

ORGANIZATION: WOODWARD GOVERNOR COMPANY
ENGINE AND TURBINE CONTROLS DIVISION
FORT COLLINS, COLORADO

REPORT NO.:	99900759/82-01	INSPECTION DATE(S)	11/29-12/3/82	INSPECTION ON-SITE HOURS:	27.5
CORRESPONDENCE ADDRESS: Woodward Governor Company Engine and Turbine Controls Division ATTN: Mr. J. E. Sundstedt, Vice Pres. and Gen. Mgr. P.O. Box 1519 Fort Collins, CO 80522					
ORGANIZATIONAL CONTACT: J. L. Veitch, Quality Assurance Manager TELEPHONE NUMBER: (303) 482-5811					
PRINCIPAL PRODUCT: Engine and turbine controls and auxiliaries					
NUCLEAR INDUSTRY ACTIVITY: The Engine and Turbine Controls Division of the Woodward Governor Company (WGC) supplies controls and auxiliaries (governors) for prime movers. WGC nuclear involvement represents less than one half of one percent of their total production.					
ASSIGNED INSPECTOR:	<u>W. E. Foster</u> W. E. Foster, Reactive and Component Program Section (R&CPS)			<u>3/31/82</u> Date	
OTHER INSPECTOR(S):					
APPROVED BY:	<u>I. Barnes</u> I. Barnes, Chief, R&CPS			<u>3/31/82</u> Date	
INSPECTION BASES AND SCOPE:					
A. <u>BASES</u> : Appendix B to 10 CFR Part 50 and 10 CFR Part 21.					
B. <u>SCOPE</u> : This inspection was made as a result of the issuance of a: (1) 10 CFR Part 21 report by the Consumers Power Company; and (2) WGC report to the Nuclear Regulatory Commission, Region IV. The reports pertained to: (1) a defective governor that had been furnished to the Palisades Nuclear Plant; and (2) a deficient EGB-13P actuator that had been furnished to Stewart and Stevenson Services, Incorporated and possibly, other customers.					
PLANT SITE APPLICABILITY:					
With the exception of Palisades (Docket No. 50-255), this could not be determined.					

DESIGNATED ORIGINAL

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PDR GA999 EMVWOODG
99900759 PDR

Certified By Rheanne Clark

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A. VIOLATIONS:
None

B. NONCONFORMANCES:
None

C. UNRESOLVED ITEMS:
None

D. STATUS OF PREVIOUS INSPECTION FINDINGS:

1. (Closed) Violations (81-01): Posting had not been accomplished and appropriate procedures had not been adopted for implementation of 10 CFR Part 21.

The NRC inspector verified that: (1) WGC Procedure 540-310 had been revised to expand and clarify actions to be taken when customer notification is required regarding deficient or suspected deficiencies in furnished hardware; and (2) letters taking exception to 10 CFR Part 21 had been sent to customers. The latter portion was verified by reviewing letters received by customers (Cooper Energy Services and Transamerica Delaval) during inspections at their respective facilities.
2. (Open) Open Item (81-01): Determine the location of the 10 missing or unaccounted for defective droop lever springs and the 8 remaining governors with defective springs.

At the time that this area of the inspection was started, the quality assurance manager had left the facility for the remainder of the inspection. Available personnel were not knowledgeable of efforts undertaken to locate the items; consequently, this item will remain open.

E. OTHER FINDINGS OR COMMENTS:

1. Consumers Power Company 10 CFR Part 21 report: Consumers Power Company filed a 10 CFR Part 21 report with the Nuclear Regulatory Commission, Region III on March 3, 1982. The report indicated that a lock washer and nut were missing from the shutdown solenoid and that a broken brass nut was found inside the governor assembly. The part and serial numbers of the governor are 8240-085 and 947408, respectively. This item was

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installed on the diesel generator located at the Palisades Nuclear Plant. The referenced governor was one of two which was sent to WGC for "repair and return" on Consumers Power Company's Purchase Order 1003-4462-CQ. While the production route card is the vehicle used to manufacture, inspect, or rework hardware, it or an equivalent document is not used to document the repair of returned hardware. The internally generated sales order is used to document repair. A list of replacement parts was compiled and the governor was repaired, tested, and painted. The Production Quality Inspector and the Quality Assurance Auditor date and initial the sales order.

During this aspect of the inspection, the following conditions were noted:

- (a) The part number on the test sheets dated April 15 and 19, 1982, for governors, Serial Nos. (S/Ns) 947408 and 1227961, respectively, did not agree with that shown on Supplement 1, dated May 3, 1982, of WGC Sales Order D55545SF. Accuracy of information is required by paragraph 2.3 of the Mechanical Final Product Audit Manual 9000.700-799, dated October 15, 1981.
- (b) The test sheets (above dates Test Specification 453) for the aforementioned governors did not comply with the specification sheet at low and high speeds and null voltage requirements. The specification requires a low speed of 600 and a high speed of 1180 revolutions per minute (rpm). The test sheet for S/N 947408 showed 592 and 1185 rpm, while the test sheet for S/N 1227961 showed 594 and 1182 rpm. Further, the test specification requires the null voltage be between -0.7 and -0.9. The test sheets showed a positive value (.9) for both items. NOTE: Engineering Change F-88784 published November 24, 1982, revised Test Specification 453 by providing a tolerance of ± 5 rpm on governor speed settings. Agreement of governor assembly and test with the specification sheet is identified at paragraph 3.0 of the Mechanical Final Product Audit Manual 9000.700-799, dated October 15, 1981.

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- (c) The Valve Assembly Drawing 1311-829, Revision G, dated August 1981 did not specify the use of SP-323 for threaded fasteners as required by the Torque Limits section of Process Specification 9097-921, Revision B, dated April 24, 1981.
- (d) Quality Action Case Record 990 which was closed on September 7, 1982, contained an incorrect S/N for the failed governor; i.e. the S/N was recorded as 1227961 and should have been 947408.
- (e) Engineering Change F-88784 published November 24, 1982, affects 16 documents. The "Description and Reason" section contains errors in regard to reference information ; e.g., Item 12 references itself in lieu of additional information.
- (f) Consumers Power Company's Purchase Order 1003-4462-CQ dated March 25, 1982, states in part, "Provide with shipment, written verification . . . for the torquing, tightening, and locking of all nuts, bolts, and fittings.

"Provide with shipment . . . corrective measures taken to prevent recurrence of incident."

No evidence was made available to indicate that the required information had been provided for the governors.

Based upon the foregoing, the NRC inspector was unable to establish the adequacy of the corrective actions and preventive measures and acceptability of the repaired governors.

2. WGC report to Region IV of the NRC: WGC filed a report with the Nuclear Regulatory Commission, Region IV on August 31, 1982. The report pertained to an EGB-13P actuator which became inoperative when the servo piston screw became disengaged and lodged in the relay valve bushing control port. The actuator had been furnished to Stewart and Stevenson Services, Incorporated. The defective actuator was replaced by WGC with one that incorporated the two screw and lockwire design of May 1982. It was also decided that all units in the field with the single screw design be upgraded to the two screw and lockwire design. A letter and service bulletin had been sent to customers, authorized independent service facilities, and other interested parties.

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During this aspect of the inspection, the following conditions were noted:

- a. The Cylinder Assembly Drawing 5295-252, Revision D, dated March 24, 1982, did not specify the use of SP-9940-114 and SP-323 for lockwire and threaded fasteners as required by the Lock-wiring and Torque Limits sections of Process Specification 9097-921, Revision C, dated March 10, 1982.
- b. Preparation of assembly procedures had not been completed for EGC actuators prior to the start of the control assembly as required by paragraph 3.5 of Attachment II to Supplement 1 dated September 30, 1971, of Fort Collins Engineering Memorandum 40384, dated April 1, 1971.
- c. Drafting Standard SP-444 is not used by the Engine and Turbine Controls Division as required by page 4 of Process Specification 9097-915, Revision A, dated June 15, 1979.
- d. The NRC inspector was informed that "assembly procedures" referred to in Supplement 1 of Quality Action Case Record 988 pertained to drawings and practices rather than written instructions identified as assembly procedures.
- e. Assembly activities of EGB actuators were not in progress nor were completed assemblies available in order for the NRC inspector to verify adherence to drawing requirements. The NRC inspector did observe that spring seats in stock incorporated the provisions for two screws.

Based upon the foregoing, the NRC inspector was unable to establish the adequacy of the corrective actions and preventive measures.

3. Summary:

The inspection activity included the examination of: 6 drawings, 9 specifications, 5 procedures, 2 quality manuals, 3 purchase orders, 2 memoranda, 3 letters, and 31 other documents of various identifications.

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<p>It should be noted that a copy of a letter dated July 23, 1982, was received from WGC in partial response to NRC Inspection Report No. 99900759/81-01 which informed nuclear customers that exception is being and will be taken to purchase order quality assurance requirements that are outside of MIL-Q-9858A requirements. As a result of the absence of imposition of Appendix B to 10 CFR Part 50 in nuclear customer procurement documents, the various nonconforming conditions identified during the inspection could not be formally identified in a Notice of Nonconformance with NRC requirements. However, WGC has been requested to respond to these observations.</p>		

1	2	TITLE/SUBJECT	3	4
1	1	No. 8240-681 - Governor Assy - EGB10P	3/30/80	B
2		No. 1311-829 - Vlv Assy - 120 VDC Solenoid	8/81	G
3		No. 5295-252 - Cyl. Assy - Spring Type Pwr	3/24/82	D
4		No. 4106-008 - Cyl. - Spring Rtn Pwr	3/28/82	B
5		No. 3543-055 - Pln - - -	3/82	A
6	1	No. 3467-037 - Seat - Pltn Spring	3/92	B
7	2	No. 8240-085 - EGB12C Governor	2/18/82	12
8		No. 9903-123 - - -	11/2/82	2
9		No. 9903-152 - - -	10/14/82	
10		No. 9940-903 - Use of Sealing & Thread Locking Compounds (Loctite)	8/24/82	A
11		No. 9940-114 - Lockwiring	6/30/85	
12		No. 9097-915 - Specs of Processer Systrn Descriptn & Indices	6/15/79	A
13		No. 9097-921 - Specs of Process Stds & Specs Listed Alphabetically	4-24-81	B
14		No. 9940-122 - Assy Procsd for EG Actuator	3-10-82	C
15	3	No. SP-323 - Torque Limits for Threaded Parts and Fasteners	11/3/81	C
16	3	No. 453 - Compensated Actuators	4/8/82	AH

Document Types:

1. Drawing
2. Specification
3. Procedure
4. QA Manual

5. Purchase Order

6. Internal Memo

7. Letter

8. Other (Specify-if necessary)

Columns:

1. Sequential Item Number
2. Type of Document
3. Date of Document
4. Revision (If applicable)

1	2	TITLE/SUBJECT	3	4
17	3	No. 540-310 - Quality Action Case Record	11-3-81	
18	3	No. 640-301 - Processing Engineering Changes	6-2-75	
19	3	No. 675-304 - Processing Color Keys for Eng'g Docs	1/15/75	
20	3	No. 793-200 - Processing Sales Orders for Gunn Reps & Wandy	12/22/80	
21	4	No. FC IN 9000.000	4/20/78	
22	4	No. FC IN 9000.700-799 - Mech. Final Product Audit	10/15/81	
23	5	Consumers Pur Co. No. 431579	11/19/79	
24	5	~ ~ - 1003-4862-CQ	3/25/82	
25	5	Gerhardt, Inc. No. 19192-	8/24/82	
26	6	All Spares/Eng'g, et al - Prenal Assemblies	4-1-71	1
27	6	Host of Repats - Chge Out... Spring Retn Servo Assy on EGB-106-13P Actuators	10/22/82	
28	7	Consumers Pur Co. - Responds to requests for status	9/26/79	
29	7	WG - Failure of EGB-13C Actuator, 8240-085, S/N 997908	6/11/82	
30	7	WG - Change Out... Spring Return Servo Assembly on EGB-10/13P Actuators	10/18/82	
31	8	WG Sales Order No. D1710P	9/14/73	
32	8	~ ~ - D10578SF	11/19/79	

Document Types:
 1. Drawing
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 4. QA Manual

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 8. Other (Specify-if necessary)

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1. Sequential Item Number
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1	2	TITLE/SUBJECT	3	4
33	8	WG Sales Order No. D55545SF & Splant 1	4-2-82	
34		Eng'g Change No. F-88108	5-3-82	
35		~ - - F-88784	2/24/82	
36		~ - - F-88831	11/24/82	
37		~ Request No. 88831	10-11-82	
38		Service Bth No. 50009 - Spring Rts Servo Assy - EGB10 i EGB13 6vdc/Actuator	10-12-82	
39		Test Recd (453) for P/N 8240-085, S/N 947408	10/82	
40		~ - - ~ - - S/N 1227961	4/15/82	
41		Qlty Action Case Recd No. 988	4/19/82	
42		~ - - ~ - - 990	8-24-82	
43		Field Service Rpt - Satma Ord No. Y3442	3-1-82	
44		~ - - Na. SB5578	3/4/82	
45		~ - - ~ - - 5579	2/12/82	
46		Repair Rpt Part S/N 1227961, P/N 8240-085	2/22/82	
47		~ - - ~ - - 947408	4/2/82	
48	8	~ - - F/N 8270-092, S/N 958197	4/2/82	

Document Types:

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Columns:

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1	2	TITLE/SUBJECT	3	4
49	8	Rpt Rpt - P/N 8240-085, S/N 947408	12/12/79	
50		Warranty Claim Engineering Opinion - P/N 8240-085, S/N 947408	4/6/82	
51		Consumer Pwr. Co. Packing Slip No. 57507	10/19/79	
52		WGC Reving Rpt No. A145473	12/6/79	
53		Teleson Rpt	3/1/82	
54		Returned Nat'l Investigation Rpt Log		
55		Certification for Govs P/N 9903-123, S/N 947408, 1227961	5/4/82	
56		Warranty Claim Engineering Opinion - P/N 8240-482, S/N 1593771	9/3/82	
57		Repair Rpt	9/2/82	
58		Teleson Rpt	8/24/82	
59		WG PI Form 3877	10/19/82	
60		Drafting Manual		
61	8	Repair Manual, Sect 4, Pg 3	7/20/82	

Document Types:

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6. Internal Memo

7. Letter

8. Other (Specify-if necessary)

INSPECTOR'S REPORT
Office of Inspection and Enforcement

Foster, William E
REVIEWER

I. Barnes

INSPECTORS

LICENSEE/VENDOR

TRANSACTION TYPE

DOCKET NO. (8 digits) OR LICENSE NO. (BY PRODUCT) (13 digits)

REPORT

NEXT INSP. DATE

Woodward Governor Co.
Engine & Turbine Controls Div.

I - INSERT
M - MODIFY
D - DELETE
R - REPLACE

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PERIOD OF INVESTIGATION/INSPECTION

INSPECTION PERFORMED BY

ORGANIZATION CODE OF REGION/HQ CONDUCTING ACTIVITY (See IEMC 0530 Manpower Reporting - Weekly Manpower Reporting for code)

FROM TO
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1 - REGIONAL OFFICE STAFF
2 - RESIDENT INSPECTOR
3 - PERFORMANCE APPRAISAL TEAM

OTHER

REGION DIVISION BRANCH
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REGIONAL ACTION (Check one box only)

TYPE OF ACTIVITY CONDUCTED (Check one box only)

1 - NRC FORM 591
 2 - REGIONAL OFFICE LETTER

02 - SAFETY
03 - INCIDENT
04 - ENFORCEMENT
05 - MGMT. AUDIT
06 - MGMT. VISIT
07 - SPECIAL
08 - VENDOR
09 - MAT ACCT.
10 - PLANT SEC.
11 - INVENT. VER.
12 - SHIPMENT/EXPORT
13 - IMPORT
14 - INJURY
15 - INVESTIGATION

INSPECTION/INVESTIGATION FINDINGS (Check one box only)

TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS

ENFORCEMENT CONFERENCE HELD

REPORT CONTAIN 2.790 INFORMATION

LETTER OF REPORT TRANSMITTAL DATE

1 - CLEAR
2 - VIOLATION
3 - DEVIATION
4 - VIOLATION & DEVIATION

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MODULE INFORMATION

MODULE INFORMATION

REC. ORD.	MODULE NUMBER INSP.						MODULE REQ. FOLLOWUP						REC. ORD.	MODULE NUMBER INSP.						MODULE REQ. FOLLOWUP												
TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	SEC.	PRIORITY	DIRECT INSPEC-TION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED	STATUS	TO DATE	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	SEC.	PRIORITY	DIRECT INSPEC-TION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED	STATUS	TO DATE	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	
B	2	3	10	71013	B	A	0	011				B				A							A									
B	2	9	2	71012	B	A	0	011				B				A							A									
B	2	9	2	71015	B	A	0	26				B				A							A									

* CIRCLE SEQUENCE IF VIOLATION OR DEVIATION

**INSPECTOR'S REPORT
 (Continuation)**
 Office of Inspection and Enforcement

DOCKET NO. (8 digits) OR LICENSE
 NO. (BY PRODUCT) (13 digits)

REPORT

MODULE NUMBER

NO.

SEQ.

VIOLATION SEVERITY OR DEVIATION

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 RELATED

1 2 3 4 5 6

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VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

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