



**LOUISIANA  
POWER & LIGHT**

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August 5, 1983

W3P83-1853  
Q-3-A20.16  
L.09.02

Director of Nuclear Reactor Regulation  
Attention: Mr. G. W. Knighton, Chief  
Licensing Branch Number 3  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

SUBJECT: Waterford 3 SES  
Docket Number 50-382  
Environmental Qualification  
Rosemont Transmitters Model 1153A

Reference: W3P83-0320 dated January 27, 1983

Dear Mr. Knighton:

As indicated in Enclosure 3, page 71 of the reference submittal, additional information is required to resolve the aging and operability issues of the subject transmitters. The purpose of this letter is to supply the necessary information.

A resolution and supporting reports, which are included as attachments, provide an explanation on how the conclusion was reached that these transmitters are qualified for 6.5 years in containment or 19.3 years outside containment. These attachments are also intended to represent our justification for interim operation for the Rosemont 1153A transmitters.

If you have any questions on this submittal, please advise.

Sincerely,

F. J. Drummond  
Manager Engineering & Technical Services

FJD/SJD/ch  
Attachments

cc: Jim Wilson, Hukam Garg, E. L. Blake, W. M. Stevenson

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## Attachments

- 1: Resolution
- 2: Justification for Interim Operation
- 3: EDS Report No. 03-0490-1037 Rev. 0, Nov. 1982
- 4: Westinghouse "Qualification Testing of Rosemont Model 1153 Series A Electronic Transmitters", December 1978
- 5: "Post-test analysis of 1153 Series A Pressure Transmitters for Westinghouse PWR Systems Division." RMT Report No. 179912A

The qualification lifetime for safety related transmitters used at the Waterford-3 Steam Electric Station has been questioned by the NRC.

The present objective is to establish a qualified life for the Rosemont 1153 Series A transmitters presently installed at various locations in the containment and reactor auxiliary buildings at Waterford-3.

The Rosemont Model 1153 A transmitters used in containment and in the reactor auxiliary building were purchased to IEEE 323-1971 qualifications through the NSSS and Ebasco contacts for Waterford-3. Subsequent to this purchase, the IEEE 323-1974 was issued which required thermal aging as part of the qualification testing. The Rosemont 1153 A transmitters are not qualified to the 1974 methodology. Although the purchase orders predate the IEEE Standard, Louisiana Power & Light Company has elected to comply, where feasible, with the more conservative requirements. Therefore, we contracted EDS Nuclear to provide an analysis for the qualified life of the Rosemont 1153 A transmitters.

The basis of the EDS analysis is a qualification test performed by Westinghouse and calculations which use Arrhenius techniques. The question of qualification has arisen since the issuance of the Westinghouse Report in which three out of four 1153 A transmitters failed in post-LOCA environment.

The thermal portion of the Westinghouse test is considered valid because the three failed samples did not fail as a result of common mode. The first of the three failed test units presented erratic readings and was considered a random failure which was not attributed to testing. The second failure was caused by a degraded cable entry seal which allowed caustic boric acid spray to enter the dye cavity and caused output errors. The third failure was due to a cable entry seal fitting which leaked and allowed the boric acid spray to enter the terminal side of the electronic housing. The fourth test specimen passed the LOCA test.

Since two of the three failures were attributed to degraded cable entry seal, which were not within the scope of the test, and since Ebasco is providing cable seals which are environmentally qualified for incontainment services and the third failure is considered random, EDS concludes that the 1153 A transmitters are qualified based on the successful testing of the fourth sample.

Using the Arrhenius methodology, the calculated lives of the ethylene-propylene o-rings used in the 1153 A transmitters are 149 and 644 years for inside and outside containment, respectively. The limiting sub-component of the transmitter was found to be the epoxy glass laminate circuit board. The conclusions of the EDS analysis are that incontainment transmitters have a qualified life of 6.5 years, and those in the

RAB have a qualified life of 19.3 years. The EDS analysis also recommends that these transmitters be replaced prior to the end of their qualified life and that they be periodically maintained using the manufacturer's procedure.

The recommended maintenance and surveillance program includes the following:

- 1) Calibration and maintenance procedures provided in the Rosemont Instruction Manual #4295.
- 2) The cover gaskets should be replaced each time the transmitter's cover is removed.
- 3) Should random transmitter failures occur, it is desirable to replace these transmitters with ones which have greater qualified life.
- 4) These transmitters will be replaced individually prior to the end of their qualified life.

LP&L concurs with the EDS conclusions and recommendations.

Facility: WATERFORD SES UNIT NO. 3

Utility: LOUISIANA POWER & LIGHT

A/E: EBASCO SERVICES

NSSS: COMBUSTION ENG

Capacity: 1165 MW(e)

Type: PWR

Attachment 2

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### JUSTIFICATION FOR INTERIM OPERATION

Purchase Order NY-403402

EQ Doc Pkg: 8.1W3

Major Supplier: Combustion Engineering

Spec: 9270-ICE-0005

Manufacturer: Rosemount, Inc.

Equip Type: Transmitters

#### QUALIFICATION STATUS:

Qualified - For Interim Operation

TAGS	MODEL/SERIAL	COMPONENT	0588 CAT
SEE ATTACHED	SEE ATTACHED	SEE ATTACHED	SEE ATTACHED

#### SUBJECT

See Attached Letter

W3P83-1853

For Interim Operation Justification

Prepared By: *M. Lion* 5/3/83  
Reviewed By: *J. V. White* 5/3/83

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

JUSTIFICATION FOR INTERIM OPERATION

<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT</u>
LT-FW-1113A	1153DA4 177030R	Level XMTR	A
LT-FW-1113B	1153DA4 177031R	Level XMTR	A
LT-FW-1113C	1153DA4 177033R	Level XMTR	A
LT-FW-1123A	1153DA4 178486R	Level XMTR	A
LT-FW-1123B	1153DA4 178487R	Level XMTR	A
LT-FW-1123C	1153DA4 178488R	Level XMTR	A
LT-FW-1123D	1153DA4 178489R	Level XMTR	A
PT-MS-1023A	1153GA9 167980R	Pressure XMTR	A
PT-MS-1023B	1153GA9 167981R	Pressure XMTR	A
PT-MS-1023C	1153GA9 167982R	Pressure XMTR	A
PT-MS-1023D	1153GA9 167983R	Pressure XMTR	A
PT-RC-0101A	1153GA9 105992	Pressure XMTR	A
PT-RC-0101B	1153GA9 105993	Pressure XMTR	A
PT-RC-0101C	1153GA9 105994	Pressure XMTR	A
PT-RC-0101D	1153GA9 105995	Pressure XMTR	A
PT-RC-0102A	1153GA9 137411R	Pressure XMTR	A
PT-RC-0102B	1153GA9 137412R	Pressure XMTR	A
PT-RC-0102C	1153GA9 137413R	Pressure XMTR	A
PT-RC-0102D	1153GA9 137414R	Pressure XMTR	A
PT-RC-0103	1153GA9 167984R	Pressure XMTR	A



<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT.</u>
PT-RC-0105	1153GA9 121826	Pressure XMTR	A
LT-RC-0110X	1153HA5 167015R	Level XMTR	A
LT-RC-0110Y	1153HA5 167016R	Level XMTR	A
PT-MS-1013A	1153GA9 137415R	Pressure XMTR	A
PT-MS-1013B	1153GA9 137416R	Pressure XMTR	A
PT-MS-1013C	1153GA9 137417R	Pressure XMTR	A
PT-MS-1013D	1153GA9 137418R	Pressure XMTR	A
PT-SI-0311	1153GA8 105971	Pressure XMTR	A
PT-SI-0321	1153GA8 105972	Pressure XMTR	A
PT-SI-0331	1153GA8 105973	Pressure XMTR	A
PT-SI-0341	1153GA8 105974	Pressure XMTR	A
LT-SI-0311	1153DA5 106050	Level XMTR	A
LT-SI-0321	1153DA5 106051	Level XMTR	A
LT-SI-0331	1153DA5 106052	Level XMTR	A
LT-SI-0341	1153DA5 106053	Level XMTR	A
LT-FW-1113D	1153DA4 177033R	Level XMTR	A

Facility: WATERFORD SES UNIT NO. 3

Utility: LOUISIANA POWER & LIGHT

A.E.: EBASCO SERVICES

NSSS: COMBUSTION ENG

Capacity: 1165 MW(e)

Type: PWR

Page 1 of 5

### JUSTIFICATION FOR INTERIM OPERATION

Purchase Order NY-403502

EQ Doc Pkg: 8.1W3

Major Supplier: Not Applicable

Spec: LOU 1564.402

Manufacturer: Rosemount, Inc.

Equip Type: Transmitters

#### QUALIFICATION STATUS:

Qualified - For Interim Operation

TAGS	MODEL/SERIAL	COMPONENT	0588 CAT
SEE ATTACHED	SEE ATTACHED	SEE ATTACHED	SEE ATTACHED

#### SUBJECT

See Attached letter W3P83-1853  
for Interim Operation Justification

Prepared By: *M. Leon* 5/3/83

Reviewed By: *J. Umberto* 5/3/83

LOUISIANA  
POWER & LIGHT CO.  
Waterford Steam  
Electric Station

JUSTIFICATION FOR INTERIM OPERATION



<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT</u>
FT-AC-5030AS	1153DA4 171808R	Flow Transmitter	A
FT-AC-5030BS	1153DA4 171809R	Flow Transmitter	A
FT-AC-5030CS	1153DA4 171810R	Flow Transmitter	A
PT-AC-5011AS	1153GA7 106104	Pressure Transmitter	A
PT-AC-5011BS	1153GA7 121824	Pressure Transmitter	A
PT-AC-5011CS	1153GA7 106106	Pressure Transmitter	A
PT-AC-5020AS	1153GA7 106107	Pressure Transmitter	A
PT-AC-5020BS	1153GA7 106108	Pressure Transmitter	A
PT-AC-5020CS	1153GA7 106109	Pressure Transmitter	A
PT-CA-6701SMA	1153AA6 185856R	Pressure Transmitter	A
PT-CA-6701SMB	1153AA6 185857R	Pressure Transmitter	A
PT-CA-6701SMC	1153AA6 185858R	Pressure Transmitter	A
PT-CA-6701SMD	1153AA6 185859R	Pressure Transmitter	A
PT-CA-6702SMA	1153AA6 185860R	Pressure Transmitter	A
PT-CA-6702SMB	1153AA6 123648	Pressure Transmitter	A
PT-CA-6702SMC	1153AA6 123649	Pressure Transmitter	A
PT-CA-6702SMD	1153AA6 123650	Pressure Transmitter	A
PT-CA-6750AS	1153AA6 164118R	Pressure Transmitter	A
PT-CA-6750BS	1153AA6 164117R	Pressure Transmitter	A

<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT</u>
FT-CC-5070AS	1153DA5 106076	Flow Transmitter	A
FT-CC-5070BS	1153DA5 106077	Flow Transmitter	A
FT-CC-5070CS	1153DA5 106078	Flow Transmitter	A
FT-CC-5570AS	1153DA5 106055	Flow Transmitter	A
FT-CC-5570BS	1153DA5 106056	Flow Transmitter	A
FT-CC-7570A1S	1153DA5 106062	Flow Transmitter	A
FT-CC-7570A2S	1153DA5 106063	Flow Transmitter	A
FT-CC-7570B1	1153DA5 106064	Flow Transmitter	A
FT-CC-7570B2	1153DA5 106065	Flow Transmitter	A
PT-CC-5060AS	1153GA7 106112	Pressure Transmitter	A
PT-CC-5060BS	1153GA7 105961	Pressure Transmitter	A
PT-CC-5060CS	1153GA7 121825	Pressure Transmitter	A
PT-CC-5070AS	1153DA7 106097	Pressure Transmitter	A
PT-CC-5070BS	1153DA7 106098	Pressure Transmitter	A
PT-CC-5070CS	1153DA7 106099	Pressure Transmitter	A
LT-CD-9013AS	1153DA5 106030	Level Transmitter	A
LT-CD-9013BS	1153DA5 106029	Level Transmitter	A
PT-CS-7111AS	1153GA8 105975	Pressure Transmitter	A
PT-CS-7111BS	1153GA8 105976	Pressure Transmitter	A
FT-CS-7122AS	1153DA5 106066	Flow Transmitter	A

<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT</u>
FT-CS-7122BS	1153DA5 106067	Flow Transmitter	A
FT-FW-8330AS	1153DA5 106068	Flow Transmitter	A
FT-FW-8330BS	1153DA5 106069	Flow Transmitter	A
PT-FW-8322AS	1153GA9 105909	Pressure Transmitter	A
PT-FW-8322BS	1153GA9 105910	Pressure Transmitter	A
PT-FW-8322S	1153GA9 105911	Pressure Transmitter	A
DPT-HV-5051AS	1153DA3 184706R	Differential Pressure Transmitter	A
DPT-HV-5051BS	1153DA3 211564	Differential Pressure Transmitter	A
DPT-HV-5054AS	1153DA3 106033	Differential Pressure Transmitter	A
DPT-HV-5153AS	1153DA3 161142	Differential Pressure Transmitter	A
DPT-HV-5153BS	1153DA3 161143	Differential Pressure Transmitter	A
DPT-HV-5158AS	1153DA3 161144	Differential Pressure Transmitter	A
DPT-HV-5158BS	1153DA3 161145	Differential Pressure Transmitter	A
DPT-HV-5257AS	1153DA3 164116R	Differential Pressure Transmitter	A
DPT-HV-5257BS	1153DA3 164115R	Differential Pressure Transmitter	A
DPT-HV-5258AS	1153DA3 240724	Differential Pressure Transmitter	A
PT-MS-8340S	1153GA 105914	Pressure Transmitter	A
PT-SI-0390AS	1153GA9 105917	Pressure Transmitter	A
PT-SI-0390BS	1153GA9 105918	Pressure Transmitter	A

<u>TAG</u>	<u>MODEL SERIAL</u>	<u>COMPONENT</u>	<u>0588 CAT</u>
PT-MS-0303AS	1153GA9 105915	Pressure Transmitter	A
PT-MS-0303B5	1153GA9 108916	Pressure Transmitter	A
FT-SI-0390AS	1153DA6 153836	Flow Transmitter	A
FT-SI-0390BS	1153DA6 158837	Flow Transmitter	A
FT-MS-0300AS	1153DA5 106070	Flow Transmitter	A
FT-MS-0300BS	1153DA5 106071	Flow Transmitter	A

