LOUISIANA POWER & LIGHT / 317 BARONNE STREET • P. O. BOX 60340
NEW ORLEANS, LOUISIANA 70160 • (504) 595-3100
MIDDLE SOUTH UTILITIES SYSTEM

January 18, 1988

W3P88-0015
A4.05
QA

Mr. Robert D. Martin
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Subject: Waterford SES Unit 3
Docket No. 50-382
License No. NPF-38
NRC Compliance Bulletin No. 87-02

Dear Mr. Martin:

As requested in NRC Compliance Bulletin 87-02, "Fastener Testing to Determine Conformance with Applicable Material Specifications", Louisiana Power and Light Company submits the enclosed information concerning receipt inspection and internal control procedures for fasteners and the results of independent testing of fasteners at Waterford 3.

Should you require additional information, please feel free to contact me or G.E. Wuller, Operational Licensing Supervisor, at (504) 464-3499.

This response is submitted as requested under affidavit under provisions of Section 182a of the Atomic Energy Act of 1954, as amended.

Very truly yours,

R.F. Burski

8801210304 880118
PDR ADOCK 05000382
Q PDR

R.F. Burski
Nuclear Safety and Regulatory Affairs
Acting Manager

RFB:GEW:FSP:ssf

Enclosure/Attachments

cc (w/attach.): NRC Document Control Desk, Washington, D.C. (original)

cc (w/o attach): J.A. Calvo, NRC-NRR
J.H. Wilson, NRC-NRR
NRC Resident Inspectors Office
E.L. Blak-
W.M. Stevenson

"AN EQUAL OPPORTUNITY EMPLOYER"

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Louisiana Power & Light Company	)	Docket No. 50-382
Waterford 3 Steam Electric Station	)	

AFFIDAVIT

R.F. Burksi, being duly sworn, hereby deposes and says that he is Nuclear Safety and Regulatory Affairs Acting Manager, Nuclear Operations of Louisiana Power & Light Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached response to NRC Compliance Bulletin No. 87-02; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

R.F. Burski
Nuclear Safety & Regulatory Affairs
Acting Manager
Nuclear Operations

STATE OF LOUISIANA)
) ss
PARISH OF ORLEANS)

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 18th day of January, 1988.

Notary Public

My Commission expires life.

LP&L Response to
NRC Compliance Bulletin 87-02

Louisiana Power and Light Company submits the following information for the requested items:

Receipt Inspection and Internal Controls of Storage and Issuance

Procedure for receipt inspection of safety-related fasteners requires verification that identification and marking of fasteners is in accordance with imposed requirements. Vendor provided documentation is reviewed to ensure that items received were fabricated, tested and inspected prior to shipment in accordance with invoked codes, standards and specifications. For non-safety-related material, QC involvement in the receipt inspection is not required. Subsequent to receipt inspection, the items are appropriately tagged depending upon safety classification and released for packaging and labeling. The items are then stocked in a predetermined, computer generated stock location in a controlled warehouse. For issuance of an item from stock, a pre-approved requisition with a complete description of the requested item is presented to the warehouse. The warehouse fills the requisition as stated, writes the Quality Release Tag number on the requisition for safety-related material, and issues the item.

Selection and Testing

With the NRC inspector participating, the following samples selected for testing were pulled from the warehouse stock. The samples were bagged by lot and identified by type and quantity.

a) Safety-Related

The following sample of sixty fasteners were selected for testing and grouped in ten lots of six to provide for two chemical, two hardness, and two tensile tests.

Sample ID	Type	Quantity
10127-PT-002	A193, Grade B7	6
10128-PT-002	A193, Grade B8	6
10131-PT-002	A325, Type 1	6
10132-PT-002	A325, Type 1	6
10133-PT-002	A325, Type 1	6
10134-PT-002	A325, Type 1	6
10137-PT-002	A490, Type 1	6
10138-PT-002	A490, Type 1	6
10140-PT-002	A307, Grade B	6
10141-PT-002	A307, Grade A	6

Sixty nuts were selected for testing and grouped in lots of 6 (or 12) to provide for 2 (or 4) chemical and 2 (or 4) hardness tests. In all, twenty nuts were hardness tested, twenty were chemically analyzed. Since tensile testing was not required the remaining twenty nuts were not tested.

Sample ID	Type	Quantity
10129-PT-002	A194, Grade 2H	6
10130-PT-002	A194, Grade 8B	6
10133-PT-002	A194, Grade 2H	6
10134-PT-002	A194, Grade 2H	6
10135-PT-002	A563, Grade C	12
10136-PT-002	A563, Grade A	12
10138-PT-002	A194, Grade 2H	6
10139-PT-002	A563, Grade A	6

b) Non-Safety-Related

Since these fasteners and nuts were ordered non-safety, not all of the purchase orders specified an ASTM requirement, in which case the material specifications and testing criteria are not recorded on the attached data sheets.

As shown below, six lots of four fasteners each were selected for testing. In each lot, two fasteners were hardness tested and two were chemically analyzed.

Sample ID	Type	Quantity
10175-PT-002	A307, Grade B	4
10176-PT-002	A307, Grade B	4
10178-PT-002	None Specified	4
10179-PT-002	None Specified	4
10180-PT-002	None Specified	4
10181-PT-002	None Specified	4

Five lots of four nuts each were selected as shown below. In each lot, two nuts were hardness tested and two were chemically analyzed.

Sample ID	Type	Quantity
10175-PT-002	None Specified	4
10177-PT-002	None Specified	4
10179-PT-002	None Specified	4
10180-PT-002	None Specified	4
10181-PT-002	None Specified	4

Partek Laboratories, who is listed on the Waterford 3 Qualified Suppliers List (QSL), performed the required testing in accordance with the fastener's specification, grade, and class.

Results

The results of all tests, together with supporting information, are provided on the Attachments (Fastener Testing Data Sheets and Metallurgical Certificates). As requested, the class/procurement level for the Waterford 3 classification system is as follows: (1) Quality Class I is safety-related, (2) Quality Class II is non-safety-related/QA required, (3) Quality Class III is commercial grade as defined in 10CFR21.3 and, (4) Quality Class IV is non-safety-related/non-QA required. A review of the

results was performed by the Waterford 3 Nuclear Operations Engineering and Quality Assurance Departments. In summary, all tests were satisfactory with the exception of the following.

Item ID	Criteria Out-of-Spec.	Actual	Required
10133-3N	Low Carbon content	0.36	0.40 Minimum
10133-4N	Low Carbon content	0.34	0.40 Minimum
10134-4N	Low Carbon content	0.34	0.40 Minimum
10138-3N	Low Carbon content	0.35	0.40 Minimum
10138-4N	Low Carbon content	0.36	0.40 Minimum
10140-1	Hardness too high	98 HRB	69-95 HRB
10175-1	Hardness too high	31 HRC	69-95 HRB
10175-2	Hardness too high	29.8 HRC	69-95 HRB
10176-2	Hardness too low	67.8 HRB	69-95 HRB

Assessment

Regarding Sample 10140, the hardness range of 69 to 95 correlates to an ultimate tensile strength of 60 to 100ksi, which are the limits imposed by specification SA-307 Grade B. Since the actual tensile tests results are well within the specification, the hardness being slightly off is not that critical to the mechanical properties.

Since the carbon content of several samples tested by the independent laboratory were low when compared to the vendor's results, a re-test will be done to confirm the accuracy of the laboratory's results. Even if the lower carbon values are correct, there is no adverse impact on the mechanical properties of the material, since the actual hardness values were within specification limits. The specification (SA-29) allows for a carbon content of .37 and the laboratory readings were in the .34 to .36 range so the variation is not significant, considering the adequate hardness results.

Based on the above evaluation, there is no safety significance on the out-of-specification results of the bolting material.

Further Actions

Based on the results of the testing and a review of the current procedures (QAP-206 Rev. 4, QAP-250 Rev. 3 and QAP-251 Rev. 1) no further action is required.

Based upon review of IE Information Notice 86-25, Supplement 1, "Traceability and Material Control of Material and Equipment, Particularly Fasteners", the Waterford 3 Nuclear Oversight Committee has issued a Fraudulent Suppliers Program which provides for training of Supplier QA auditors on detection of fraudulent supplier practices, testing of materials at receipt inspection, and other applicable concerns. In addition, Waterford 3 QA Department has implemented an auditing handbook which includes detection of fraudulent suppliers. As an independent verification of product quality, Waterford 3 is in the process of setting up a program to employ the services of a metallurgical testing laboratory.

Attachments: Fastener Testing Data Sheets and Metallurgical Certificates (for each sample lot)

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10127-PT-002-LP&L

Fastener Description: A193 GR B7
3/4 x 4 1/2

Description of Sample Stock Location:
Warehouse bin - DSEE (Level B storage)

Material Specification as Documented by Licensee Records:
ASME III Subsection NC (1977 addenda summer 1978)

Head Marking (Specification and Manufacturer):
GT 7 N-B7

**Class/Procurement Level:
Quality Class I

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original Pressure Boundary)

Vendor: P.O. L-94410
NOVA Machine Products

QA Requirements Imposed on Vendor:
Supply Certification of Compliance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5783
SHEET NO. 1 of 2
JOB NO. 10127-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample from Six (6) - 3/4" dia. x 4½" Long Bolts - ASME-SA-193 Gr. B7

for Louisiana Power and Light - Waterford 3

Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt No.	-1	-2	-5	-6	Requirements
Ultimate Tensile Strength (ksi)			148.5	157.8	125 (min)
0.2% Offset Yield Strength (ksi)			146.7	149.7	105 (min)
Hardness (HRC)	30.8	32.5			Not Specified

The above bolts satisfy the requirements of ASME SA-193 Grade B7.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

NOTES: Refer to LP&L P.O. #C30630, MRIR 6612-86.

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

This Metallurgical Certificate may not be altered, deleted from, published and/or used except in full, shall not be used for advertising or in connection with advertising of any kind unless permission for the publishing or advertising of an approved abstract has been obtained, in writing, from Partek Laboratories, Inc.

PMCL LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5783
SHEET NO. 2 of 2
JOB NO. 10127-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt No.	-3	-4	Required SA-193 Gr. B7
Carbon	0.38	0.40	0.37-0.40
Manganese	0.84	0.85	0.65-1.10
Phosphorus	0.013	0.013	0.035 Max.
Sulfur	0.025	0.027	0.040 Max.
Silicon	0.22	0.23	0.15-0.35
Chromium	1.02	1.01	0.75-1.2
Molybdenum	0.22	0.22	0.15-0.25
Iron	Balance	Balance	Balance

The above material satisfies the product analysis requirements of ASME-SA-193 Gr B7.

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10128-PT-002-LP&L

Fastener Description: A193 GR B8
5/8 X 2

Description of Sample Stock Location:
Warehouse bin B03B / DXEB (Unit 1 storage)

Material Specification as Documented by Licensee Records:
ASME III NCA 3867.4
ASME II SA 193 GR B8

Head Marking (Specification and Manufacturer):
S B8

**Class/Procurement Level:
Safety Related / QA Required

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original application Pressure Boundary)

Vendor: P.O. L-33146
PEPCO

QA Requirements Imposed on Vendor:
Supply Certificate of Conformance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5793
SHEET NO 1 of 2
JOB NO 10128-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 5/8" diameter x 2" long Bolts - ASME-SA-193 Grade B8
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			94.2	94.2	75 Minimum
0.2% Offset Yield Strength (ksi)			76.1	75.5	30 Minimum
Hardness (HRB)	91.5	93.6			96 Maximum

The above bolts satisfy the requirements of ASME-SA-193 Grade B8.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes: Refer to LP&L P.O. #C30633, MRIR #4735-83

CERTIFIED BY:

R L Sutton

R.L. Sutton - Senior Staff Metallurgist

This Metallurgical Certificate may not be altered, deleted from, published and/or used except in full, shall not be used for advertising or in connection with advertising of any kind unless permission for the publishing or advertising of an approved abstract has been obtained, in writing, from Partek Laboratories, Inc.

P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5793
SHEET NO. 2 of 2
JOB NO. 10128-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-4	Required
Carbon	0.07	0.07	0.08 Maximum
Manganese	1.62	1.62	2.0 Maximum
Phosphorus	0.027	0.027	0.045 Maximum
Sulfur	0.018	0.018	0.030 Maximum
Silicon	0.40	0.40	1.0 Maximum
Chromium	18.30	18.39	18.0 - 20.0
Nickel	8.47	8.57	8.0 - 10.5
Molybdenum	0.37	0.38	Not Specified
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-193 Grade B8

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10129-PT-002-LP&L

Fastener Description: A194 GR 2H 5/8"

Description of Sample Stock Location:

Warehouse bin 766F (Level B storage)

Material Specification as Documented by Licensee Records:

ASME-A194 GR 2H

Head Marking (Specification and Manufacturer):

T H 2

**Class/Procurement Level:

Quality Class I

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

Warehouse surplus material (original application pressure boundary)

Vendor: P.O. L-83007

NOVA Machine Products

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-89

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5784
SHEET NO. 1 of 1
JOB NO. 10129-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 5/8" Nuts - ASTM-A-194 Grade 2H
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt No.	-1	-2	Required ASTM-A-194 Gr.2H
Hardness (HRC)	28.8	30.3	24 - 38

Bolt No.	-3	-4	
Carbon	0.44	0.43	0.40 minimum
Manganese	0.74	0.74	Not Specified
Phosphorus	0.014	0.013	0.040 maximum
Sulfur	0.022	0.020	0.050 maximum
Silicon	0.20	0.20	Not Specified
Chromium	0.08	0.08	Not Specified
Iron	Balance	Balance	Balance

Notes: Refer to LP&L P.O. #C30633 MRIR#3851-86
The above bolts satisfy the requirements of ASTM-A-194 Grade 2H.

CERTIFIED BY:

RL Sutton

R.L. Sutton - Senior Staff Metallurgist

This Metallurgical Certificate may not be altered, deleted from, published and/or used except in full, shall not be used for advertising or in connection with advertising of any kind unless permission for the publishing or advertising of an approved abstract has been obtained, in writing, from Partek Laboratories, Inc.

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10130-PT-002-LP&L

Fastener Description: A 194 GR 8 3/4

Description of Sample Stock Location:

Warehouse bin 809 D (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM A194 GR 8 latest edition (1-27-84)

Head Marking (Specification and Manufacturer):

3762 8B

**Class/Procurement Level:

Safety Related/QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14002 / TR-3252

Southern Bolt & Fastener

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5794
SHEET NO. 1 of 1
JOB NO. 10130-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 5/8" Nuts - ASME-SA-194 Grade 8B
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	Required
Hardness (HRC)	32.5	33.8	Not Specified

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	Required
Carbon	0.08	0.08	0.08 Maximum
Manganese	1.60	1.60	2.0 Maximum
Phosphorus	0.026	0.027	0.045 Maximum
Sulfur	0.019	0.023	0.030 Maximum
Silicon	0.67	0.89	1.0 Maximum
Chromium	18.55	18.78	18.0 - 20.0
Nickel	9.27	9.24	8.0 - 10.5
Molybdenum	0.34	0.32	Not Specified
Iron	Balance	Balance	Balance

The above nuts satisfy the requirements of ASME-SA-194 Grade 8B.

Notes: Refer to LP&L P.O. #C30633, MRIR#2761-85.

CERTIFIED BY:

R L Sutton

R.L. Sutton - Senior Staff Metallurgist

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10131-PT-002-LP&L

Fastener Description: A325 Type 1
3/4 X 1 1/2

Description of Sample Stock Location:

Warehouse bin 179C/767A (Level B Storage)

Material Specification as Documented by Licensee Records:

ASTM- A325 Type 1

Head Marking (Specification and Manufacturer):

Texas Bolt A-325 OD17

**Class/Procurement Level:

Safety Related / QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14690/TR-3224
Texas Bolt

QA Requirements Imposed on Vendor:

Supply certificate of compliance

Licensee Representative:

Barry M Tapps

Signature Barry M Tapps Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5785
SHEET NO. 1 of 2
JOB NO. 10131-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 3/4" diameter x 1½" long Bolts - ASME-SA-325 Type 1
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-3	-4	Requirement
Ultimate Tensile Strength (ksi)			144.3	137.4	120 minimum
0.2% Offset Yield Strength (ksi)			144.3	137.1	92 minimum
Hardness (HRC)	34.3	35.0			24 - 35

The above referenced bolts satisfy the requirements of ASME-SA-325 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes: Refer to LP&L P.O. #C30633, MRIR 2720-85.

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

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Parick LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5785
SHEET NO. 2 of 2
JOB NO. 10131-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-5	-6	Requirements
Carbon	0.43	0.41	0.27 Minimum
Manganese	0.77	0.78	0.47 Minimum
Phosphorus	0.013	0.014	0.048 Maximum
Sulfur	0.019	0.018	0.058 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10132-PT-002-LP&L

Fastener Description: A325 Type 1

5/8 x 2

Description of Sample Stock Location:

Warehouse bin 179C (Unit B storage)

Material Specification as Documented by Licensee Records:

ASTM-A325 Type 1

Head Marking (Specification and Manufacturer):

BTS A325

**Class/Procurement Level:

Safety Related / QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14608/TR-3224

Southern Bolt

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Temps

Signature Barry M Temps Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5786
SHEET NO 1 of 2
JOB NO 10132-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 5/8" diameter x 2" long Bolts - ASME-SA-325 Type 1
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-4	-6	Required
Ultimate Tensile Strength (ksi)			142.0	138.0	120 minimum
0.2% Offset Yield Strength (ksi)			140.7	133.6	92 minimum
Hardness (HRC)	28.8	27.5			24-35

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes: Refer to LP&L P.O. #C30633, MRIR-2720-85.

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

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Pratt LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5786
SHEET NO. 2 of 2
JOB NO. 10132-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-5	Required
Carbon	0.39	0.38	0.27 Minimum
Manganese	0.71	0.70	0.47 Minimum
Phosphorus	0.012	0.017	0.048 Maximum
Sulfur	0.022	0.022	0.058 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10133-PT-002-LP&L

Fastener Description: A325 Type 1 3/4 X 2 / A194 GR 2H 3/4

Description of Sample Stock Location:

Warehouse bin 508H (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A325 Type 1 / ASTM A563 GR C, D or DH or ASTM-A194 GR 2 or 2H

Head Marking (Specification and Manufacturer):

Texas Bolt A325 OD18 \ / / TH 2 OD23

**Class/Procurement Level:

Safety Related/QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14640/TR-4650

Texas Bolt

QA Requirements Imposed on Vendor:

Supply certificate of compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partex LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5787
SHEET NO. 1 of 3
JOB NO. 10133-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 3/4" diameter x 2" long Bolts with Nuts
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA. (Bolts)

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			146.4	143.1	125 Minimum
0.2% Offset Yield Strength (ksi)			145.2	140.7	92 Minimum
Hardness (HRC)	31.7	30.0			24 - 35

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data: Bolts
Sheet 3: Chemical and Physical Data: Nuts

Notes: Refer to LP&L P.O. #C30633 MRIR-6277-86.

CERTIFIED BY

R.L. Sutton - Senior Staff Metallurgist

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CERTIFICATE NO. 5787
SHEET NO. 2 of 3
JOB NO. 10133-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-4	Required
Carbon	0.44	0.43	0.40 Minimum
Manganese	0.79	0.78	0.47 Minimum
Phosphorus	0.014	0.014	0.048 Maximum
Sulfur	0.020	0.020	0.058 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

Patch LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5787
SHEET NO. 3 of 3
JOB NO. 10133-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

PHYSICAL AND CHEMICAL DATA - Nuts:

Sample Number	-1N	-2N	Required
Hardness (HRC)	30.8	30.5	24 - 38

Sample Number	-3N	-4N	Required
Carbon	0.36	0.34	0.40 Minimum
Manganese	0.78	0.77	Not Specified
Phosphorus	0.013	0.013	0.040 Maximum
Sulfur	0.025	0.025	0.050 Maximum
Silicon	0.19	0.18	Not Specified
Chromium	0.15	0.15	Not Specified
Iron	Balance	Balance	Balance

The above material does not satisfy the requirements of ASME-SA-194 Grade 2H Nuts.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10134-PT-002-LP2L

Fastener Description: A 325 Type 1 / A194 GR 2H
1 X 2 1

Description of Sample Stock Location:
Warehouse bin 509J (Level B storage)

Material Specification as Documented by Licensee Records:
ASTM-A325 Type 1 / ASTM A563 GR C, D or DH

Head Marking (Specification and Manufacturer): ASTM A194 or GR 2 or 2H
TB A325 OD33 1 / TH2 OD39

**Class/Procurement Level:
Safety Related / QA Required BMT 1-15-88

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14640 / TR-4951
Texas Bolt

QA Requirements Imposed on Vendor:
Supply Certificate of Compliance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES

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CERTIFICATE NO. 5783
SHEET NO. 1 of 3
JOB NO. 10134-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 1" diameter x 2" long Bolts with Nuts

from Louisiana Power and Light - Waterford 3

for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			135.3	128.0	125 Minimum
0.2% Offset Yield Strength (ksi)			133.7	124.6	92 Minimum
Hardness (HRC)	27.8	30.1			24 - 35

The above bolts satisfy the requirements of ASME -SA-325 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data - Bolts
Sheet 3: Chemical and Physical Data - Nuts

Notes: Refer to LP&L P.O. #C30633, MRIR# 6619-86

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R.L. Sutton

R.L. Sutton - Senior Staff Metallurgist

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CERTIFICATE NO. 5788
SHEET NO. 2 of 3
JOB NO. 10134-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA - Bolts:

Bolt Number	-3	-4	Required
Carbon	0.44	0.44	0.40 Minimum
Manganese	0.66	0.67	0.47 Minimum
Phosphorus	0.012	0.012	0.048 Maximum
Sulfur	0.023	0.023	0.058 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-325 Type 1.

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Parker LABORATORIES
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CERTIFICATE NO. 5788
SHEET NO. 3 of 3
JOB NO. 10134-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL AND PHYSICAL DATA - Nuts:

Sample Number	-1N	-2N	Required
Hardness (HRC)	34.8	30	24 - 38

Sample Number	-3N	-4N	Required
Carbon	0.43	0.34	0.40 Minimum
Manganese	0.72	0.71	Not Specified
Phosphorus	.012	.012	0.040 Maximum
Sulfur	0.021	0.023	0.050 Maximum
Silicon	0.17	0.18	Not Specified
Chromium	0.09	0.19	Not Specified
Iron	Balance	Balance	Balance

The above material does not satisfy the requirements of ASME-SA-194 Grade 2H.

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10135-PT-002-LP&L

Fastener Description: A563 GR "C" 7/8

Description of Sample Stock Location:

Warehouse bin 766R (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A563

Head Marking (Specification and Manufacturer):

T

**Class/Procurement Level:

Safety Related / QA Required ATMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-56511 / TR 5748

Texas Bolt

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature ~~B~~ Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5789
SHEET NO 1 of 1
JOB NO 10135-PT-003
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Twelve (12) - 7/8" Nuts - ASME-SA-563 Grade C

from Louisiana Power and Light - Waterford 3

for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	-7	-8	Required
Hardness (HRC)	30.5	30.0	30.0	32.0	B78-C38

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	-9	-10	Required
Carbon	0.27	0.37	0.28	0.29	0.58 Maximum
Manganese	0.73	0.74	0.74	0.75	Not Specified
Phosphorus	0.013	0.013	0.013	0.013	0.13 Maximum
Sulfur	0.024	0.024	0.023	0.024	0.15 Maximum
Iron	Balance	Balance	Balance	Balance	Balance

The above material satisfies the requirements of ASME-SA-563 Grade C

Notes: Refer to LP&L P.O. #C30633 MRIR-#9034-87

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R.L. Sutton - Senior Staff Metallurgist

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10136-PT-002-LP&L

Fastener Description: A 563 GR "A" 5/8

Description of Sample Stock Location:

Warehouse bin 809D (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A563 GR "A"

Head Marking (Specification and Manufacturer):

B|S

**Class/Procurement Level:

Safety Related / QA Required BWT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-12667 / TR 4991

Hardware Specialties

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Pyrtek
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P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5790
SHEET NO 1 of 1
JOB NO 10136-PO-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Twelve (12) - 5/8" Nuts - ASME-SA-563 Grade A

from Louisiana Power and Light - Waterford 3

for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	-3	-4	Required
Hardness (HRB)	94.5	95.0	96.8	95.6	B68 - C32

CHEMICAL TEST DATA:

Sample Number	-5	-6	-7	-8	Required
Carbon	0.17	0.17	0.12	0.15	0.58 Maximum
Mangahese	0.60	0.59	0.60	0.60	Not Specified
Phosphorus	0.013	0.013	0.012	0.013	0.13 Maximum
Sulfur	0.020	0.019	0.016	0.016	0.15 Maximum
Iron	Balance	Balance	Balance	Balance	Balance

The above material satisfies the requirements of ASME-SA-536 Grade A.

Notes: Refer to LP&L P.O. #C30633 MRIR#6827-86

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R.L. Sutton - Senior Staff Metallurgist

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10137-PT-002-LP&L

Fastener Description: A490 Type 1

1⅛ x 6

Description of Sample Stock Location:

Warehouse bin 028H (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A490 Type 1

Head Marking (Specification and Manufacturer):

A490 LE GR 3

**Class/Procurement Level:

Quality Class I

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

Warehouse surplus material (original application structural)

Vendor: P.O. L 85-072

NOVA Machine Products

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Pittsburgh LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5791
SHEET NO. 1 of 2
JOB NO. 10137-PT-002
SAMPLE ID. As-Noted
DATE 10 December, 1987

Metallurgical Certificate

Sample Six (6) - 1 1/8" diameter x 6" long Bolts - ASME-A-490 Type 1

from Louisiana Power and Light - Waterford 3

for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements and applicable ASTM standard testing methods and proceudres.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tersile Strength (ksi)			166.5	163.3	150 - 170
0.2% Offset Yield Strength (ksi)			166.5	158.2	120 Minimum
Hardness (HRC)	33.8	34.0			33 - 38

The above bolts satisfy the requirements of ASTM A-490 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes: Refer to LP&L P.O. #C30633 MRIR#6130-86

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R.L. Sutton - Senior Staff Metallurgist

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Parick LABORATORIES
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CERTIFICATE NO. 5791
SHEET NO. 2 of 2
JOB NO. 10137-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-4	Required
Carbon	0.39	0.38	0.28 - 0.50
Manganese	0.81	0.80	Not Specified
Phosphorus	0.013	0.013	0.045 Maximum
Sulfur	0.017	0.016	0.045 Maximum
Copper	0.10	0.10	Not Specified
Chromium	0.32	0.31	Not Specified
Nickel	<0.01	<0.01	Not Specified
Molybdenum	0.18	0.17	Not Specified
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements for ASTM-A-490 Type 1.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10138-PT-002-LP&L

Fastener Description: A490 Type 1 / 7/8 nut
7/8 x 2 1/2 / A194 GR 2H

Description of Sample Stock Location:
Warehouse bin 506E (Level B storage)

Material Specification as Documented by Licensee Records:
ASTM A490 TypeI / ASTM A194 GR 2H

Head Marking (Specification and Manufacturer):
TB A490 JC88 / TH2 OD13

**Class/Procurement Level:
Safety Related / QA Required BMT 1-15-88

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14467 / TR-4739
Texas Bolt

QA Requirements Imposed on Vendor:
Supply Certificate of Compliance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5792
SHEET NO 1 of 3
JOB NO 10138-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 7/8" diameter x 2½" long Bolts with Nuts
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			166.0	167.7	150 - 170
0.2% Offset Yield Strength (ksi)			166.0	167.7	130 Minimum
Hardness (HRC)	34.0	33.5			33 - 38

The above bolts satisfy the requirements of ASTM-A-490 Type 1.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data - Bolts
Sheet 3: Chemical and Physical Data - Nuts

Notes: Refer to LP&L P.O. #C30633, MRIR# 6357-86.

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

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Parker LABORATORIES
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CERTIFICATE NO. 5792
SHEET NO. 2 of 3
JOB NO. 10138-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA - Bolts:

Bolt Number	-3	-4	Required
Carbon	0.37	0.37	0.28 - 0.50
Manganese	0.85	0.85	Not Specified
Phosphorus	0.013	0.013	0.045 Maximum
Sulfur	0.025	0.026	0.045 Maximum
Copper	0.17	0.18	Not Specified
Chromium	0.87	0.87	Not Specified
Nickel	0.10	0.10	Not Specified
Molybdenum	0.19	0.20	Not Specified
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASTM-A-490 Type 1.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

LABORATORIES
P O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5792
SHEET NO. 3 of 3
JOB NO. 10138-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

PHYSICAL TEST DATA:

Sample Number	-1N	-2N	Required
Hardness (HRC)	27.6	32.0	24 - 38

CHEMICAL ANALYSIS DATA:

Sample Number	-3N	-4N	Required
Carbon	0.35	0.36	0.40 Minimum
Manganese	0.73	0.71	Not Specified
Phosphorus	0.013	0.012	0.040 Maximum
Sulfur	0.020	0.021	0.050 Maximum
Silicon	0.17	0.17	Not Specified
Iron	Balance	Balance	Balance

The above nuts do not satisfy the requirements of ASME-SA-194 Grade 2H.

Certified By:

R.L.Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10139-PT-002-LP&L

Fastener Description: A563 GR "A"

1 1/2

Description of Sample Stock Location:

Warehouse bin 766L (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A563 GR A

Head Marking (Specification and Manufacturer):

BTS

**Class/Procurement Level:

Safety Related / QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-6970 / TR-3948

Hardware Specialties

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M. Toups Date 1-14-88

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

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

Pan-Tex LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5795
SHEET NO 1 of 1
JOB NO 10139-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 1½" Hex Nuts - ASME-SA-536 Grade A
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	Required
Hardness (HRB)	82.2	78.1	B68 - C32

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	Required
Carbon	0.18	0.17	0.58 Maximum
Manganese	0.74	0.74	Not Specified
Phosphorus	0.013	0.014	0.13 Maximum
Sulfur	0.024	0.024	0.15 Maximum
Iron	Balance	Balance	Balance

The above nuts satisfy the requirements of ASME-SA-563 Grade A.

Notes: Refer to LP&L P.O. #C30633, MRIR #5115-86

CERTIFIED BY:

R L Sutton

R.L. Sutton - Senior Staff Metallurgist

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10140-PT-002-LP&L

Fastener Description: A307 GR "B"
3/4 X 8TPI X 3 3/4

Description of Sample Stock Location:
Warehouse bin 766R (Level B storage)

Material Specification as Documented by Licensee Records:
ASME - SA-307 GR "B"

Head Marking (Specification and Manufacturer):
T B

**Class/Procurement Level:
#SAE III CL 2 = Safety Related/QA Required BMT 1-15-88

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original application pressure boundary)

Vendor: P.O.-NY-403433 / TR-5748
Dravo

QA Requirements Imposed on Vendor:
Supply Certificate of Compliance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partex LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5796
SHEET NO 1 of 2
JOB NO 10140-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 3/8" diameter x 3 3/4" long Bolts ASME-SA-307 Grade B
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			90.1	82.6	60 - 100
0.02% Yield Strength (ksi)			83.5	72.8	Not Specified
Hardness (HRB)	98.0	94.5			69 - 95

The above bolts do not satisfy the requirements of ASME-SA-307 Grade B.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes: Refer to LP&L P.O. #C30633, MRIR #9034-87

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

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Parick LABORATORIES
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CERTIFICATE NO. 5796
SHEET NO. 2 of 2
JOB NO. 10140-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-4	Required
Carbon	0.18	0.40	Not Specified
Manganese	0.76	0.74	Not Specified
Phosphorus	0.013	0.012	0.060 Maximum
Sulfur	0.027	0.026	0.050 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-307 Grade B.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10141-PT-002-LP&L

Fastener Description: A307 GR A
5/8 x 11 TPI x 1½

Description of Sample Stock Location:
Warehouse bin 766V (Level B storage)

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

Head Marking (Specification and Manufacturer):
B|S

**Class/Procurement Level:
Safety Related / QA Required BMT 1-15-88

General Plant Application (e.g., Pressure Boundary, Structural)
Warehouse surplus material (original application structural)

Vendor: P.O. WP3-7051 / TR-5748
Hardware Specialty

QA Requirements Imposed on Vendor:
Supply Certificate of Compliance

Licensee Representative:
Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partex LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5797
SHEET NO. 1 of 2
JOB NO. 10141-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Six (6) - 5/8" diameter x 1½" long Bolts - ASME-SA-307 Grade A
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Bolt Number	-1	-2	-5	-6	Required
Ultimate Tensile Strength (ksi)			81.4	85.4	60 - 100
0.2% Offset Yield Strength (ksi)			81.0	84.0	Not Specified
Hardness (HRB)	98.5	97.3			69 - 100

The above bolts satisfy the requirements of ASME-SA-307 Grade A.

Sheet 1: Reference Certificate
Sheet 2: Chemical Analysis Data

Notes; Refer to LP&L P.O. #C30633 MRIR#9034-87.

CERTIFIED BY:

R.L. Sutton - Senior Staff Metallurgist

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Pittsburgh LABORATORIES
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CERTIFICATE NO 5797
SHEET NO 2 of 2
JOB NO 10141-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

CHEMICAL ANALYSIS DATA:

Bolt Number	-3	-4	Required
Carbon	0.13	0.14	Not Specified
Manganese	0.72	0.72	Not Specified
Phosphorus	0.013	0.013	0.060 Maximum
Sulfur	0.024	0.024	0.150 Maximum
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASME-SA-307 Grade A.

Certified By:

R L Sutton

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10175-PT-002-LP&L

Fastener Description: ASTM-A307 GR "B" / 7/8 nut
7/8 x 4 1/2

Description of Sample Stock Location:

Warehouse bin 1417 (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A307 GR "B"

Head Marking (Specification and Manufacturer):

A 325 △ / none

**Class/Procurement Level:

Non Safety Related/Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-1309

Crane Supply Co.

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Tomps

Signature Barry M Tomps Date 1-14-88

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

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

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P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO 5798
SHEET NO 1 of 2
JOB NO 10175-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 7/8" x 4½" - ASTM-A-307 Grade B Bolts with Nuts
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	Required
Hardness	31.0 HRC	29.8 HRC	69 - 95 HRB

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	Required
Carbon	0.34	0.34	Not Specified
Manganese	0.71	0.70	Not Specified
Phosphorus	0.013	0.013	.04 Maximum
Sulfur	0.027	0.027	.05 Maximum
Silicon	0.17	0.17	Not Specified
Iron	Balance	Balance	Balance

The above material does not satisfy the requirements of ASTM-A-307 Grade B bolts.

Notes: Refer to LP&L P.O. #C30633, T/R 1156.

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R.L. Sutton - Senior Staff Metallurgist

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CERTIFICATE NO. 5798
SHEET NO. 2 of 2
JOB NO. 10175-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

PHYSICAL TEST DATA - Nuts:

Sample Number	-1N	-2N
Hardness	91 HRB	93 HRB

CHEMICAL ANALYSIS DATA:

Sample Number	-3N	-4N
Carbon	0.40	0.41
Manganese	0.75	0.76
Phosphorus	0.013	0.014
Sulfur	0.025	0.027
Silicon	0.13	0.18
Iron	Balance	Balance

Certified By:

R.L. Sutton
Senior Staff Metallurgist

Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10176-FT-002-LP&L

Fastener Description: ASTM-A307 GR "B"

1¼ x 6½

Description of Sample Stock Location:

Warehouse bin 130H (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A307 GR "B"

Head Marking (Specification and Manufacturer):

T B

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-1853

Consolidated Services, Co

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

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CERTIFICATE NO. 5799
SHEET NO. 1 of 1
JOB NO. 10176-PT-003
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 1¼" x 6½" - ASTM-A-307 Grade B Bolt - Non-Safety Related
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commision Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	Required
Hardness (HRB)	70.8	67.8	69 - 95

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	Required
Carbon	0.15	0.15	Not Specified
Manganese	0.73	0.73	Not Specified
Phosphorus	0.013	0.013	0.040 Maximum
Sulfur	0.026	0.027	0.050 Maximum
Silicon	0.03	0.04	Not Specified
Iron	Balance	Balance	Balance

The above bolts do not satisfy the requirements of ASTM-A-307 Grade B bolts.

NOTES: Refer to LP&L P.O. #C30633 T/R 2005

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10177-PT-002-LP&L

Fastener Description: 7/8" nut

Description of Sample Stock Location:

Warehouse bin 133H/1302 (Level B storage)

Material Specification as Documented by Licensee Records:

none

Head Marking (Specification and Manufacturer):

none

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-13573

Alloy & Steel Fabricators Inc.

QA Requirements Imposed on Vendor:

none

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

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CERTIFICATE NO. 5800
SHEET NO. 1 of 1
JOB NO. 10177-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 7/8" Hex Nuts - Non-Safety Related
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1N	-2N
Hardness (HRB)	91.8	85.6

CHEMICAL ANALYSIS DATA:

Sample Number	-3N	-4N
Carbon	0.37	0.41
Manganese	0.72	0.72
Phosphorus	0.14	0.014
Sulfur	0.025	0.022
Silicon	0.23	0.20
Iron	Balance	Balance

Notes: Refer to LP&L P.O. #30633, TR1997

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10178-PT-002-LP&L

Fastener Description: 1 X 1 3/4

Description of Sample Stock Location:

Warehouse bin 140A (Level B storage)

Material Specification as Documented by Licensee Records:

none

Head Marking (Specification and Manufacturer):

A325 BTS

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-14197

Landry Lumber Co.

QA Requirements Imposed on Vendor:

none

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
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CERTIFICATE NO. 5801
SHEET NO. 1 of 1
JOB NO. 10178-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 1" diameter x 1 3/4" long Bolts - Non-Safety Related
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2
Hardness (HRC)	29.5	27.8

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4
Carbon	0.35	0.34
Manganese	0.76	0.76
Phosphorus	0.013	0.013
Sulfur	0.023	0.024
Silicon	0.15	0.14
Iron	Balance	Balance

Notes: Refer to LP&L P.O. #30633, T/R1937

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10179-PT-002-LP&L

Fastener Description: 7/8 x 2 / 7/8 nut

Description of Sample Stock Location:

Warehouse bin 133H (Level B storage)

Material Specification as Documented by Licensee Records:

none

Head Marking (Specification and Manufacturer):

none

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-13573

Alloy & Steel Fabricators, Inc

QA Requirements Imposed on Vendor:

none

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partex LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5802
SHEET NO. 1 of 1
JOB NO. 10179-PT-002
SAMPLE ID. As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample from Four (4) - 7/8" x 2" long Bolts with Nuts - Non-Safety Related
Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	-1N	-2N
Hardness	21.3 HRC	20.8 HRC	73.5 HRB	69.5 HRC

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	-3N	-4N
Carbon	0.08	0.05	0.16	0.17
Manganese	0.54	0.49	0.70	0.69
Phosphorus	0.013	0.013	0.014	0.013
Sulfur	0.024	0.025	0.027	0.026
Silicon	0.13	0.16	0.21	0.21
Iron	Balance	Balance	Balance	Balance

Notes: Refer to LP&L P.O. #C30633, T/R 1997

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10180-PT-002-LP&L

Fastener Description:

3/4 X 3 1/2 Tee bolt / 3/4 nut

Description of Sample Stock Location:

Warehouse bin 071F (Level B storage)

Material Specification as Documented by Licensee Records:

none

Head Marking (Specification and Manufacturer):

none

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Vendor: Warehouse surplus material (original application structural)
P.O. WP3-914
LCR Corporation

QA Requirements Imposed on Vendor:

none

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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

Partek LABORATORIES
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CERTIFICATE NO 5804
SHEET NO 1 of 1
JOB NO 10180-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 3/4" diameter x 3½" long Bolts with Nuts
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	-1N	-2N
Hardness	85.5	93.0	77	77.2

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	-3N	-4N
Carbon	1.6	1.6	1.5	2.2
Manganese	0.48	0.46	0.46	0.44
Phosphorus	0.019	0.028	0.019	0.018
Sulfur	0.042	0.026	0.023	0.032
Silicon	0.87	0.88	0.88	0.82
Iron	Balance	Balance	Balance	Balance

Notes: Refer to LP&L P.O. #C30633, T/R2017

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Attachment 1

Fastener Testing Data Sheet

*Sample ID#

10181-PT-002-LP&L

Fastener Description: ASTM-A307 GR "B" / 5/8 nut
5/8 x 2 1/2 Tee bolt

Description of Sample Stock Location:

Warehouse bin 134G (Level B storage)

Material Specification as Documented by Licensee Records:

ASTM-A307 GR "B"

Head Marking (Specification and Manufacturer):

none / WP3

**Class/Procurement Level:

Non Safety Related / Non QA Required BMT 1-15-88

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

Warehouse surplus material (original application structural)

Vendor: P.O. WP3-1407
LCR Corporation

QA Requirements Imposed on Vendor:

Supply Certificate of Compliance

Licensee Representative:

Barry M Toups

Signature Barry M Toups Date 1-14-88

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

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Parlek LABORATORIES
P.O. Box 749 Houma, Louisiana 70361 Phone (504) 851-5310

CERTIFICATE NO. 5803
SHEET NO. 1 of 2
JOB NO. 10181-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

Metallurgical Certificate

Sample Four (4) - 5/8" x 2½" ASTM-A-307 Grade B Bolts with Nuts - Non-Safety Related
from Louisiana Power and Light - Waterford 3
for Chemical and Physical Testing

Chemical and Physical Testing is certified and performed in accordance with the requirements of Nuclear Regulatory Commission Bulletin 87-02, customer requirements, and applicable ASTM standard testing methods and procedures.

PHYSICAL TEST DATA:

Sample Number	-1	-2	Required
Hardness (HRB)	90.0	91.0	69 - 95

CHEMICAL ANALYSIS DATA:

Sample Number	-3	-4	Required
Carbon	0.11	0.10	Not Specified
Manganese	0.62	0.61	Not Specified
Phosphorus	0.018	0.017	0.040 Maximum
Sulfur	0.025	0.025	0.050 Maximum
Silicon	0.31	0.31	Not Specified
Iron	Balance	Balance	Balance

The above bolts satisfy the requirements of ASTM-A-307 Grade B.

Notes: Refer to LP&L P.O. #C30633, T/R 1981.

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R L Sutton

R.L. Sutton - Senior Staff Metallurgist

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CERTIFICATE NO 5803
SHEET NO 2 of 2
JOB NO 10181-PT-002
SAMPLE ID As-Noted
DATE 30 December, 1987

PHYSICAL TEST DATA - Nuts:

Sample Number	-1N	-2N
Hardness (HRB)	90.0	90.8

CHEMICAL ANALYSIS DATA:

Sample Number	-3N	-4N
Carbon	0.32	0.33
Manganese	0.90	0.90
Phosphorus	0.013	0.013
Sulfur	0.024	0.023
Silicon	0.22	0.22
Iron	Balance	Balance

Certified By:

R.L. Sutton
Senior Staff Metallurgist