



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

February 28, 2014

Mr. Michael D. Skaggs
Senior Vice President
Nuclear Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

**SUBJECT: END-OF-CYCLE ASSESSMENT LETTER – WATTS BAR NUCLEAR PLANT
UNIT 2 (NRC INSPECTION REPORT 05000391/2014601)**

Dear Mr. Skaggs:

On February 10, 2014, the U. S. Nuclear Regulatory Commission (NRC) staff completed its performance review of the Watts Bar Nuclear Plant (WBN) Unit 2 construction project. Our technical staff reviewed inspection results for the period from January 1, 2013, through December 31, 2013. The purpose of this letter is to inform you of our assessment of your safety performance during this period and our plans for future inspections at your facility.

During the 2nd quarter of this assessment period the NRC identified three violations associated with your commercial grade dedication program that were characterized as a Severity Level III problem in accordance with the NRC's Enforcement Policy and assessed a \$70,000 Civil Penalty. These violations are described in Inspection Report 05000391/2013614, dated June 18, 2013 (ADAMS Accession Number ML 13169A030). Consistent with the guidance in Inspection Manual Chapter 2517, Watts Bar 2 Construction Inspection Program, which defines a Severity Level III violation as a significant performance issue, the NRC increased inspection for WBN Unit 2. Specifically, the NRC performed an additional inspection using the guidance in Inspection Procedure 92702, Follow-up on Traditional Enforcement Actions including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders and Alternate Dispute Resolution Confirmatory Orders. This inspection, which was completed February 12, 2014, reviewed your corrective actions to these violations to verify that your commercial grade dedication program is in compliance with regulations and that the corrective actions were adequate to prevent recurrence. The results of this inspection will be published in Inspection Report 05000391/2014602, scheduled to be released to the public in April 2014.

During the remainder of the assessment period, with the exception noted above, WBN Unit 2 construction activities were generally conducted in a manner that complied with the Commission's rules and regulations, the conditions of your construction permit, and the Unit 2 regulatory framework commitments. Overall, the corrective action program implementation activities, including initiation, classification, disposition, and trending were deemed satisfactory. This overall conclusion was based on the results of the annual Problem Identification and Resolution (PI&R) team inspection, focused sample PI&R inspections, and the ongoing assessment of your corrective action program as part of routine inspections. No Substantive Cross-Cutting Issues were identified during this period.

The NRC staff spent over 13,000 hours during the 12-month End-of-Cycle Assessment period performing inspections, assessments, public meetings, allegation follow-up, and inspection program support for WBN Unit 2. The NRC staff anticipates this level of effort will increase over the next 12-month assessment cycle as WBN Unit 2 construction activities continue and pre-operational testing is performed on additional safety-related systems.

As a result of reviewing your construction schedule and through interaction with your staff, the enclosed inspection plan contains those projected inspection activities that we have currently identified. Many of the inspections listed in the enclosed inspection plan were scheduled based on information your staff provided to the NRC. This information involved dates for completion of construction activities that would be subject to the corresponding NRC inspections. Therefore, it is crucial that you keep us apprised of any changes to the scheduled completion dates, in order to maintain our inspection plan current. As additional details of your project schedule become available, we will plan other inspections specified in Inspection Manual Chapter 2517. Your staff will be given ample notification of changes to upcoming inspection activities or newly identified inspections as they become finalized in order to allow for the resolution of any scheduling conflicts and personnel availability. Routine inspections performed by the resident staff are not listed on the inspection plan due to their ongoing and continuous nature.

With the start of preoperational testing at WBN Unit 2, the NRC has begun implementation of Inspection Manual Chapter 2513, Light Water Reactor Inspection Program – Preoperational Testing and Operational Preparedness Phase. We have not listed preoperational testing inspections in the enclosed inspection plan due to likelihood that the inspection dates will change as adjustments to your preoperational testing schedule occur.

In addition to the above inspection activities, an NRC audit of licensee efforts towards compliance with Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" is ongoing. This audit includes an onsite component in order for the NRC to evaluate mitigating strategies as described in licensee submittals, and to receive and review information relative to associated open items. This onsite activity will occur in the months prior to a declaration of compliance for the first unit at each site, and will aid staff in development of an ultimate Safety Evaluation for the site.

The onsite component has been scheduled for the week of March 10, 2014. A site-specific audit plan for the visit will be provided in advance to allow sufficient time for preparations.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system

(ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). Please contact Robert Haag at (404) 997-4446 with any questions you may have regarding this letter or our planned inspections.

Sincerely,

/RA/

Joel T. Munday, Director
Division of Construction Projects

Docket No. 50-391
Construction Permit No: CPPR-92

Enclosure:
Watts Bar Unit 2 Inspection Plan

cc w/encl: See next page

cc w/encl:

Mr. Gordon P. Arent
Senior Manager, Licensing
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. R. R. Baron, Senior Manager
Nuclear Construction Quality Assurance
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. O. J. Zeringue, General Manager
Engineering and Construction
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Joseph Shea, Vice President
Nuclear Licensing
Tennessee Valley Authority
1101 Market Street
3R Lookout Place
Chattanooga, TN 37402-2801

Mr. R. A. Hruba, General Manager
Technical Services
WBN Unit Two
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City Tennessee 37381

Mr. E. J. Viglucci
Assistant General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
6A West Tower
Knoxville, Tennessee 37402

Mr. James O'Dell, Manager
Licensing and Industry Affairs
WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Mr. Lawrence E. Nanney, Director
Tennessee Department of Environmental
Health & Conservation
Division of Radiological Health
3rd Floor, L&C Annex
401 Church Street
Nashville, TN 37243-1532

Mr. Joseph P. Grimes
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
1101 Market Place
3R Lookout Place
Chattanooga, Tennessee 37402-2801

Mr. Chris Church
Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

County Executive
375 Church Street
Suite 215
Dayton, Tennessee 37321

County Mayor
P.O. Box 156
Decatur, Tennessee 37322

Mr. Dave Gronek
Plant Manager, WBN Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, Tennessee 37381

Ms. Ann P. Harris
Public
341 Swing Loop
Rockwood, TN 37854

cc email distribution w/encl:

Greg Scott

Tennessee Valley Authority

Electronic Mail Distribution

Watts Bar Unit 2 Licensing

Tennessee Valley Authority

Electronic Mail Distribution



Watts Bar Unit 2

Scheduled Inspection Items List

103 Items

Type	Item #	Title	Scheduled Inspection
TMI	II.K.3.10	Applicant's proposed anticipatory trip at high power	03/10/2014
TI	2515/66	BL 84-03, Refueling Cavity Water Seals	03/10/2014
BL	88-09	Thimble tube thinning in W reactors	03/31/2014
TMI	II.D.3	Valve position indication	03/31/2014
TMI	II.E.3.1	Emergency power for pressurizer heaters	03/31/2014
TI	2512/020	Electrical Issues CAP - Subissue: Cable separation and electrical isolation	03/31/2014
CDR	89-08	Kapton insulation penetration pigtail damage	03/31/2014
CDR	95-05	Loose connections found in vendor wire safety-related panels	03/31/2014
SER	SSER App HH Item 33	Verify completion of DCNs of 125V dc vital battery system prior to issuance of Unit 2 OL (Section 8.3.2.3)	03/31/2014
TMI	II.D.1	Relief and safety valve test requirements	04/07/2014
CDR	86-08	Incorrect tubing configuration on containment isolation valves (CIV) actuators	04/07/2014
CDR	86-11	Lack of thermal qualification for Systems 43 & 90 piping	04/07/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
TI	2512/018	Conduit and Supports CAP	04/14/2014
TI	2512/036	Environmental Qualification SP	04/14/2014
TMI	II.B.2	Plant shielding	04/14/2014
TI	2515/87	MPA A-17: RG 1.97	04/14/2014
CDR	87-10	Failure of Category "C" devices may adversely affect Category "A" devices	04/14/2014
CDR	87-18	Deficiencies in installation of electrical conduit and conduit supports	04/14/2014
SER	SSER App HH Item 92	Inspect in accordance with TI 2515/087, Inspection of licensee's implementation of multi-plant action A-17:Instrumentation for nuclear power plants to assess plant&environs conditions during and following accident	04/14/2014
IP	83522	Rad Protection, Plant Chemistry, Radwaste, and Environmental Organization and Management Controls	04/14/2014
IP	83523	Radiation Protection, Plant Chemistry and Radwaste Training and Qualifications	04/14/2014
IP	84522	Solids - Control, Sampling, Monitoring, and Release	04/14/2014
IP	71111.07	Heat Sink Performance - Subissue: ERCW testing (02.02.d.5)	04/21/2014
SER	SSER App HH Item 90	NRC staff should verify the ERCW dual unit flow balance confirms that ERCW pumps meet all specified performance requirements & have sufficient capability to supply all required ERCW normal & accident flows for dual unit operation	04/21/2014
SER	SSER App HH Item 23	Resolve reasoning for not upgrading MSIV solenoid valves to Category 1	04/21/2014
TEAM	PI&R	Problem Identification and Resolution Inspection	04/21/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
URI	86-24-06	Review of cable splicing as required by FSAR	04/28/2014
TI	2512/016	Cable Issues CAP - Subissue: Bend Radius	04/28/2014
CDR	82-76	Cable bend radius deficiencies	04/28/2014
CDR	86-03	Inspection for minimum bend training radii not made	04/28/2014
TI	2512/021	Equipment Seismic CAP	05/05/2014
TI	2512/026	Instrument Lines CAP	05/05/2014
VIO	86-21-02	Instrument valves, Foxboro transmitters, and instrument panels not seismically qualified	05/05/2014
CDR	83-48	Installation of flow switch & sensing lines	05/05/2014
CDR	85-22	Undervoltage condition on 125vdc vital control power system	05/05/2014
CDR	86-24	Inadequate flexibility of instrument tubing attached to steel containmt vessel	05/05/2014
CDR	86-59	Qualification of ASCO solenoid valve conduit connector configuration	05/05/2014
SER	SSER App HH Item 40	Confirm adequacy of emergency facilities/equipment to support dual unit operations prior to issuance of Unit 2 OL (Section 13.3.2.8)	05/05/2014
SER	SSER App HH Item 41	Confirm adequacy of updates for plant data displays and dose assessment models prior to issuance of Unit 2 OL (Section 13.3.2.9)	05/05/2014
SER	SSER App HH Item 38	NRC staff will confirm availability & operability of ERDS for U2 prior to issuance of U2 OL (SSER 22, Section 13.3.2.6)	05/05/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
TI	2512/041	Radiation Monitoring System SP	05/19/2014
TMI	II.F.1.2.a	Noble gas	05/19/2014
TMI	II.F.1.2.c	Containment high range monitoring	05/19/2014
GL	89-19	Request for actions related to resolution of unresolved safety issue A-47, Safety implication of control systems in LWR nuclear power plants, pursuant to 10CFR50.54(f)	05/19/2014
GL	96-01	Testing of safety-related circuits	05/19/2014
GL	06-02	Grid reliability and impact on plant risk and operability of offsite power	05/19/2014
TI	2515/139	GL 96-01, Testing of SR logics circuits	05/19/2014
TI	2515/165	Offsite power and impact on plant risk	05/19/2014
CDR	83-07	Transfer switches to auxiliary feedwater (AFW) have non-divisional power	05/19/2014
TI	2515/182	Review of implementation of industry initiative to control degradation of underground piping and tanks	06/02/2014
BL	03-02	Leakage from RPV lower head penetrations and reactor coolant pressure boundary integrity (PWRs)	06/09/2014
TI	2515/152, R1	BL 2003-02, RPV nozzles	06/09/2014
TI	2512/016	Cable Issues CAP - Subissue: Supports in vertical conduits	06/30/2014
TI	2512/016	Cable Issues CAP - Subissue: Supports in vertical trays	06/30/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
CDR	85-35	Support of conductors inside vertical conduit runs	06/30/2014
CDR	89-04	Support of Class 1E cables installed in long vertical cable tray runs	06/30/2014
BL	88-11	PZR surge line thermal stratification	07/07/2014
VIO	87-19-01	Failure to follow procedures for installing equipment in north/south valve rooms	07/07/2014
VIO	87-19-02	Failure to preserve equipment installed in north/south valve rooms	07/07/2014
TEAM	CYBER	Cyber Security Inspection	07/07/2014
TI	2512/017	Cable Tray and Supports CAP	07/14/2014
CDR	89-06	Inadequate qualification of cable tray supports & fittings	07/14/2014
BL	96-02	Movement of heavy loads over spent fuel, over fuel in reactor, or over safety-related equipment	07/21/2014
GL	88-14	Instrument air supply system problems affecting safety-related equipment	07/21/2014
TEAM	CYBER	Cyber Security Inspection	07/21/2014
TI	2515/120	MPA Item A-22, Station Blackout Rule	08/04/2014
IP	80521	Radiological Environmental Protection	08/04/2014
IP	84523	Liquids - Control, Sampling, Monitoring, and Release	08/04/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
IP	84524	Gases and Particulates - Control, Sampling, Monitoring, and Release	08/04/2014
TI	2512/032	Welding CAP	08/25/2014
URI	87-19-06	Nonsafety-related cable in close proximity to safety-related cable in electrical panels	08/25/2014
IP	83524	External Occupational Exposure Control and Personal Dosimetry	08/25/2014
IP	83525	Internal Exposure Control	08/25/2014
IP	83526	Control of Radioactive Materials and Contamination, Surveys and Monitoring	08/25/2014
IP	83527	Facilities and Equipment	08/25/2014
IP	83528	Maintaining Occupational Exposures ALARA	08/25/2014
BL	80-06	Emergency safety feature reset controls	09/15/2014
TMI	I.D.1	CRDR	09/15/2014
TI	2500/19	Licensee's actions taken to implement USI A-26: Transient protection	09/29/2014
BL	80-04	Analysis of PWR main steam line break with continuous feedwater addition	10/06/2014
TMI	II.E.1.2	Auxiliary feedwater system initiation and flow	10/06/2014
TI	2515/174	Hydrogen igniter backup power	10/06/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
TI	2512/016	Cable Issues CAP - Subissue: Proximity to hot pipes	10/06/2014
CDR	90-03	Cables proximity to hot pipes	10/06/2014
SER	SSER App HH Item 74	NRC staff will verify installation of acoustic-monitoring system for the power-operated relief valve (PORV) position indication in WBN U2 before fuel load (Section 7.8.1)	10/06/2014
IFI	86-10-03	U2 instrument air preop test	10/20/2014
IP	80210	Environmental Protection	10/27/2014
BL	79-24	Frozen lines	11/03/2014
CDR	94-04	Potential freezing of main steam pressure transmitter sense line	11/03/2014
SER	SSER App HH Item 63	TVA should confirm to NRC staff that testing prior to U2 fuel load has demonstrated that two-way communications is impossible with Eagle 21 communications interface (Section 7.2.1.1)	11/03/2014
SER	SSER App HH Item 93	TVA should confirm to staff that testing of Eagle 21 system has sufficiently demonstrated that two-way communication to ICS is precluded with described configurations (Section 7.9.3.2)	11/03/2014
TI	2512/016	Cable Issues CAP - Subissue: Splices	11/17/2014
SER	SSER App HH Item 16	Perform detailed inspection/evaluation prior to fuel load on EQ program compliance with 10CFR50.49 requirements (Section 3.11.2)	11/17/2014
SER	SSER App HH Item 17	Verify accuracy of WBN U2 EQ list prior to fuel load (Section 3.11.2.1)	11/17/2014
IP	71111.07	Heat Sink Performance - Subissue: CCS HX B heat transfer test (02.02.b.1)	11/17/2014
IP	71111.07	Heat Sink Performance - Subissue: Intake inspections, system controls, and system chemistry (02.02.d.2&4)	11/17/2014

<i>Type</i>	<i>Item #</i>	<i>Title</i>	<i>Scheduled Inspection</i>
TI	2512/038	Mechanical Equipment Qualification SP	12/01/2014
GL	04-02	Potential impact of debris blockage on emergency recirculation during design basis accidents at PWRs	12/01/2014
TI	2515/166, R1	Containment sump blockage	12/01/2014
IP	79501	LWR Water Chemistry Control and Chemical Analysis	12/01/2014
IP	79502	Plant Systems Affecting Plant Water Chemistry	12/01/2014
IP	84525	QA and Confirmatory Measurements for In-Plant Radiochemical Analysis	12/01/2014
SER	SSER App HH Item 75	NRC staff will verify test procedures & qualification testing for auxiliary feedwater initiation & control & flow indication are completed in WBN U2 before fuel load (Section 7.8.2)	12/03/2014

(ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). Please contact Robert Haag at (404) 997-4446 with any questions you may have regarding this letter or our planned inspections.

Sincerely,

/RA/

Joel T. Munday, Director
Division of Construction Projects

Docket No. 50-391
Construction Permit No: CPPR-92

Enclosure:
Watts Bar Unit 2 Inspection Plan

cc w/encl: See next page

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE

ADAMS: Yes ACCESSION NUMBER: ML14059A071 SUNSI REVIEW COMPLETE

OFFICE	Rii:DCP	Rii: DCP					
SIGNATURE	AAW	RCH					
NAME	A. Wilson	R. Haag					
DATE	02/27/2014	02/27/2014					
E-MAIL COPY?	YES NO	YES NO					

Letter to Michael D. Skaggs from Joel T. Munday dated February 28, 2014.

**SUBJECT: END-OF-CYCLE ASSESSMENT LETTER – WATTS BAR NUCLEAR PLANT
UNIT 2 (NRC INSPECTION REPORT 05000391/2014601)**

Distribution w/encl:

Region II Regional Coordinator, OEDO (E. Quinones)

J. Quichocho, NRR

J. Poole, NRR

A. Hon, NRR

J. Bartley, RII DRP

T. Nazario, RII Watts Bar Unit 2 SRI

E. Patterson, RII, WBN Unit 2, RI

R. Monk, RII Watts Bar Unit 1 SRI

C. Evans, RII

ConE_Resource@nrc.gov

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