

ORGANIZATION: WYLE LABORATORIES  
SCIENTIFIC SERVICES AND SYSTEMS GROUP  
HUNTSVILLE, ALABAMA

REPORT NO.: 99900902/83-02	INSPECTION DATE(S) 6/28-7/1/83	INSPECTION ON-SITE HOURS: 56
CORRESPONDENCE ADDRESS: Wyle Laboratories Scientific Services & Systems Group ATTN: W. W. Holbrook, General Manager, Eastern Test and Engineering Operations 7800 Governors Drive Huntsville, AL 35807		
ORGANIZATIONAL CONTACT: Mr. E. W. Smith, Director, Contracts and Purchasing TELEPHONE NUMBER: (205) 837-4411		
PRINCIPAL PRODUCT: Research, engineering, and test operations.		
NUCLEAR INDUSTRY ACTIVITY: Wyle Laboratories, Huntsville, Alabama, provides a variety of nuclear services to the industry which includes environmental and seismic qualification testing of safety-related equipment, refurbishment and recertification of valves, valve and component flow testing, mechanical and hydraulic snubber testing, decontamination, and repair.		
ASSIGNED INSPECTOR:	<u>A. R. Johnson</u> A. R. Johnson, Equipment Qualification Section (EQS)	<u>9-16-83</u> Date
OTHER INSPECTOR(S):	E. A. Salazar, Sandia National Laboratories	
APPROVED BY:	<u>H. S. Phillips</u> H. S. Phillips, Chief, EQS	<u>9-16-83</u> Date
INSPECTION BASES AND SCOPE:		
A. <u>BASES</u> : 10 CFR Part 21; 10 CFR Part 50, Appendix B.		
B. <u>SCOPE</u> : This inspection consisted of: (1) evaluation of QA controls for Wyle engineering's development, review and approval of qualification plans and assessment reports, and (2) a technical review and evaluation of environmental qualification test plans prepared by Wyle engineering.		
PLANT SITE APPLICABILITY:		
Not identified.		
DESIGNATED ORIGINAL Certified By <u>Rheanne Clark</u>		

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A. VIOLATIONS:

None

B. NONCONFORMANCE:

None

C. UNRESOLVED ITEMS:

None

D. OTHER FINDINGS OR COMMENTS:

1. QA Control of Wyle Qualification Plan/Assessment Development, Review and Approval: The NRC inspector and Sandia National Laboratory (SNL) Consultant (NRC inspection team) determined that ten qualification plans and assessments (evaluations) had been developed, reviewed and approved in accordance with Wyle quality directive (QD) No. 3.2, dated July 1982 (Section 4.1.3), and nuclear engineering department procedure (NEQ) No. 101, Revision 1, dated June 1982.

The NRC inspection team reviewed and examined the implementation of Wyle's established quality requirements used during the engineering analysis and equipment qualification (EQ) test plan preparation.

The NRC inspection team verified that the engineering monitor (EM) had performed his responsibilities for the technical review of all calculations and assumptions made by the project engineer, and that the requirements of contracts have been fulfilled. The NRC inspector reviewed three EQ test plans and engineering monitor logs to assure that all mandatory checkpoints throughout the program had been met and appropriate monitoring by the EM was performed.

The NRC inspection team reviewed the qualification plans/assessments for: (1) acceptance criteria; (2) test prerequisites; and (3) test instrumentation requirements.

No nonconformances were identified.

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2. Technical Evaluation of Qualification Plans and Assessments: The NRC inspection team evaluated EQ plans and assessment reports, to determine whether they met the regulatory requirements of NUREG 0588 and the requirements of IEEE Std. 323-1971/1974.

The NRC inspection team performed a technical evaluation and review of Wyle's philosophy, methodology, engineering analysis, and formulation applied to preparing EQ test plans for licensees and customers. The evaluations consisted of a review of ten contracts in which an engineering analysis had been performed in preparing either EQ qualification plans or product assessment reports.

The NRC inspection team examined the engineering analysis process which included documents such as contract reports, technical specifications, safety analysis reports (SAR), purchase orders and service requisitions, licensee and customer letters, assessment reports, analysis reports, aging matrices, qualification plans, record of interim procedure/plan revisions (RIPPR), and test reports. The engineering analysis performed by Wyle in preparation of EQ qualification plans or assessment reports for qualification testing, reviewed during the inspection, are as follows:

<u>Qualification Plan or Assessment Report No./(Date)</u>	<u>Safety-Related Equipment</u>	<u>Application/ Location</u>	<u>Test Require- ment</u>
17491-31 (1/3/83)	Ametek S&K Flow Element, Model 20-9651-8550 Ametek S&K Flow Transmitter, Model 91-16-4-20	Detects MSIV- LCS leakage	HELB
17491-41 (3/16/83)	ITT Barton Differential Pressure Switch, Model 288 Static-O-Ring Differential Pressure Switch, Model 103	Various appli- cations, RCIC pipe chase, LPCS cubical, RWCU areas	HELB
17491-34 (12/29/82)	Amphenol Connectors used with Intermediate/Low Power Range Neutron Monitors	No DBA test- ing required	Extreme service environ- ment only

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Qualification Plan or Assessment Report No./ (Date)	Safety-Related Equipment	Application/ Location	Test Require- ment	
45916-03 Revision A (4/27/83)	General Electric Power and Control Cables (No. 30806 and SI-57275 for outside containment and, No. 36357 for inside drywell) Simplex Power and Instrument Cables (No. 30676, 35228, and 38806 for outside con- tainment)	Various harsh environment applications	HELB	
17491-39 (10/15/82)	Limitorque Motor Operated Valve Actuator Model SMB-0	Outside con- tainment, RCIC pipe tunnel	HELB	
17473-0480 (4/9/81)	General Atomic/Reuter Stokes High Range Radiation Monitor RD-23 Ionization Chamber	Inside containment	LOCA	
17473-0200 (7/7/81) 17473-0220 (6/3/81) 17473-0230 (8/4/81)	Barksdale Pressure Switch Nos. PIH-M340SS-V, D2H-M80SS, and BIT-M12SS, respectively	Various appli- cations out- side contain- ment	HELB	
46518-01 Revision B (4/26/83)	Dickers Safety Relief Valve Style G471-6/125.04, Cylinder, Air Valve, and Solenoid Pilot Valve	Various appli- cations inside and outside containment	LOCA/ HELB	
46105-2 (in progress)	Anchor/Darling Main Feedwater Isolation Valve Actuator (four valve actuator com- ponent qualification reports and data)	Various appli- cations	LOCA/ HELB	
E9001-122 (in progress)	Anchor/Darling Valve Actuator (aging analysis only on nonmetallic parts)	Various appli- cations	HELB	

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Each of the above EQ test plans or assessment reports were examined and it was determined that:

- (1) The test equipment included a description of all materials, parts and subcomponents;
- (2) Equipment interfaces were described;
- (3) The same equipment was used for all phases of testing and represented a standard production item;
- (4) Test acceptance criteria was established as described in the applicable codes, standards and specifications from the customer;
- (5) All prerequisites for the given test, as outlined in technical specifications, SAR, letters, and contract reports from the licensee or customer, have been met;
- (6) Environmental conditions were established and described; e.g., . . . pressure and temperature profiles, radiation and thermal accelerated aging factors; and
- (7) Test equipment and instrumentation were described for testing and recording test data.

3. Follow up Inspection of Reactive Item: Qualification Plan  
No. 46518-01, Revision B, dated April 26, 1983. Dikkers Safety Relief Valve Style G471-6/125.04, Cylinder, Air Valve, and Solenoid Pilot Valve, for Cleveland Illuminating Company, Perry Nuclear Station.

Testing requirements for the above equipment required an equipment qualification test in accordance with IEEE 382-1980, 323-1974, and 344-1975 to meet NUREG 0588, Category I.

Cleveland Illuminating notified the NRC RIII of the above Dikkers SRV Actuator Assembly test failure during the post-accident radiation functional testing at Wyle on April 13, 1983. A "Notice of Anomaly" (NOA) was issued by Wyle, and GE was notified on April 14, 1983. A GE representative was at Wyle during the failure. The test failure was identified because the acceptance criteria of the qualification plan was exceeded during a functional test



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following the accident radiation exposure test. The test criteria exceeded involved: (1) SRV actuator cylinder leakage; (2) leakage of external joints; and (3) the actuator stroke. On April 14, 1983, the Dickkers SKV Actuator Assembly was disassembled and the qualifying components (e.g., cylinder, air valve, and solenoid operated pilot valve) were sent to GE for evaluation. The qualification program at Wyle was terminated at GE's request. The test report is currently being prepared by Wyle. Wyle Qualification Plan No. 46518-01, Revision A, dated January 6, 1983, together with RIPPR's A1 through A5 were used during the above EQ testing.

GE is currently considering retesting the above equipment using Wyle Qualification Plan No. 46518-01, Revision B, dated April 26, 1983, using substitution materials for the viton seals of the SRV actuator components.

No further action is required at this time, however, when this equipment is retested for qualification purposes, an NRC inspection will be performed.

PERSONS CONTACTED

Company Wyle Laboratories

Dates 6/28/83 - 7/1/83

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Inspector A. R. JOHNSON

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NAME (Please Print)

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ORGANIZATION(Please Print)

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DOCUMENTS EXAMINED

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1	2	TITLE/SUBJECT	3	4
1	8	Commonwealth Edison Co. FSAR Appendix M Environmental Qualification of Electrical Equip	Sept 81	Amend 58
2	2	Qualification Plan No. 45916-03 Rev A	4/27/83	A
3	7	Letter to T. Patterson (Wyle) from Bechtel, Ann Arbor	6/23/83	NA
4	2	Bechtel Service Regulation 13524-E-1A(Q) for Environ. Design Qual. Testing/Analysis for S-R Equip	11/5/81	1
5	2	Bechtel Technical Specification 13524-E-830A(Q) ATTACH 1	11/5/81	1
6	2	Bechtel Technical Specification 13524-E-1A(Q) ATTACH 2	11/5/81	1
7	2	Bechtel Technical Spec 13524-E-1A(Q) ATTACH 2, Data Sheets (37 ea)		1
8	8	Wyle Contact Report	5/25/83	NA
9	8	Wyle Contact Report	4/20/83	NA
10	8	Wyle Contact Report	3/30/83	NA
11	8	Wyle Contact Report	3/7/83	NA
12	8	Wyle Contact Report	3/1/83	NA
13	8	Wyle Contact Report	2/4/83	NA
14	8	Wyle Contact Report	1/18/83	NA
15	7	Letter to C. Poplin (Wyle) from Bechtel Ann Arbor	3/9/83	NA

Document Types:

- |                  |                                 |
|------------------|---------------------------------|
| 1. Drawing       | 5. Purchas Order                |
| 2. Specification | 6. Internal Memo                |
| 3. Procedure     | 7. Letter                       |
| 4. QA Manual     | 8. Other (Specify-if necessary) |

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| 1. Sequential Item Number   |
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| 3. Date of Document         |
| 4. Revision (if applicable) |



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1	2	TITLE/SUBJECT	3	4
16	7	Letter to C. Poplin (Wyle) from Bechtel Ann Arbor	2/2/83	NA
17	8	Engineer Monitor Log 45916-03	9/30/82	NA
18	2	Wyle Qualification Plan No. 17491-39	10/15/82	0
19	8	Wyle RIP/PR (Record of Interim Procedure/Plan Rev) IR-2	3/83	NA
20	8	Wyle RIP/PR # IR 1	12/22/83	NA
21	8	Commonwealth Edison Co FSAR APP M Section M.5.1 Equipment Specification Cond.	May 82	Amend 41
22	7	CECO Letter to Wyle - Equip Qual. - language SM-B-D	8/2/82	NA
23	7	CECO letter to Wyle	2/24/83	NA
24	7	CECO letter to Wyle	12/8/83	NA
25	6	Wyle Memo, Acceptance Criteria	10-12-82	NA
26	8	Wyle Contact Report - S & L	9-20-82	NA
27	8	Wyle Contact Report - S & L	9-13-82	NA
28	8	Wyle Contact Report - S & L	8-12-82	NA
29	2	Wyle Qualification Plan No. 17491-03	1/20/82	A
30	7	S & L letter to CECO - Qual of Radiation Detector	12/30/81	NA
31	8	Final Report on the Evaluation on the Qualification of General Atomic/Reuter Stokes RD-23 Rad Detector/hardw. Unit 1	4/9/81	NA

Rpt No. 17473-0480

Document Types:

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| 1. Drawing       | 5. Purchas Order                |
| 2. Specification | 6. Internal Memo                |
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1	2	TITLE/SUBJECT	3	4
32	5	P.O. # YF 182 from G.E. San Jose	11/17/82	NA
33	2	Product Performance and Qualification Specification No. 2341360	10/22/82	A
34	7	Letter to Wyle from G.E. San Jose, Ca. (Sequence of Testing)	12/8/82	NA
35	2	Wyle Qual. Plan No 46518-01 (Dijkers SRY Actuator Assem)	4/26/83	B
36	8	GE 785 Qual Plan Approval Form for QP 46518-01 Rev B	5/27/83	
37	8	Product Analysis Report for (46518-01) Electropneumatic Valve Actuator Assem	12/30/82	
38	3	Wyle Nuclear Environmental Qualification Engineering Procedure NEQ-101	June 81	1
39	3	Wyle Quality Directive No. 3.2 "Nuclear Environmental Qualification (NEQ) Engineering Analysis Quality Assurance Requirements"	July 81	Original

Document Types:

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E. A. Salazar

1	2	TITLE/SUBJECT	3	4
1	2	A/DV SO. No E 9001-122 - Description and Qualification Requirements of Valve Man-Made Parts Carbon - Specification No. X4A001. Specification for Nuclear Service Valves. 2 1/2 inches and larger.	6/20/83	-
2	2	Final Report on The Evaluation of the Qualification of Parkdale Pressure Switch No. PH-M-34055 V - for Use in LA Salle County Station Nuclear Power Plant. Report # 17473-0230	1/14/83	10
3	8	Final Report on The Evaluation of the Qualification of Parkdale Pressure Switch Number D2H-M8055 L - Use in La Salle County Station Nuclear Power Plant. Report # 17473-0220	8-4-81	-
4	8	Final Report on The Evaluation of the Qualification of Parkdale Pressure Switch Number B3T-M-1255. Report # 17473-0210	7/7/81	-
5	8	Qual. Plan - Final Qualification Plan for An AMETEC SAK Model 20-9651-8550 Flow Element And An AMETEC SAK Model 91X-164-20 Flow Transmitter for Commonwealth Edison Company and ILL. Power Co. For Use in La Salle County and Clinton Nuclear Power Sta. # 17491-31	1-3-83	-
6	8			

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1	2	TITLE/SUBJECT	3	4
7	8	Record of Interim Procedure / Prod Revision - IR-1 - Plan # 17491-31	3/10/83	-
8	7	EA - 54K Flow Element and Transmitter IR-1A Sale Co. 142 Cecil Wolfe	2/3/83	-
		Review of Qual. Plan # 17491-31		
9	8	Environmental Zone Summary Table - Clinton River Station - FAR	1-1982	12
10	8	Contact Report - Telephone, Sub No. 17491- Mike Spisak, Sergeant of Lawry	9/13/82	-
		RE: Include Clinton NPP Environment to 54K Flow Element / Transmitter		
		Final Qual. Plan		
11	8	Contact Report - Sub No. 17491-31 - RE: 200 day abnormal conditions	5/7/82	-
		See Zirc H7 Radiation requirements and Rad Rongchen Cable Construction		
11	8	Contact Report - Sub No. 17491-31 - RE: Transmission of 200 day abnormal	5/7/82	-
		conditions into 40-year plant life - including conditions -		
12	8	Contact Report - Sub No. 17491-31 - RE: Change to flow whistles, w/panels	5/9/82	-
12	8	Contact Report - Sub No. 17491-31 - RE: Do not qualify Rongchen-	10/11/82	-
		Cable - Use Field Cable (310-16 DeKorren)		
13	8	Contact Report - Sub No. 17491-31 - RE: Clinton Nuclear Power Plant -	10/21/82	-
		Seismic Requirements - Seismic Requirements to be included in Qual. Plan		

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4. QA Manual

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1	2	TITLE/SUBJECT	3	4
14	8	Final Qual. Plan for ZTT Barton Company Model 288A Differential Pressure Switch and Static-A-Ring Trc. Model 103 Differential Pressure Switch for Commonwealth Edison for Use For LASALLE County Nuclear Generating Station - Qual Plan 17491-41	3/6/83	A
15	8	Record of Interim Procedure/Plan Revision - Rev. A-1	4/20/83	-
16	7	Letter - E.R. Barton 288A and SOR 103 DP Switches - LaSalle Co. Stations 142 - CECO to Wyle - Review of Rev. A Qual Plan 17491-41	4/4/83	-
17	7	Letter - CECO to Wyle - SOR Model 103 PS - LaSalle Co. Sta. 142 - Request to include SOR w/Barton on Qual Plan 17491-41	12/8/82	-
18	8	Contact Report - CECO - 288A - Revision to QR - to O'Hareville age both specimens to H-4 (This will age specimens 12 years for HSA and H6) ② Do accident for H-4 ③ if H-4 accident is OK - Then do accident for HSA - 17491-41	10/19/82	
19	8	Contact Report - Sargent & Lundy - Changes to QR - "add Env. Zone 1 HSA & H6 to Normal and Accident Conditions - 17491-41		

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3. Procedure
4. QA Manual

## 5. Purchas Order

## 6. Internal Memo

## 7. Letter

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1	2	TITLE/SUBJECT	3	4
20	8	Qual Plan - # 17491-34 - Final Qual Plan for the Cables and Connectors Used with the Intermediate Range Monitor and the Local Power Range Monitor for Use in LaSalle Co. Nuclear Power Station	12/29/82	-
21	7	Letter CECO to Wyle - E.R. LaSalle Co. Station 182 - Add requirements of Clinton - Do LaSalle for 40 years and determine life to Clinton (Comments on Qual Plan)	3/29/83	-
22	5	Purchase Order - W-775 - Anchor/Darling Valves Co. to Wyle Labs (Ref) Qual Plan 46105-2	5/14/82	-
23	8	STANDARD - Anchor/Darling Valve Company STANDARD EPS-140 "APV Hydraulic Actuator Qual to IEEE 323-74, IEEE 383-72 & IEEE 344-1975	10/20/80	B
24	8	Parts list - APV Hydraulic Actuator Parts list - FAB	3/25/82	-
25	8	Data Sheets - Supplementary Environmental Qual. Data - Vogtle Plant - Georgia Power Co. Po Nos. PAV-1765 & PAV-2-84 - APV Sp. 59000 Wyle Qual Plan 551/4969/ES	-	-
26	8	Report - Nuclear Environmental Assessment Report on Weidmuller Terminal Block Model SAK 4 - for Use w/ N/DV Co. Actuator Solenoid Valves in the Alvin W. Vogtle N.P.S. Report No. 46.05-01A	4/30/82	-

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27	8	Report - Nuclear ENVIRONMENTAL Assessment Report on Navajo Limit Switch No. EA-180 for use in Alvin W. Vogtle NPP	4/26/82	-
28	8	Report No 46105-01B Report - Nuclear ENVIRONMENTAL Assessment Report on Brand-Rex 141/2 Water Control Cable for use with A/D V Co. Actuator Solenoid Valves in the Alvin W. Vogtle NPS Report No 46105-01C	4/23/82	-
29	8	Report - Rev A to Item 28. Report No 46105-01C Rev A (Revisions Dated 6/1/82)	4/23/82	A
30	8	Report - Nuclear ENVIRONMENTAL Assessment Report on Samuel Moore and Co. 1613 Dekored Cable for use with A/D V Co. in Alvin W. Vogtle NPS Report No 46105-01D	4/23/82	-
31	8	Report Rev A to Item 30 - Report No 46105-01D Rev A - (Revisions Dated 5/28/82)	4/23/82	A
32	3	Qualification Procedure - Final Qualification Program and Procedures for A Main Feedwater Isolation Valve Actuator for A/D V Co. for use in Georgia Power Company's Alvin W. Vogtle NPP's Qual. Plan 46105-2	6/9/82	-

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