



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

JOHN D. LEONARD, JR.
VICE PRESIDENT - NUCLEAR OPERATIONS

SNRC-1496

SEP 09 1988

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

NRC Bulletin 88-05
Nonconforming Materials Supplied By Piping Supplies, Inc. (PSI)
At Folsom, New Jersey And West Jersey Manufacturing (WJM)
Company At Williamstown, New Jersey
Docket No. 50-322

Gentlemen:

Attachment 1 to this letter describes LILCO's compliance with the requirements of the subject Bulletin. Being neither a full power Licensee nor a construction permit holder places LILCO in a unique category that is not specifically addressed in NRC Bulletin 88-05, Supplement No. 2. Thus, after discussions with the Shoreham NRC Project Manager, Mr. Stewart Brown, this report was prepared in the time frame allotted to full power Licensees and its scope is comparable to construction permit holders. As such, LILCO continued the 88-05 program upon receipt of Supplement No. 2 and this report provides the details of our review of purchasing records; determination of flange location; flange testing; and conclusion concerning the acceptability of these flanges.

In summary, based upon the results of LILCO's testing, performed in accordance with the requirements of NRC Bulletin 88-05, it is concluded that ASME Section III and ANSI B31.1 material installed in safety-related systems is acceptable for its intended use.

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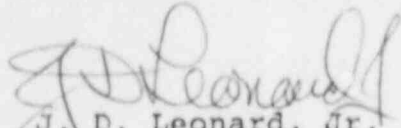
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This letter satisfies the 120 day reporting requirement of NRC Bulletin 88-05 dated May 6, 1988. Should you have any questions concerning this report please do not hesitate to call my office.

Very truly yours,



J. D. Leonard, Jr.
Vice President
Nuclear Operations

TD/ap

cc: S. Brown
W. T. Russell
F. Crescenzo

**Compliance Report
NRC Bulletin 88-05
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322**

Review of Purchasing Records

In order to comply with the requirements of the subject Bulletin, LILCO first had to determine the scope of purchase orders and receipt inspection packages to be reviewed. This was accomplished by reviewing LILCO's vendor purchasing cards and Traceability Control Number (TCN) log which was maintained by the AE (Stone and Webster) during plant construction. This log is divided into various sub-groups based on type of equipment, with piping materials being one of the sub-groups. Information contained in this log includes: TCN, vendor name, purchase order number, heat number, and description of material supplied. The TCN is given to material during receipt inspection, which is based on the purchase order number and heat number.

The purchase orders listed in this log formed the basis of LILCO's documentation review. The TCN log contains purchase orders from the time frame of construction start through early 1984. To supplement this list, purchasing records (Vendor card files) were reviewed from 1983 to the present. Any purchase orders issued for piping material during the latter time frame were added to LILCO's list of orders to be reviewed. This effort identified an approximate total of 600 purchase orders to be reviewed.

Receipt inspection packages were reviewed for each purchase order to determine if any materials were supplied by WJM, PSI or Chews Landing. If any of the documentation in the receipt inspection packages indicated or referenced any of the three identified vendors the material was considered suspect, catalogued, and we then determined whether the material was installed in safety-related systems.

Results of Purchasing Records Review

As a result of the purchasing records review and TCN log search, as described above, LILCO determined receipt of 212 WJM flanges through direct purchase orders issued to SNPS piping suppliers. In addition to these 212 flanges, Colt Industries informed LILCO that they furnished 36 WJM flanges on the skid mounted Colt emergency diesel generators (EDG). (Presently these three EDGs are not part of the Licensed Plant).

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Location of the Flanges

LILCO determined that 82 of the 212 flanges were in our Stores inventory. Three of these 82 flanges are no longer on site (we believe these three were sold during a recent auction as surplus material). The remaining 79 are in our parts inventory, and they were immediately placed on QC hold. To locate the remaining 130 direct purchased flanges a review (based on flange size, pressure rating, and material specification) of pertinent plant piping isometric drawings and installation data packages was performed. Installation data packages included N-5 code data reports and weld data packages. This review located 66 flanges in safety-related piping systems and concluded that the remaining 64 flanges were not installed in safety related service.

Testing Methodology and Results

LILCO commenced appropriate testing of the 145 (66 installed, 79 parts inventory) located flanges. The objective of this testing was to determine material hardness and ultimately whether the flanges were ASME code acceptable material. The in-situ testing method utilized by LILCO is that which was developed by NUMARC/EPRI, presented to the NRC (NUMARC letter from Mr. W.M. Rasin to the NRC, Mr. T. T. Martin, dated June 22, 1988) and generically adopted by the U.S. Nuclear Industry. As you are aware, this method called for the use of an Equotip hardness tester. LILCO's qualified nuclear quality control personnel conformed with the NUMARC guidelines which called for a conversion of the Equotip hardness number to a Brinell hardness number (BHN). The acceptance criteria for SA-105 material (which encompasses all the WJM flanges supplied to SNPS through primary piping suppliers) established the range of Brinell hardness numbers from 137 to 187. In one instance a flange had a hardness number slightly below 137 BHN. Additional hardness tests were made with a portable Eitzen Brinell Meter, using a 10 mm diameter steel ball and standard bar of the proper hardness range. Retesting the flange indicated the BHN hardness was acceptable.

All 65 flanges purchased from primary piping suppliers and installed in safety related systems have been tested for hardness. The results of these tests are detailed in Attachment 2 and indicate that the hardness of these flanges are within the range 137 - 187 Brinell and thus are considered code acceptable material. The information contained in Attachment 2 is in the same format as the information sent to NUMARC.

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The remaining WJM flanges in the Warehouse and the 36 supplied as skid mounted equipment on the Colt diesel generators will be tested and the requirements of the Bulletin will be complied with prior to placing any of these flanges in safety-related service.

Conclusion

As part of the generic industry program to address NRC Bulletin 88-05, laboratory tests were conducted on WJM material. This testing demonstrated that the material meets tensile strength requirements and chemistry requirements of the ASME code. In addition the laboratory tests have demonstrated that the use of "Equotip" field hardness readings converted to Brinell hardness and subsequently to tensile strength per ASME SA-370 provides a very conservative estimate of tensile strength.

Since the hardness test values (BHNS) for the Shoreham flanges indicate that the material strength properties are within the normally acceptable range for SA-105 material, these flanges are satisfactory for their intended service.

Key For Attachment 2 to SNRC-1496

Commodity

FLG = Flange
FIT - Fitting

Type

BL = Blind	SW = Socket Weld
FF = Flat Face	WN = Weld Neck
RF = Raised Face	SO = Slip On

Vendor and Source

P = Piping Supplies, Inc.
W = West Jersey Mfg.

Secondary Supply Chain

Supplier 1 = The supplier WJM/PSI sold material to.

Supplier 2 = The supplier providing the subject material to the utility.

BHN = Brinell Hardness Number

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>1</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>A39</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>3"</u>
Schedule:	<u>N/A</u>	Rating:	<u>150</u>
Type:	<u>RF-SO</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>7/9/80</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Standard Pipe & Supply Co., Inc.

Quantity:	<u>12</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>4</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>8</u>

TEST RESULTS

BHN

1. 138
2. 141
3. 155
4. 146

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>2</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>A79</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>1 1/2"</u>
Schedule:	<u>N/A</u>	Rating:	<u>150</u>
Type:	<u>FF-SO</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>8/26/83</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Guyon Alloys Inc.

Quantity:	<u>8</u>	Quantity In Stock:	<u>3</u>
Installed-Access:	<u>5</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

BHN

1. 173
2. 167
3. 182
4. 178
5. 157

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>3</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>038045</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>3"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>150</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>1/19/81</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Capitol Pipe and Steel Products Company.

Quantity:	<u>35</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>14</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>21</u>

ST RESULTS

<u>BHN</u>	<u>BHN</u>	<u>BHN</u>
1. 154	6. 169	11. 146
2. 156	7. 181	12. 143
3. 157	8. 144	13. 151
4. 163	9. 146	14. 156
5. 186	10. 145	

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>4</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>A95</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>3"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>300</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>1/19/81</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Capitol Pipe and Steel Products Company

Quantity:	<u>24 pr.</u>	Quantity In Stock:	<u>20 pr.</u>
Installed-Access:	<u>1 pr.</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>3pr</u>

Pair = 2 flanges

TEST RESULTS

BHN

1. 155
2. 141

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>5</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>3772</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>3/4"</u>
Schedule:	<u>160</u>	Rating:	<u>1500</u>
Type:	<u>RF-SW</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>1/19/83</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Guyon Alloys Inc.

Quantity:	<u>40</u>	Quantity In Stock:	<u>40</u>
Installed-Access:	<u>0</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>6</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>T22</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>1/2 "</u>
Schedule:	<u>160</u>	Rating:	<u>1500</u>
Type:	<u>SW</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>2/11/82</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Guyon Alloys, Inc.

Quantity:	<u>12</u>	Quantity In Stock:	<u>10</u>
Installed-Access:	<u>2</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

BHN

1. 149
2. 143

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>7</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>67J</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>3/4"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>300</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>3/6/80</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Standard Pipe and Supply Company, Inc.

Quantity:	<u>2</u>	Quantity In Stock:	<u>2</u>
Installed-Access:	<u>0</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>8</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>2167</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>4"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>150</u>
Type:	<u>RF-SO</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>3/15/84</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Capitol Pipe and Steel Products Company

Quantity:	<u>40</u>	Quantity In Stock:	<u>4</u>
Installed-Access:	<u>16</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>20</u>

TEST RESULTS

<u>BHN</u>	<u>BHN</u>
1. 144	9. 156
2. 155	10. 163
3. 148	11. 167
4. 143	12. 159
5. 148	13. 161
6. 158	14. 153
7. 168	15. 154
8. 158	16. 162

Plant:	<u>Shcreham</u>	Unit:	<u>1</u>
Line Item:	<u>9</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>T9774</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>6"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>300</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>4/16/79</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: Standard Pipe and Supply Company

Quantity:	<u>10</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>10</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

<u>BHN</u>	<u>BHN</u>
1. 140	6. 138
2. 144	7. 150
3. 138	8. 140
4. 139	9. 140
5. 140	10. 139

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>11</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>27K</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>18"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>150</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>10/13/76</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: DRAVO Corp.

Quantity:	<u>15</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>8</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>7</u>

TEST RESULTS

BHN

1. 141
2. 141
3. 147
4. 144
5. 140
6. 139
7. 140
8. 141

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>12</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>600773</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>12"</u>
Schedule:	<u>Std Wt</u>	Rating:	<u>300</u>
Type:	<u>RF-WN</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>'</u>	CMTR Date:	<u>10/13/76</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: DRAVO CORP.

Quantity:	<u>4</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>0</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>4</u>

TEST RESULTS

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>13</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>56989</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>24"</u>
Schedule:	<u>N/A</u>	Rating:	<u>150</u>
Type:	<u>RF-BL</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>2/26/82</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: DRAVO Corp.

Quantity:	<u>1</u>	Quantity In Stock:	<u>1</u> *
Installed-Access:	<u>0</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

* Believed to be sold in auction

Plant:	<u>horeham</u>	Unit:	<u>1</u>
Line Item:	<u>16</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>3276</u>	ASME Class:	<u>3</u>
Commodity:	<u>FLG</u>	Diameter:	<u>24"</u>
Schedule:	<u>N/A</u>	Rating:	<u>150</u>
Type:	<u>RF-SO</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>2/26/82</u>
NCA-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: DRAVO Corp.

Quantity:	<u>2</u>	Quantity In Stock:	<u>2</u> *
Installed-Access:	<u>0</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

* Believed to be sold in auction

Plant:	<u>Shoreham</u>	Unit:	<u>1</u>
Line Item:	<u>17</u>	Transaction:	<u>A</u>
Heat-Lot:	<u>3276</u>	ASME Class:	<u>2</u>
Commodity:	<u>FLG</u>	Diameter:	<u>24"</u>
Schedule:	<u>N/A</u>	Rating:	<u>150</u>
Type:	<u>RF-SO</u>	Spec:	<u>105</u>
Grade:	<u>N/A</u>	Source:	<u>W</u>
Vendor:	<u>W</u>	CMTR Date:	<u>1/15/82</u>
NCI-3800:	<u>Y</u>		

SECONDARY SUPPLY CHAIN

Supplier 1: _____ Supplier 2: DRAVO Corp.

Quantity:	<u>3</u>	Quantity In Stock:	<u>0</u>
Installed-Access:	<u>3</u>	Installed-Not Access:	<u>0</u>
		Quantity Not Installed in Safety-Related Systems	<u>0</u>

TEST RESULTS

BHN

1. 166
2. 156
3. 159