

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

Vendor: Diversified Specialties Inc.

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schabowski Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-037

Fastener Description: Nut, 3/4" - 10

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: ASTM-A194 2H

Head Marking (Specification and Manufacturer): J, 2H

**Class/Procurement Level: NITS

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

Vendor: Crane Co.

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature _____ Date 2/24/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-038

Fastener Description: Nut 5/8 - 11

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: Not Documented on P.O., Marked on item 2T,2H = ASTM A194, 2H

Head Marking (Specification and Manufacturer): 2T, 2H

**Class/Procurement Level: NITS

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

Vendor: Rockwell International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schlueter Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-038 A

Fastener Description: Nut 5/8" - 11

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: Not Documented on P.O., Marked on item "ASTM A194 2"

Head Marking (Specification and Manufacturer): "ASTM-A194 2" (No Manufacturer)

**Class/Procurement Level: NITS

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

Vendor: Rockwell International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John Schlueter Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-039

Fastener Description: Nut, 3/8-16

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: Not Documented on P.O.
Marked on Item T, 2H = ASTM A194, 2H

Head Marking (Specification and Manufacturer): T, 2H

**Class/Procurement Level: NITS

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

Vendor: Fisher Controls

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature John - Solakiewicz Date 2/26/88

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

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

Attachment 1

Fastener Testing Data Sheet

*Sample ID# OC-040

Fastener Description: Nut, 3/4 - 10

Description of Sample Stock Location: Bagged, Boxed on Shelf

Material Specification as Documented by Licensee Records: Not Documented on P.O., Marking on Item 2H = ASTM-A194 2H

Head Marking (Specification and Manufacturer): D, 2H

**Class/Procurement Level: NITS

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

Vendor: Rockwell International

QA Requirements Imposed on Vendor: None

Licensee Representative:

Signature [signature] Date 2/26/85

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

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

Attachment 2

Data Summary

	Mechanical Analysis		Chemical Analysis[1]							
	Hardness	UTS(ksi)	0.2% YS(ksi)	C	Mn	P	S	Si	Mo	Cr	Ni
01	RB 98	99.5	84.5	.056	1.56	.042	.033	.66	2.494	17.54	12.43
02	RC 31*	84.9	67.9	.028	1.90	.047	.014	.41	2.343	17.97	12.71
03	RC 26	139.8*	121.2	.462	.97	.023	.020	.25	.21	.94	-----
04	RC 30	150.0	140.0	.424	.98	.015	.022	.30	.26	1.02	-----
05	RC 30	133.4	117.6	.368	.87	.017	.014	.28	.21	.98	-----
06	RB 96	91.5	84.2	.066	1.45	.048	.028	.48	2.338	17.02	10.86
07	RB 93	106.7	86.2	.039	1.83	.051	.024	.55	2.160	17.62	12.71
08	RC 30	139.3	128.3	.439	.94	.021	.018	.29	.17	.99	-----
09	RC 30	140.8	129.0	.398	.89	.032	.021	.27	.17	.93	-----
10	RB 96	91.5	63.1	.050	1.45	.041	.017	.66	2.145	16.50	10.61

e: UTS-ultimate tensile strength; YS-yield strength; C-carbon; Mn-Manganese; P-Phosphorous; S-Sulfur; Si-Silicon; Molybdenum; Cr - Chromium.

e elements listed apply to ASTM A193 B7 or SA193 B7 material. The elements to be reported for other materials tested, ll conform to those reported in the applicable material specification. Properties found out of specification shall be ed with an asterisk.

Attachment 2

Data Summary

	Mechanical Analysis		Chemical Analysis[1]							
	Hardness	UTS(ksi)	0.2% YS(ksi)	C	Mn	P	S	Si	Mo	Cr	Ni
011	RB104	-----	-----	.05	1.03	.020	.015	.45	2.63	17.55	12.21
012	RB105	-----	-----	.038	1.19	.033	.010	.46	2.151	18.07	12.70
013	RC 29	-----*	-----	.624	----	.003	.007	---	----	-----	-----
014	RC 32	-----	-----	.473	----	.029	.044	----	----	-----	-----
015	RC 25	-----	-----	.404	----	.015	.034	---	----	-----	-----
016	RB 78	-----	-----	.044	1.24	.031	.020	.56	2.044	16.81	10.00
017	RB 92	-----	-----	.073	1.54	.026	.010	.72	2.184	17.09	10.85
018	RC 29	-----	-----	.412	----	.015	.014	---	----	-----	-----
019	RC 26	-----	-----	.409	----	.019	.017	----	----	-----	-----
020	RB 94	-----	-----	.053	1.70	.031	.015	.25	1.927	16.10	10.07

te: UTS-ultimate tensile strength; YS-yield strength; C-carbon; Mn-Manganese; P-Phosphorous; S-Sulfur; Si-Silicon; -Molybdenum; Cr - Chromium.

he elements listed apply to ASTM A193 B7 or SA193 B7 material. The elements to be reported for other materials tested, all conform to those reported in the applicable material specification. Properties found out of specification shall be ted with an asterisk.

Attachment 2

Data Summary

	Mechanical Analysis		Chemical Analysis[1]							
	Hardness	UTS(ksi)	0.2% YS(ksi)	C	Mn	P	S	Si	Mo	Cr	Ni
1	RC 35*	107.9	85.5	.076	1.18	.029	.024	.39	1.316	17.58*	8.80
2	RC 29	145.4	139.0	.033*	.97	.019	.016	.31	.021	1.06	-----
3	RC 28*	104.5*	96.9	.008	1.20	.028	.009	.62	3.134	18.22	9.92
4	RC 30	142.2	132.1	.409	.95	.028	.020	.26	.17	1.08	-----
5	RC 27	141.3	127.8	.407	.93	.014	.021	.27	.25	.99	-----
6	RC 29	140.4	127.8	.333	.91	.039	.020	---	-----	-----	-----
7	RC 29	136.5	125.4	.382	.88	.012	.033	.26	.26	1.04	-----
8	RC 35	161.7	151.9	.373	.92	.018	.036	.24	.20	1.02	-----
9	RC 26	136.0	122.6	.384	.86	.035	.015	.28	.20	1.10	-----
0	RC 27	128.3	107.6	.410	.86	.014	.019	.27	.17	.94	-----

: UTS-ultimate tensile strength; YS-yield strength; C-carbon; Mn-Manganese; P-Phosphorous; S-Sulfur; Si-Silicon; olybdenum; Cr - Chromium.

elements listed apply to ASTM A[illegible]3 B7 or SA193 B7 material. The elements to be reported for other materials tested, l conform to those reported in the applicable material specification. Properties found out of specification shall be d with an asterisk.

Attachment 2

Data Summary

	Mechanical Analysis		Chemical Analysis[1]							
	Hardness	UTS(ksi)	0.2% YS(ksi)	C	Mn	P	S	Si	Mo	Cr	Ni
31	RC 31	-------	--------	.430	------	.020	.022	----	-----	-----	-----
032	RC 28	-------	--------	.450	------	.035	.028	----	-----	-----	-----
033	RC 28	-------	--------	.454	------	.032	.044	----	-----	-----	-----
034	RC 25	-------	--------	.437	------	.027	.034	----	-----	-----	-----
035	RC 28	-------	--------	.405	------	.033	.026	----	-----	-----	-----
036	RC 27	-------	--------	.432	------	.035	.022	----	-----	-----	-----
037	RC 27	-------	--------	.439	------	.039	.024	----	-----	-----	-----
038	RB 90*	-------	--------	.403	------	.037	.021	----	-----	-----	-----
038A	RC 31	-------	--------	.482	------	.012	.043	----	-----	-----	-----
039	RC 30	-------	--------	.695	------	.009	.013	----	-----	-----	-----
040	RC 28	-------	--------	.44	------	.021	.023	----	-----	-----	-----

te: UTS-ultimate tensile strength; YS-yield strength; C-carbon; Mn-Manganese; P-Phosphorous; S-Sulfur; Si-Silicon; -Molybdenum; Cr - Chromium.

he elements listed apply to ASTM A193 B7 or SA193 B7 material. The elements to be reported for other materials tested, all conform to those reported in the applicable material specification. Properties found out of specification shall be ted with an asterisk.

ATTACHMENT 3

CERTIFICATES OF CONFORMANCE

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

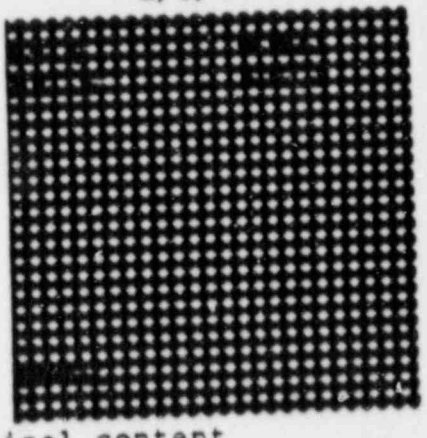
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.I	Complete	2/5/88



DESCRIPTION

1 pc. 1/4 - 20 x 1-1/2" long Hex Capscrew
Sample No. OC-881, P.O. No. OP-031345
Item #004

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8M. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.056
Manganese	2.04 maximum	1.56
Phosphorus	0.055 maximum	0.042
Sulfur	0.035 maximum	0.033
Silicon	1.05 maximum	0.66
Nickel	9.85 - 14.15	12.43
Chromium	15.80 - 18.20	17.54
Molybdenum	1.90 - 3.10	2.494

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	99,502 PSI
Yield Strength	30,000 PSI	84,577 PSI
Elongation	30.0%	42.1%
Reduction of Area	50.0%	75.1%

C. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RB 98

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By R. W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary

215/249-9696

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

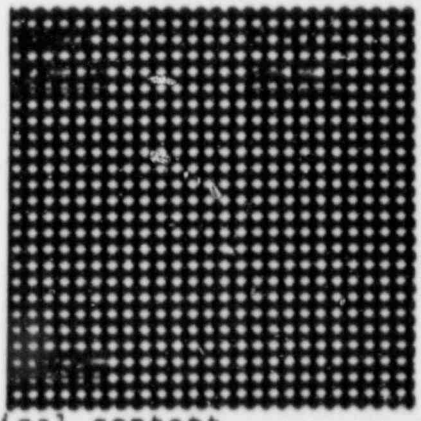
SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.2	Complete	2/5/88

DESCRIPTION

1 pc. 5/16 - 18 x 2" long Hex Capscrew
Sample No. 6C-002, P.O. No. OP-031092
Item #022

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8M. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.028
Manganese	2.04 maximum	1.90
Phosphorus	0.055 maximum	0.047
Sulfur	0.035 maximum	0.014
Silicon	1.05 maximum	0.41
Nickel	9.85 - 14.15	12.71
Chromium	15.80 - 18.20	17.97
Molybdenum	1.90 - 3.10	2.343

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	84,951 PSI
Yield Strength	30,000 PSI	67,961 PSI
Elongation	30.0%	39.5%
Reduction of Area	50.0%	77.1%

C. A Hardness test was performed on the above Test Specimen and it was found NOT to be in conformance to ASTM A-193, Grade B8M per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RC 31*

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
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ATTN: Accounts Payable

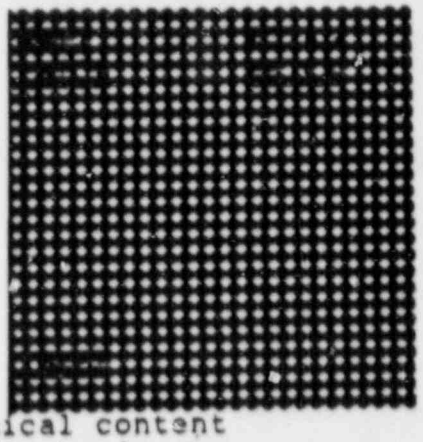
SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.3	Complete	2/5/88

DESCRIPTION

1 pc. 3/8 - 16 x 2-1/4" long Hex Capscrew
Sample No. QC-003, P.O. No. OP-027437
Item #008

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.462
Manganese	0.61 - 1.14	0.97
Phosphorus	0.040 maximum	0.023
Sulfur	0.045 maximum	0.020
Silicon	0.13 - 0.37	0.25
Chromium	0.70 - 1.25	0.94
Molybdenum	0.13 - 0.27	0.21

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	139,898 PSI
Yield Strength	105,000 PSI	121,212 PSI
Elongation	16.0%	22.6%
Reduction of Area	50.0%	58.5%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 26. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

LABORATORY TESTING INC.

P.O. Box 249 Dublin, Pennsylvania 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.4	Complete	2/5/88

DESCRIPTION

1 pc. 7/16 - 14 x 1" long Hex Capscrew
Sample No. OC-004, P.O. No. OP-027645
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.424
Manganese	0.61 - 1.14	0.98
Phosphorus	0.040 maximum	0.015
Sulfur	0.045 maximum	0.022
Silicon	0.13 - 0.37	0.30
Chromium	0.70 - 1.25	1.02
Molybdenum	0.13 - 0.27	0.26

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	150,000 PSI
Yield Strength	105,000 PSI	140,000 PSI
Elongation	16.0%	17.0%
Reduction of Area	50.0%	62.0%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 30. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.5	Complete	2/5/88

DESCRIPTION

1 pc. 1/2 - 13 x 2" long Heavy Hex Screw
Sample No. OC-005, P.O. No. OP-044606
Item #003

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.368
Manganese	0.61 - 1.14	0.87
Phosphorus	0.040 maximum	0.017
Sulfur	0.045 maximum	0.014
Silicon	0.13 - 0.37	0.28
Chromium	0.70 - 1.25	0.98
Molybdenum	0.13 - 0.27	0.21

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	133,401 PSI
Yield Strength	105,000 PSI	117,617 PSI
Elongation	16.0%	19.0%
Reduction of Area	50.0%	62.0%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 30. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

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Rt. 183 & Van Reed Rd., PO Box 15152
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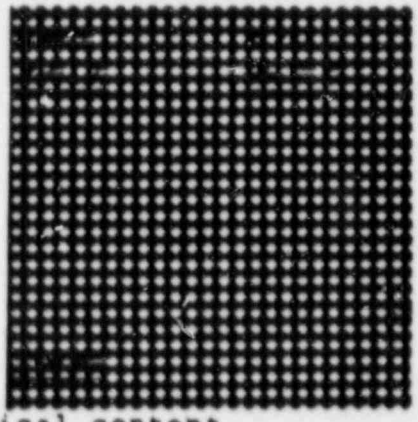
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.6	Complete	2/5/88

DESCRIPTION

1 pc. 9/16 - 12 x 1" long Heavy Hex Screw
Sample No. OC-006, P.O. No. OP-028497
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8M. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.066
Manganese	2.04 maximum	1.45
Phosphorus	0.055 maximum	0.048
Sulfur	0.035 maximum	0.028
Silicon	1.05 maximum	0.48
Nickel	9.85 - 14.15	10.86
Chromium	15.80 - 18.20	17.02
Molybdenum	1.90 - 3.10	2.338

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	91,578 PSI
Yield Strength	30,000 PSI	84,210 PSI
Elongation	30.0%	60.0%
Reduction of Area	50.0%	70.5%

C. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RB 96

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.7	Complete	2/5/88

DESCRIPTION

1 pc. 5/8 - 11 x 6" long Heavy Hex Screw
Sample No. OC-007, P.O. No. OP-015182
Item #009

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8M. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.039
Manganese	2.04 maximum	1.83
Phosphorus	0.055 maximum	0.051
Sulfur	0.035 maximum	0.024
Silicon	1.05 maximum	0.55
Nickel	9.85 - 14.15	12.71
Chromium	15.80 - 18.20	17.62
Molybdenum	1.90 - 3.10	2.160

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	106,774 PSI
Yield Strength	30,000 PSI	86,248 PSI
Elongation	20.0%	32.8%
Reduction of Area	50.0%	74.8%

C. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RB 93

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.8	Complete	2/5/88

DESCRIPTION

1 pc. 3/4 - 10 x 2" long Heavy Hex Screw
Sample No. OC-008, P.O. No. PO-015183
Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.439
Manganese	0.61 - 1.14	0.94
Phosphorus	0.040 maximum	0.021
Sulfur	0.045 maximum	0.018
Silicon	0.13 - 0.37	0.29
Chromium	0.70 - 1.25	0.99
Molybdenum	0.13 - 0.27	0.17

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	139,380 PSI
Yield Strength	105,000 PSI	128,318 PSI
Elongation	16.0%	18.9%
Reduction of Area	50.0%	57.7%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 30. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment

315/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

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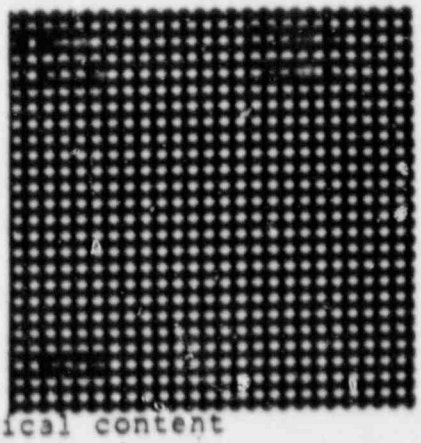
PP062256/R2324	TC-517.9	Complete	2/5/88



DESCRIPTION

1 pc. 7/8 - 9 x 3" long Heavy Hex Screw
Sample No. OC-009, P.O. No. OP-026855
Item #004

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.398
Manganese	0.61 - 1.14	0.89
Phosphorus	0.040 maximum	0.032
Sulfur	0.045 maximum	0.021
Silicon	0.13 - 0.37	0.27
Chromium	0.70 - 1.25	0.93
Molybdenum	0.13 - 0.27	0.17

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	140,816 PSI
Yield Strength	105,000 PSI	129,081 PSI
Elongation	16.0%	19.0%
Reduction of Area	50.0%	59.0%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 30. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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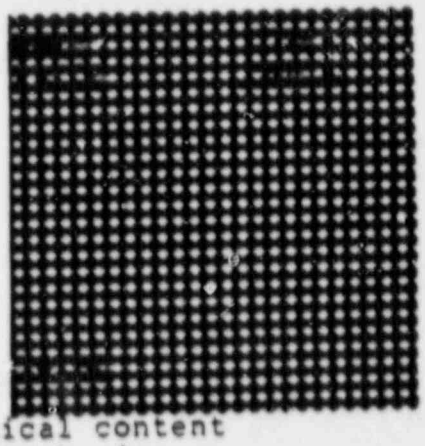
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.10	Complete	2/5/88

DESCRIPTION

1 pc. 1 - 8 x 2-1/2" long Heavy Hex Screw
Sample No. OC-010, P.O. No. OP-031092
Item #013

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8M. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.050
Manganese	2.04 maximum	1.45
Phosphorus	0.055 maximum	0.041
Sulfur	0.035 maximum	0.017
Silicon	1.05 maximum	0.66
Nickel	9.85 - 14.15	10.61
Chromium	15.80 - 18.20	16.50
Molybdenum	1.90 - 3.10	2.145

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	91,578 PSI
Yield Strength	30,000 PSI	63,157 PSI
Elongation	30.0%	58.0%
Reduction of Area	50.0%	80.0%

C. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8M per the following results:

REQUIRED: RB 96 Maximum / ACTUAL: RB 96

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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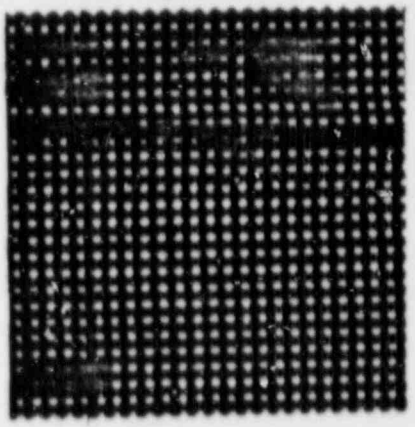
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.11	Complete	2/5/88



DESCRIPTION

1 pc. 1/4 - 20 Heavy Hex Nut, Sample No. OC-011
P.O. No. OP-044226, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

***CORRECTED CERTIFICATION (2/10/88)**

A. The above referenced sample was submitted to chemical content evaluation by Wet Chemical Analysis and found to be in conformance to ASTM A-194, Grade 8M per ASTM A-484, Table #1. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.05
Manganese	2.04 maximum	1.03
Phosphorus	0.045 maximum	0.020
Sulfur	0.035 maximum	0.015
Silicon	1.05 maximum	0.45
Nickel	9.85 - 14.15	12.21
Chromium	15.80 - 18.20	17.55*
Molybdenum	1.90 - 3.10	2.63

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 8M per the following results:

REQUIRED: RB 60 - RB 105 / ACTUAL: RB 104

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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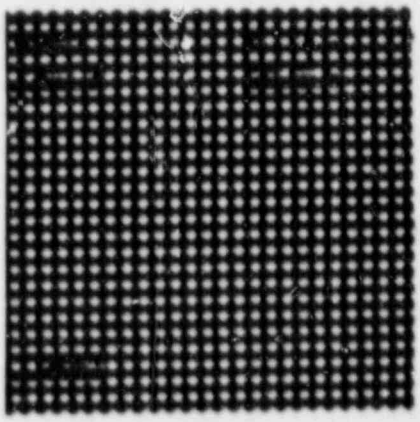
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.12	Complete	2/5/88

DESCRIPTION

1 pc. 5/16 - 18 Heavy Hex Nut, Sample No. OC-012
P.O. No. OP-031346, Item #010

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 8M per ASTM A-484, Table #1. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.038
Manganese	2.04 maximum	1.19
Phosphorus	0.055 maximum	0.033
Sulfur	0.035 maximum	0.010
Silicon	1.05 maximum	0.46
Nickel	9.85 - 14.15	12.70
Chromium	15.80 - 18.20	18.07
Molybdenum	1.90 - 3.10	2.151

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 8M per the following results:

REQUIRED: RB 60 - RB 105 / ACTUAL: RB 105

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary

215/249-9998

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.13	Complete	2/5/88

DESCRIPTION

1 pc. 3/8 - 16 Heavy Hex Nut, Sample No. OC-313,
P.O. No. OP[illegible]3056, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.624
Phosphorus	0.04 maximum	0.003
Sulfur	0.05 maximum	0.007

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 29

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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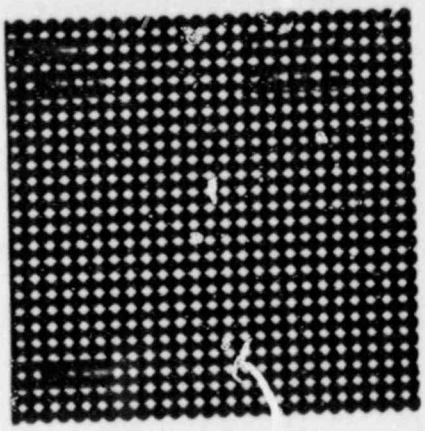
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.14	Complete	2/5/88

DESCRIPTION

1 pc. 7/16 - 14 Heavy Hex Nut, Sample No. OC-014
P.O. No. OP-027646, Item #001

Reference: GPU Lab Report #159232
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.473
Phosphorus	0.04 maximum	0.029
Sulfur	0.05 maximum	0.044

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 32

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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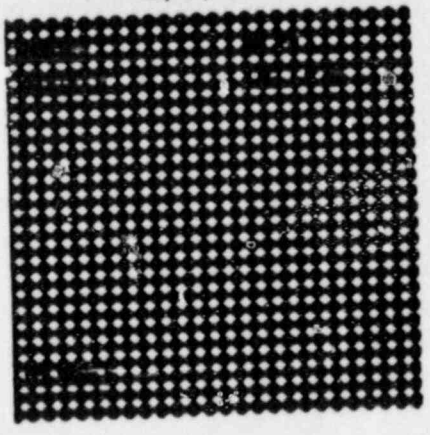
PP062256/R2324	TC-517.15	Complete	2/5/88



DESCRIPTION

1 pc. 1/2 - 13 Heavy Hex Nut, Sample No. OC-015
P.O. No. OP-050794, Item #001

Reference: GPU Lab Report #159232
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.404
Phosphorus	0.04 maximum	0.015
Sulfur	0.05 maximum	0.034

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 25

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By. Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

SEE REVERSE SIDE OF THIS FORM

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

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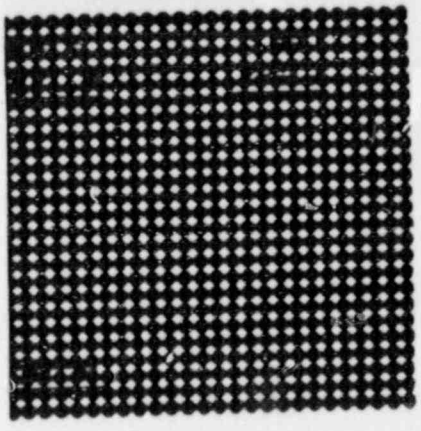
PP062256/R2324	TC-517.16	Complete	2/5/88



DESCRIPTION

1 pc. 9/16 - 12 Heavy Hex Nut, Sample No. OC-016
P.O. No. OP-028711, Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 8M per ASTM A-484, Table #1. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.044
Manganese	2.04 maximum	1.24
Phosphorus	0.055 maximum	0.031
Sulfur	0.035 maximum	0.020
Silicon	1.05 maximum	0.56
Nickel	9.85 - 14.15	10.00
Chromium	15.80 - 18.20	16.81
Molybdenum	1.90 - 3.10	2.004

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 8M per the following results:

REQUIRED: RB 60 - RB 105 / ACTUAL: RB 78

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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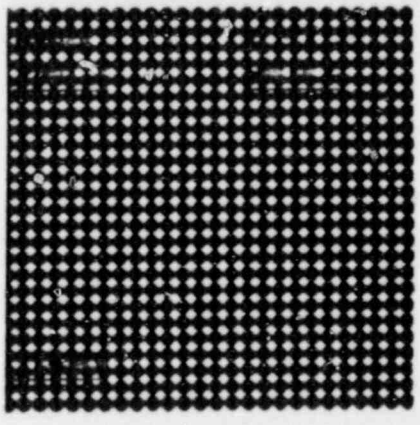
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.17	Complete	2/5/88

DESCRIPTION

1 pc. 5/8 - 11 Heavy Hex Nut, Sample No. OC-017
P.O. No. OP-043147, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 8M per ASTM A-484, Table #1. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.073
Manganese	2.04 maximum	1.54
Phosphorus	0.055 maximum	0.026
Sulfur	0.035 maximum	0.010
Silicon	1.05 maximum	0.72
Nickel	9.85 - 14.15	10.85
Chromium	15.80 - 18.20	17.09
Molybdenum	1.90 - 3.10	2.184

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 8M per the following results:

REQUIRED: RB 60 - RB 105 / ACTUAL: RB 92

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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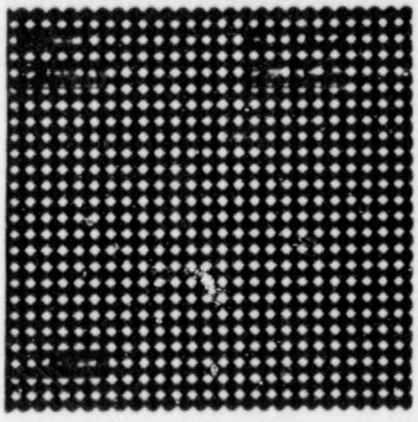
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.18	Complete	2/5/88

DESCRIPTION

1 pc. 3/4 - 10 Heavy Hex Nut, Sample No. OC-018
P.O. No. OP-044376, Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.412
Phosphorus	0.04 maximum	0.015
Sulfur	0.05 maximum	0.014

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 29

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: R W McVaugh

AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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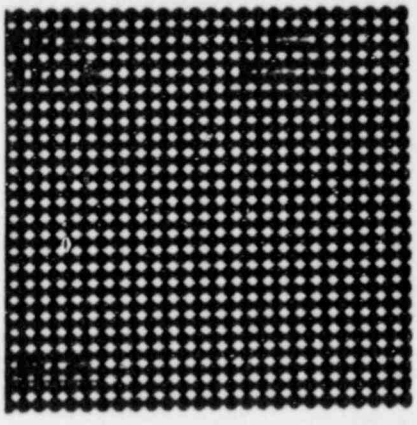
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.19	Complete	2/5/88

DESCRIPTION

1 pc. 7/8 - 9 Heavy Hex Nut, Sample No. OC-019
P.O. No. OP-043556, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.409
Phosphorus	0.04 maximum	0.019
Sulfur	0.05 maximum	0.017

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 26

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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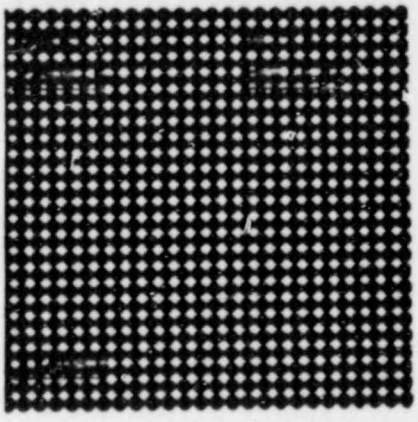
PP062256/R2324	TC-517.20	Complete	2/5/88



DESCRIPTION

1 pc. 1 - 8 Heavy Hex Nut, Sample No. OC-020
P.O. No. OP-011875, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 8M per ASTM A-484, Table #1. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.053
Manganese	2.04 maximum	1.70
Phosphorus	0.055 maximum	0.031
Sulfur	0.035 maximum	0.015
Silicon	1.05 maximum	0.25
Nickel	9.85 - 14.15	10.07
Chromium	15.80 - 18.20	16.10
Molybdenum	1.90 - 3.10	1.927

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 8M per the following results:

REQUIRED: RB 60 - RB 105 / ACTUAL: RB 94

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9696

Certificate of Conformance NO. 3 0 0 0 3

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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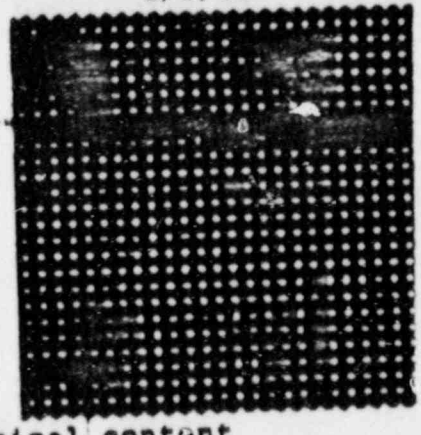
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.21A	Complete	2/5/88



DESCRIPTION

1 pc. 1/2 - 13 x 2-1/2" long Hex Capscrew
Sample No. OC-021, P.O. No. OP-041325

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

****CORRECTED CERTIFICATION (2/10/88)**

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical and Wet Chemical Analysis and found NOT to be in conformance to ASTM A-193, Grade B8. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.076
Manganese	2.04 maximum	1.18
Phosphorus	0.055 maximum	0.029
Sulfur	0.035 maximum	0.024
Silicon	1.05 maximum	0.39
Nickel	7.85 - 10.05	8.80
Chromium	17.80 - 20.20	17.58*
Copper	- - -	1.316

NOTE: Copper content unusually high.

B. A Tensile test was performed on the above Test Specimen and it was found **NOT to be in conformance to ASTM A-193, Grade B8 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	107,942 PSI
Yield Strength	30,000 PSI	85,539 PSI
Elongation	30.0%	*25.6%
Reduction of Area	50.0%	73.1%

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

...PRINTED ON REVERSE SIDE OF THIS FORM.

215/249-9898

Certificate of Conformance No. 3 0 0 0 3

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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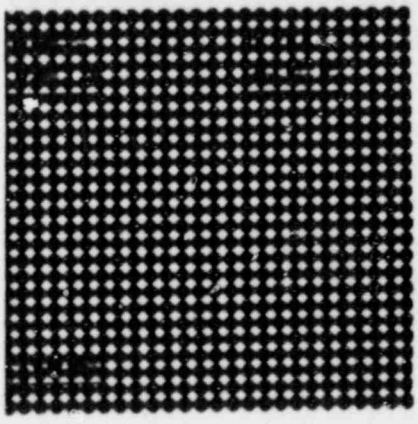
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.21B	Complete	2/5/88

DESCRIPTION

1 pc. 1/2 - 13 x 2-1/2" long Hex Capscrew
Sample No. OC-021, P.O. No. OP-041225

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



C. A Hardness test was performed on the above Test Specimen and it was found NOT to be in conformance to ASTN A-193, Grade B8 per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RC 35*

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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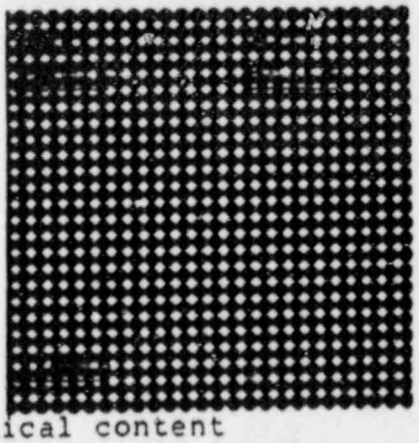
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.22	Complete	2/5/88

DESCRIPTION

1 pc. 5/16 - 18 x 1-1/2" long Hex Capscrew
Sample No. OC-022, P.O. No. OP-002131
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical and Wet Chemical Analysis and found NOT to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.33*
Manganese	0.61 - 1.14	0.97
Phosphorus	0.040 maximum	0.019
Sulfur	0.045 maximum	0.016
Silicon	0.13 - 0.37	0.31
Chromium	0.70 - 1.25	1.06
Molybdenum	0.13 - 0.27	0.21

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	145,408 PSI
Yield Strength -	105,000 PSI	139,030 PSI
Elongation	16.0%	20.3%
Reduction of Area	50.0%	63.2%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 29. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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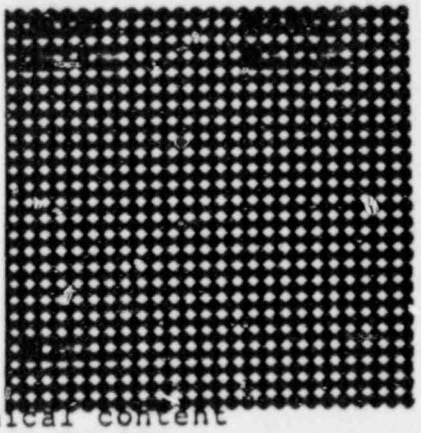
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.23A	Complete	2/5/88

DESCRIPTION

1 pc. 1/2 - 13 x 1-1/4" long Hex Capscrew
Sample No. OC-023

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B8. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.09 maximum	0.008
Manganese	2.04 maximum	1.20
Phosphorus	0.055 maximum	0.028
Sulfur	0.035 maximum	0.009
Silicon	1.05 maximum	0.62
Nickel	7.85 - 10.65	9.92
Chromium	17.80 - 20.20	18.22
Copper	- - -	3.134

NOTE: Copper content unusually high.

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B8 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	75,000 PSI	104,591 PSI
Yield Strength	30,000 PSI	96,938 PSI
Elongation	30.0%	36.3%

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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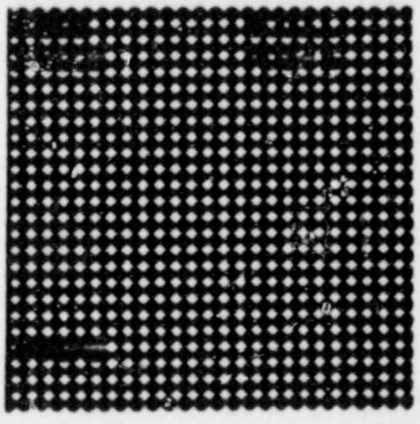
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.23B	Complete	2/5/88

DESCRIPTION

1 pc. 1/2 - 13 x 1-1/4" long Hex Capscrew
Sample No. OC-023

Reference: GPU Lab Report #159230
Req. #5393-88-2324, Rev. 000



C. A Hardness test was performed on the above Test Specimen and it was found NOT to be in conformance to ASTM A-193, Grade B8 per the following results:

REQUIRED: RB 100 Maximum / ACTUAL: RC 28*

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh

AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 80003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.24	Complete	2/5/88

DESCRIPTION

1 pc. 5/8 - 11 x 4" long Full Threaded Stud
Sample No. OC-024, P.O. No. OP-010467
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.409
Manganese	0.61 - 1.14	0.95
Phosphorus	0.040 maximum	0.028
Sulfur	0.045 maximum	0.020
Silicon	0.13 - 0.37	0.26
Chromium	0.70 - 1.25	1.08
Molybdenum	0.13 - 0.27	0.17

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	142,276 PSI
Yield Strength -	105,000 PSI	132,113 PSI
Elongation	16.0%	19.3%
Reduction of Area	50.0%	59.9%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 30. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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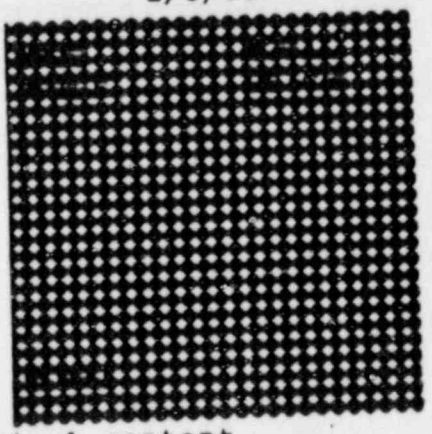
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.25	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/8 - 7 x 6-1/2" long Full Threaded Stud,
Sample No. OC-025, P.O. No. OP-010467
Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.407
Manganese	0.61 - 1.14	0.93
Phosphorus	0.040 maximum	0.014
Sulfur	0.045 maximum	0.021
Silicon	0.13 - 0.37	0.27
Chromium	0.70 - 1.25	0.99
Molybdenum	0.13 - 0.27	0.25

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	141,372 PSI
Yield Strength	105,000 PSI	127,858 PSI
Elongation	16.0%	20.0%
Reduction of Area	50.0%	60.7%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 27. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 3 0 0 0 3

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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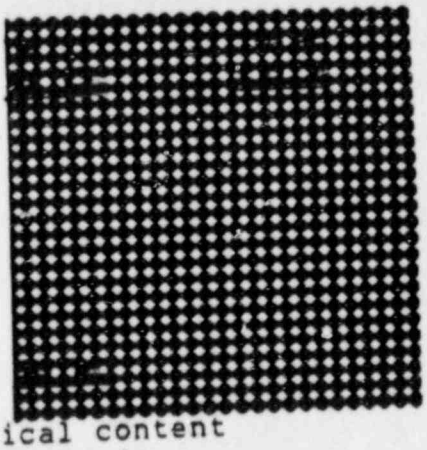
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.26	Complete	2/5/88



DESCRIPTION

1 pc. 3/4 - 10 x 4-1/2" long Hex Head Bolt
Sample No. CC-026, P.O. No. CP-019552
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-325. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.27 minimum	0.333
Manganese	0.47 minimum	0.91
Phosphorus	0.048 maximum	0.039
Sulfur	0.058 maximum	0.020

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-325 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	120,000 PSI	140,474 PSI
Yield Strength	- - -	127,842 PSI
Elongation	- - -	18.5%
Reduction of Area	- - -	62.0%

C. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-325 per the following results:

REQUIRED: RC 24 - RC 35 / ACTUAL: RC 29

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

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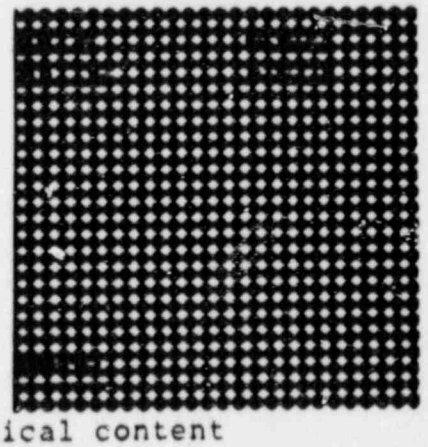
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.27	Complete	2/5/88



DESCRIPTION

1 pc. 7/8 - 9 x 4" long Threaded Stud
Sample No. OC-027, P.O. No. PP-042448
Item #003

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.382
Manganese	0.61 - 1.14	0.88
Phosphorus	0.040 maximum	0.012
Sulfur	0.045 maximum	0.033
Silicon	0.13 - 0.37	0.26
Chromium	0.70 - 1.25	1.04
Molybdenum	0.13 - 0.27	0.26

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	136,566 PSI
Yield Strength	105,000 PSI	125,418 PSI
Elongation	16.0%	27.5%
Reduction of Area	50.0%	63.6%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 29. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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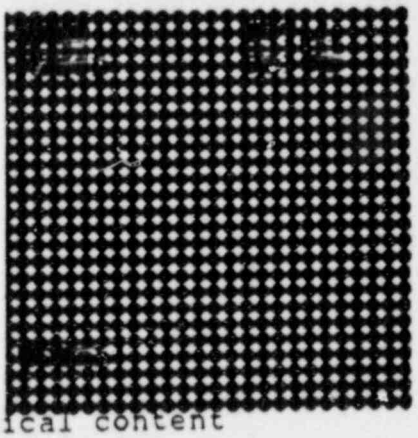
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.28	Complete	2/5/88

DESCRIPTION

1 pc. 3/8 - 16 x 1-3/4" long Threaded Stud
Sample No. OC-028, P.O. No. OP-031876
Item #007

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.373
Manganese	0.61 - 1.14	0.92
Phosphorus	0.040 maximum	0.018
Sulfur	0.045 maximum	0.036
Silicon	0.13 - 0.37	0.24
Chromium	0.70 - 1.25	1.02
Molybdenum	0.13 - 0.27	0.20

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	161,764 PSI
Yield Strength	105,000 PSI	151,960 PSI
Elongation	16.0%	17.8%
Reduction of Area	50.0%	56.8%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 35. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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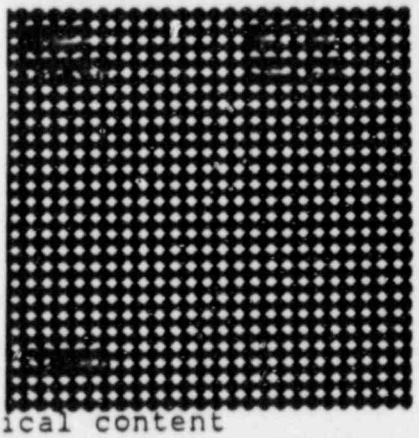
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.29	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/4 - 8 x 10" Square Head Screw
Sample No. OC-029

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.384
Manganese	0.61 - 1.14	0.86
Phosphorus	0.040 maximum	0.035
Sulfur	0.045 maximum	0.015
Silicon	0.13 - 0.37	0.28
Chromium	0.70 - 1.25	1.10
Molybdenum	0.13 - 0.27	0.20

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	136,025 PSI
Yield Strength	105,000 PSI	122,646 PSI
Elongation	16.0%	22.5%
Reduction of Area	50.0%	66.8%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 26. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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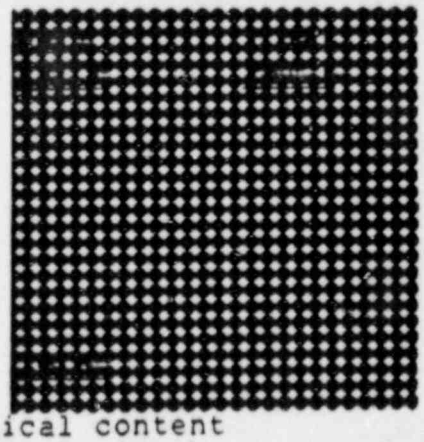
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.30	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/2 - 8 x 9-1/4" long Stud
Sample No. OC-030, P.O. No. OP-001803
Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-193, Grade B7. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.35 - 0.51	0.410
Manganese	0.61 - 1.14	0.86
Phosphorus	0.040 maximum	0.014
Sulfur	0.045 maximum	0.019
Silicon	0.13 - 0.37	0.27
Chromium	0.70 - 1.25	0.94
Molybdenum	0.13 - 0.27	0.17

B. A Tensile test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-193, Grade B7 per the following results:

	REQUIRED	ACTUAL
Tensile Strength	125,000 PSI	128,331 PSI
Yield Strength	105,000 PSI	107,601 PSI
Elongation	16.0%	22.5%
Reduction of Area	50.0%	66.5%

C. A Hardness test was performed on the above Test Specimen in accordance with ASTM A-193, Grade B7 and it was found to have a hardness of RC 27. (No Requirement)

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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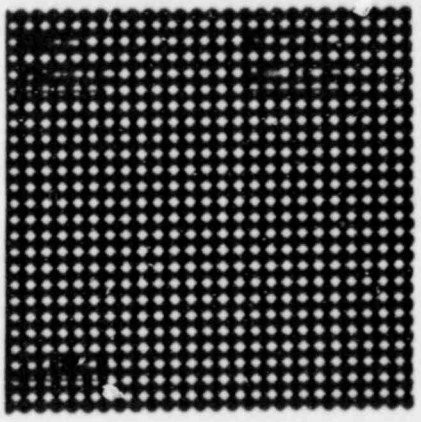
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.31	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/4 - 8 Hex Nut, Sample No. OC-031
P.O. No. OP-003716, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.430
Phosphorus	0.04 maximum	0.020
Sulfur	0.05 maximum	0.022

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 31

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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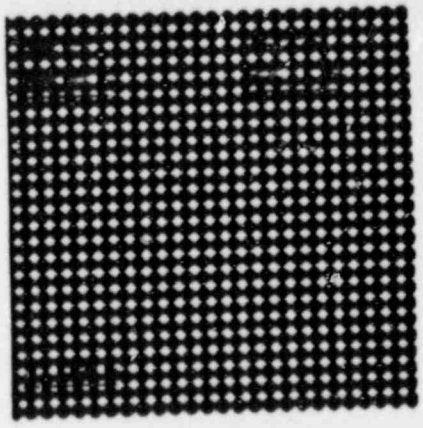
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.32	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/2 - 8 Hex Nut, Sample No. OC-032
P.O. No. OP-040850

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.450
Phosphorus	0.04 maximum	0.035
Sulfur	0.05 maximum	0.028

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 28

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

SEE REVERSE SIDE OF THIS FORM

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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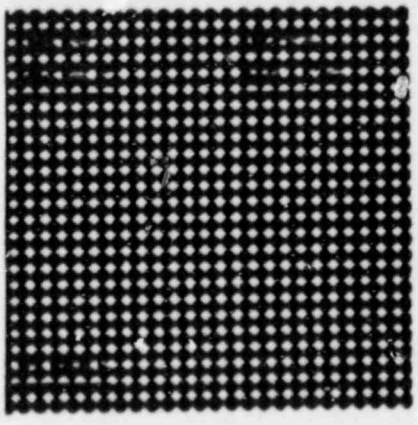
CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.33	Complete	2/5/88



DESCRIPTION

1 pc. 7/8 - 9 Nut, Sample No. OC-033
P.O. No. OP-030915, Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.454
Phosphorus	0.04 maximum	0.032
Sulfur	0.05 maximum	0.044

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 28

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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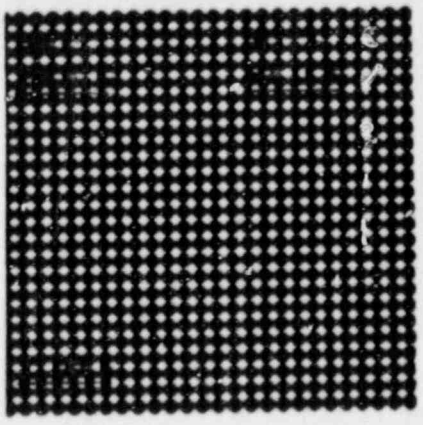
PP062256/R2324	TC-517.34	Complete	2/5/88

DESCRIPTION

1 pc. 1-3/8 - 8 Hex Nut, Sample No. OC-034
P.O. No. OP-040850

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical and Wet Chemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.437
Phosphorus	0.04 maximum	0.027
Sulfur	0.05 maximum	0.034

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 25

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh

By Robert W. McVaugh

AUTHORIZED SIGNATURE

215/248-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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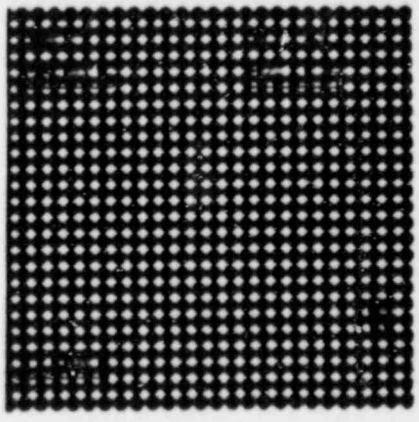
PP062256/R2324	TC-517.35	Complete	2/5/88

DESCRIPTION

1 pc. 1-1/2 - 8 Hex Nut, Sample No. OC-035
P.O. No. OP-001803, Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.405
Phosphorus	0.04 maximum	0.033
Sulfur	0.05 maximum	0.026

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 28

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

215/249-9698

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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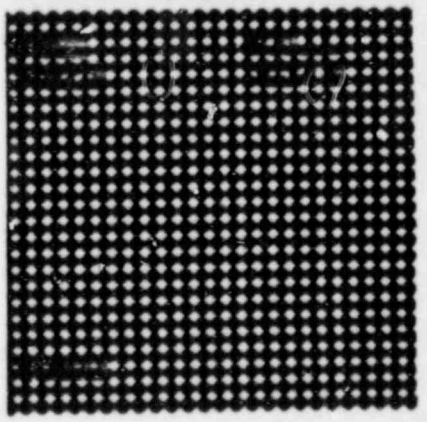
PP062256/R2324	TC-517.36	Complete	2/5/88



DESCRIPTION

1 pc. 1 - 8 Hex Nut, Sample No. OC-036
P.O. No. PP-020823, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.432
Phosphorus	0.04 maximum	0.035
Sulfur	0.05 maximum	0.022

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 27

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By Robert W. McVaugh
AUTHORIZED SIGNATURE

215/240-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

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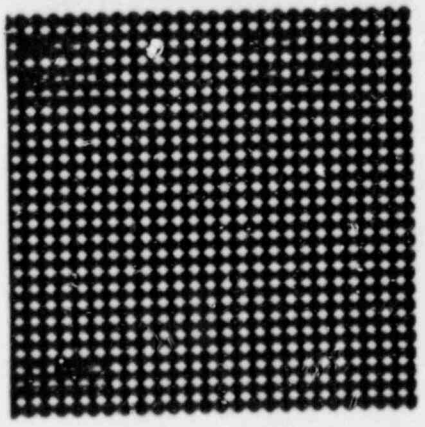
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.37	Complete	2/5/88



DESCRIPTION

1 pc. 3/4 - 10 Nut, Sample No. OC-037
P.O. No. OP-030915, Item #006

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.439
Phosphorus	0.04 maximum	0.039
Sulfur	0.05 maximum	0.024

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 27

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 3 0 0 0 3

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

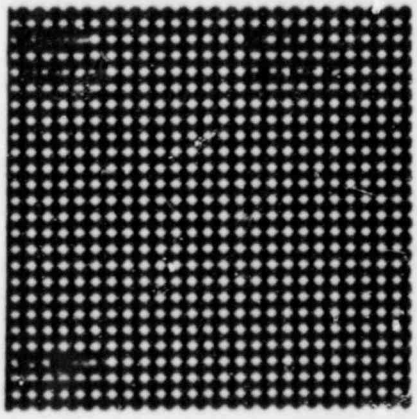
SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.38	Complete	2/5/88

DESCRIPTION

1 pc. 5/8 - 11 Nut, Sample No. OC-038
P.O. No. OP-046119, Item #002

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.403
Phosphorus	0.04 maximum	0.037
Sulfur	0.05 maximum	0.021

B. A Hardness test was performed on the above Test Specimen and it was found NOT to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RB 90*

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062255/R2324	TC-517.38A	Complete	2/11/88

DESCRIPTION

1 pc. 5/8 - 11 Nut, Sample No. OC-038A
P.O. No. QP-046119, Item 4002

Reference: GPU Lab Report #159213
Req. #5093-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.482
Phosphorus	0.040 maximum	0.012
Sulfur	0.050 maximum	0.043

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 31

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

REVERSE SIDE OF THIS FORM.

215/240-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.

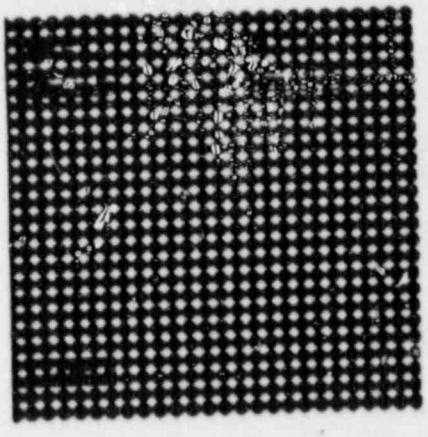
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 2186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.39	Complete	2/5/88



DESCRIPTION

1 pc. 3/8 - 16 Nut, Sample No. OC-039
P.O. No. PP-021876, Item #005

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000

A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.695
Phosphorus	0.04 maximum	0.009
Sulfur	0.05 maximum	0.013

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 30

All testing performed in accordance with GPU Nuclear Q.A. Program.

Robert W. McVaugh
President

By: Robert W. McVaugh
AUTHORIZED SIGNATURE

MERCURY CONTAMINATION During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

215/249-9898

Certificate of Conformance No. 30003

TERMS: NET CASH - 10 DAYS

SERVICE CHARGE OF 1½% PER MONTH AFTER 10 DAYS.

LABORATORY TESTING INC.
P.O. Box 249 Dublin, Pennsylvania 18917

SHIPPING ADDRESS
120 MILL STREET, DUBLIN, PA 18917

SOLD TO
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054
ATTN: Accounts Payable

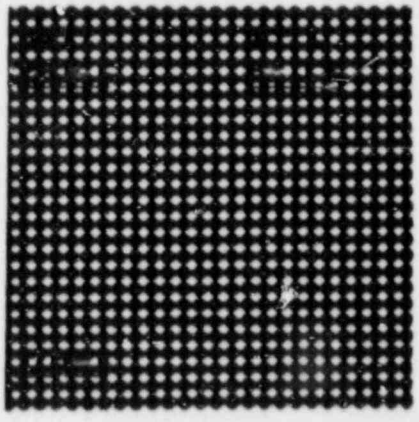
SHIP TO
GPU Nuclear Corporation
Rt. 183 & Van Reed Rd., PO Box 15152
Reading, PA 19612-5152
ATTN: W. Jeitner, Ext. 5186

CUST. P.O.	LAB REPORT NO.	SHIPMENT	INVOICE DATE
PP062256/R2324	TC-517.40	Complete	2/5/88

DESCRIPTION

1 pc. 3/4 - 10 Nut, Sample No. OC-040
P.O. No. OP-046119, Item #001

Reference: GPU Lab Report #159233
Req. #5393-88-2324, Rev. 000



A. The above referenced sample was submitted to chemical content evaluation by Spectrochemical and Wet Chemical Analysis and found to be in conformance to ASTM A-194, Grade 2H. The results are as follows:

ELEMENT	REQUIRED	ACTUAL
Carbon	0.40 minimum	0.44
Phosphorus	0.04 maximum	0.021
Sulfur	0.05 maximum	0.023

B. A Hardness test was performed on the above Test Specimen and it was found to be in conformance to ASTM A-194, Grade 2H per the following results:

REQUIRED: RC 24 - RC 38 / ACTUAL: RC 28

All testing performed in accordance with GPU Nuclear Q.A. Program.

MERCURY CONTAMINATION - During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

Robert W. McVaugh
President

By: Robert W. McVaugh

ATTACHMENT 4

EXCERPT FROM GPUN

QUALITY ASSURANCE PLAN

2.2 Scope

The scope of the GPUN Operational Quality Assurance Program includes, but is not limited to, all items and activities applicable to the operation of TMI-1 and Oyster Creek considered to be "important to safety." This term is broader than "safety-related" and encompasses structures, systems and components (including nuclear fuel and radwaste) which have been designated as Safety-Related, Safety Class, IEEE Class IE, - - Equipment Environmental Qualification, Seismic Category I or Fire Protection. The scope of the Program includes items covered by the Operating License and Technical Specifications (excluding non-radiological monitoring) and items required by the following:

a. Title 10, Code of Federal Regulations, Part 50, Appendix A "General Design Criteria for Nuclear Power Plants".

b. Title 10, Code of Federal Regulations, Part 50, Appendix B "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants".

c. Title 10, Code of Federal Regulations, Part 71, Subpart H "Quality Assurance for Shipping Packages for Radioactive Material".

d. Title 10, Code of Federal Regulations, Part 50, Appendix R "Fire Protection Program for Nuclear Power Facilities Operating prior to January 1, 1980".

e. United States Nuclear Regulatory Commission Regulatory Guide 1.143 "Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light Water Cooled Nuclear Power Plants".

f. U. S. Nuclear Regulatory Commission Regulatory Guide 1.29 "Seismic Design Classification" and the seismic aspects of components which have impact on items important to safety.

g. Title 10 Code of Federal Regulations, Part 50.49, "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants".

h. Other items when designated by Technical Functions.

Appendix A provides a comparison of the sections of this Plan with the requirements of 10CFR50, Appendix B; 10CFR71, Subpart H; ANSI N18.7; and ANSI N45.2.

The GPUN Operational Quality Assurance Program applies to all items on the Quality Classification List (QCL). The QCL will be periodically updated to include new plant modifications or construction or any changes in classification. The contents of the list will be controlled.

For new design efforts such as plant modifications and new construction, the classification determination is recorded on design criteria documents. New items will be included in the QCL. Documents which control the installation of Important to Safety modifications will be clearly identified as such.

2.2.1 Activities which are Important to Safety shall include, but not be limited to:

a. Those activities covered by ANSI N18.7 and Appendix A of Regulatory Guide 1.33.

b. The requirements of other Regulatory Guides applicable to operations, maintenance, modification, repair and refueling of a nuclear power plant as identified in Appendix C herein.

c. Those activities related to protection against radiation as covered by Title 10, Code of Federal Regulations, Part 20.

d. Those activities related to Fire Protection as covered by Title 10, Code of Federal Regulations, Part 50, Appendix R.

e. Those activities related to Plant Security as covered by Title 10, Code of Federal Regulations, Part 73.55 "Requirements for Physical Protection of Licensed Activities in Nuclear Power Plants Against Industrial Sabotage."

f. Those activities defined by procedures which have been designated during the review cycle as "important to safety."