

Attachment 7
TVA Letter Dated March 31, 2011
Responses to Licensee Open Items to be Resolved for SER Approval

TVA Procedure TI-134, Revision 0,
“Control of Portable Two-Way Radios,”
Dated July 2, 2009



Watts Bar Nuclear Plant

Unit 0

Technical Instruction

TI-134

**Control of Portable
Two-Way Radios**

Revision 0000

Quality Related

Level of Use: Information Use

Effective Date: 07-02-2009

Responsible Organization: SNE, System Eng - NSSS

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WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 2 of 18
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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
Rev 0	07/02/09	All	Initial Issue. Supersedes BP-364 R12.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 3 of 18
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Table of Contents

1.0 INTRODUCTION 4

2.0 DETAILS 5

3.0 RECORDS 13

4.0 DEFINITIONS 13

5.0 REFERENCES 14

Appendix A: Watts Bar Nuclear Plant 15

Appendix B: Areas With Equipment Affected By Radio Transmission..... 16

Appendix C: Transmission and Power Supply Issued Radio 17

Appendix D: Local Issued Radio Authorization Form 18

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 4 of 18
-----------------------	---	--

1.0 INTRODUCTION

1.1 Purpose

This Technical Instruction (TI) defines guidelines for controlling, using, and maintaining portable radio transmitting equipment on Watts Bar Nuclear Plant Site (WBN).

Responsibilities	Page 2
Using Portable Radios	Page 6
Radio Interference Reports	Page 8
Maintaining Portable Radios	Page 9
Transmission and Power Supply	Page 9
Records	Page 9
Definitions	Page 10
References	Page 10
Appendix A	Page 11
Appendix B	Page 12
Appendix C	Page 13
Appendix D	Page 14
Revision Log	Page 15

1.2 Scope

This TI applies to the use of all portable radio transmitting equipment used onsite (and inside all plant buildings at Watts Bar Nuclear Plant, especially areas that are susceptible to Radio Frequency Interference (RFI)). This includes any transmission type device including cell phones.

Nuclear Security personnel must adhere to the requirements of this TI even though their radios are issued separately from Watts Bar Nuclear Plant radios.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 5 of 18
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2.0 DETAILS

2.1 Responsibilities

2.1.1 All Employees Authorized To Use Radios

NOTE

NUREG-0794 prohibits the transmission of safeguard information except by protected telecommunications circuits. This includes onsite and offsite radio and telephone communications. If protected frequencies are not used, routine radio transmissions between site personnel shall be limited to message format or codes that do not disclose facility safeguards or response procedures.

- A. Reads and understands this TI. Abides by all guidelines of this TI.
- B. Uses proper radio operating procedures.

2.1.2 Any Employee Who Observes Radio Frequency Interference

- A. Reports incident to the Instrument Maintenance Supervisor and Responsible Engineer on Appendix A.
- B. Reports to the Shift Manager (SM) to have equipment tagged until 2.2.2A is met.

2.1.3 Frequency Designations

- A. During normal operation, the Operations Group and Maintenance may use the F2 frequency for all normal radio communications. The F3 frequency will normally be used by Fire Ops and it is for the Fire Brigade for use during fires and other emergencies. The F4 frequency is the backup channel for security.
- B. During any emergency, use of portable radios on F2 or F3 SHALL be limited to Operations and emergency response personnel.
- C. Upon actuation of the plant REP alarm, fire alarm, or emergency announcement, all other employees SHALL immediately discontinue use of their radios and monitor F2 and/or F3 channels for any needed assistance until the emergency is over. If use of a portable radio is essential to place plant systems or equipment in safe configuration, it SHALL be done promptly, with as little disruption as possible.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 6 of 18
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2.1.3 Frequency Designations (continued)

- D. Nuclear Security has their own dedicated frequency and radio system (NSS/H).
- E. The Inplant Cellular radio system (iDEN-800MHz, Nextel) may be used by all plant personnel. Due to Nextel phones utilizing a lower power signal, their use is not as limited as plant radios. Reference website address listed below for additional information.

<http://chawebnuc1.cha.tva.gov/engineering/docs/ApprovedNextelPhones.txt>

2.1.4 Section or Group Supervisor/Manager

- A. Ensure all radio users are trained on and comply with this TI prior to being asked to use radios in the plant.
- B. Maintain an adequate number of radios based on past usage patterns and experience.
- C. Obtain permanently assigned portable radio equipment through the Transmission and Power Supply (TPS) representative.
- D. Each Section may maintain an up to date inventory list of the radio equipment under their control.
 - 1. Copies of Appendix C, Transmission and Power Supply Issued Radio Inventory Form, may be used as an inventory form.
- E. Temporary use radios may be issued to individuals on a job specific basis by name and organization.
 - 1. The issue and return of radios within a group or section is that group/section's responsibility.
 - 2. Groups/sections should use Appendix D, Local Issued Radio Authorization Form, for untrained personnel such as new employees and visitors.

2.1.5 Instrument Maintenance/Operations

- A. Ensure that RADIO INTERERENCE INCIDENTS are reported to Plant Management.
- B. Ensure that Appendix B, Equipment Affected by Radio Transmission, is updated and that areas are tagged (labeled) in accordance with this TI.

2.1.6 General Use Requirements for all Personnel

- A. Personnel should use TVA radio equipment only for the purpose of conducting TVA business.
- B. When using radio equipment the following good practices should be used:
 - 1. DO NOT use radios in posted restricted areas as listed in Appendix B and labeled per Section 2.2.2.
 - 2. Speak clearly and distinctly.
 - 3. Use formal titles or names each time a message is transmitted.
 - 4. Use professional language in a directive nature.
 - 5. Repeat back messages verbatim.
 - 6. Confirm repeat-back.
 - 7. DO NOT use CB radio jargon.
 - 8. If signal break-up occurs, then move to a different location or use another communication medium.
- C. Personnel will ensure that only radios issued from a user group/section listed in this TI or approved for use by TPS are used.

WARNING

Because of the possible interference with instrumentation and control (I&C) circuits and possible inadvertent detonation of explosives used in tube plugging operations, plant personnel should NOT use portable radio transmitters while working near I&C equipment of an operating unit or while working near plugging operations when alternate means of communications can be established.

- D. Personnel will ensure that radios are NOT operated within 20 feet (line-of-sight) of an open I&C cabinet or an electronic instrument which is in service and has its cover removed or door opened. Nextel phones are exempt from the 20 feet rule, but use should NOT be in direct contact with plant equipment.

2.1.7 Responsible Supervisor/Foreman

- A. Ensure radios are not operated within specified distance of equipment or in areas listed in Appendix B, except in case of an emergency.
- B. When using detonating devices within the plant, such as explosive tube plugging equipment, an inspection of the work area shall be performed prior to bringing detonators into antenna range:
 - 1. Ensure that no repeater station or its antenna termination is operating within 40 feet of the work area.
 - 2. Ensure that no portable transmitter is used within 20 feet of the work area, e.g., post an observer or rope-off the work area with warning tape.

2.1.8 Emergency Use of Radios

- A. Plant personnel not directly involved in an emergency shall limit the use of portable radios (except for Nuclear Security dedicated frequency repeater) to Operations and emergency response personnel.

CAUTION

A REP drill, Fire drill, or Medical Emergency drill does NOT warrant use of portable radios in restricted areas.

- B. When actuation of the plant REP alarm, fire alarm, or emergency announcement occurs:
 - 1. RESTRICT use of radios until the emergency is over.
 - 2. If use of a portable radio is essential to place plant systems or equipment in a safe configuration, COMPLETE task as quickly as possible, and with as little radio transmission as possible.

NOTE

Appendix B provides a list of restricted areas (locations). All areas with signs prohibiting use of radios are considered restricted areas.

- C. When a REP, fire or Medical Emergency condition (or drill) occurs, Radiation Protection (RP) personnel may use portable radios as necessary with permission from the RP Shift Supervisor.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 9 of 18
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2.1.9 Maintenance of Portable Radios

- A. Personnel should return malfunctioning radio(s) to the user group/section's local control point where issued.

2.2 Using Portable Radios

NOTE

Radio communications may cause interference with Instrumentation and Control (I&C) circuits.

2.2.1 All Plant Personnel **SHALL** maintain awareness of the potential dangers and **FOLLOW** radio operating procedures as follows, if alternate means of communications are **NOT** available:

- A. USE only radios that have TVA equipment number.
- B. ENSURE all communications are brief and directly to the point.
- C. ENSURE no indecent or obscene language is used on the air.
- D. HOLD the microphone close to and directly in front of the mouth, and SPEAK slowly and distinctly in a normal tone of voice.
- E. USE the short forms "over" and "out" to expedite the handling of radio traffic.
- F. TPS to ENSURE the rated output power level of portable radios does NOT exceed 6 watts.
- G. AVOID using radios within 20 feet (line-of-sight) of an open I&C cabinet or an in-service electronic instrument which has its cover removed or door opened on an operating unit. Nextel phones are exempt from the 20 feet rule, but use should NOT be in direct contact with plant equipment.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 10 of 18
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**2.2.1 All Plant Personnel SHALL maintain awareness of the potential dangers and FOLLOW radio operating procedures as follows, if alternate means of communications are NOT available:
(continued)**

NOTES
<p>1) Some Measuring and Test Equipment, such as Keithley DVMs and Hewlett-Packard chart recorders, are very susceptible to interference from radio transmission. However, accurate testing can be performed provided adequate time (above 30 seconds) is allowed between keying the radio and obtaining test data.</p> <p>2) Portable radios may be used in the Control Room "horse shoe" as determined by the SM.</p>

H. Cordless telephones shall be tested by Corporate Engineering prior to use in plant operating areas where sensitive equipment is located. Tested cordless telephones may be used near sensitive equipment and in radio exclusion areas, provided they are kept a minimum of one meter from sensitive equipment and cable trays.

1. FCC ID#NYCBE-CT10 cordless phone has been approved for use throughout the plant by Corporate Engineering. The only restriction is; when a cabinet door is open, do NOT break the plane of the cabinet space. This restriction also applies to cell phones.

I. Possession and use of cell phones, either personal or contractor supplied, are allowed inside the protected area fence, but NOT inside plant operating areas. These plant operating areas are:

- Turbine Building
- Auxiliary Building
- Control Building
- Unit 1 and 2 Reactor Buildings
- Unit 1 and 2 Additional Equipment Buildings
- Diesel Generator (DG) Building
- Additional (5th) Diesel Generator Building
- Intake Pumping Station (IPS)
- Condenser Circulating Water (CCW) Building

Only TVA cell phones (Nextel) have been tested and approved for possession and use inside plant operating areas.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 11 of 18
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- 2.2.1 All Plant Personnel SHALL maintain awareness of the potential dangers and FOLLOW radio operating procedures as follows, if alternate means of communications are NOT available:
(continued)**

NOTE

Use of TVA supplied emergency communications equipment, which may include cell phones, is permitted only as discussed by emergency response procedures/guidelines.

- J. Inplant Cellular phone restrictions: Do NOT have cell phones on when within 3 feet of Barton transmitters if the covers or junction boxes are being opened unless the channel is put into a safe condition prior to the introduction of the cell phone to the location.
- K. If it is determined that the use of radios in the Control Room should be further limited, this TI will be revised to include appropriate limitations.

2.2.2 Responsible Engineer

- A. Appendix B lists equipment which is affected by radio transmissions. REVISE Appendix B as additional affected equipment is reported.
 - 1. PLACE a sign at each entrance to the rooms where this equipment is located similar to the following.

CAUTION

This area has equipment affected by radio transmission. Operate radios using this TI.

- 2. Signs that are posted near affected equipment should read,

WARNING

This area has equipment affected by radio transmission. Operate portable radios only in an emergency.

- 3. MARK OFF the area around the affected equipment with red tape or paint, on the floor, if the permanent equipment is NOT in a room.
- B. It will NOT be necessary to place a warning tag on each panel in the Main and Auxiliary Control Rooms, Auxiliary Instrument Rooms, or Communications Room.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 12 of 18
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2.2.3 Instrument Maintenance

- A. INSPECT all field-mounted transmitters for possible radio frequency interference (RFI) leaks, such as unplugged conduit connections at the junction box, loose junction box to transmitter connections, or loose covers during normal maintenance activities.
- B. TIGHTEN or PLUG any leaks found so the maximum RFI shielding is restored.

2.2.4 Radio Interference Reports

- A. Personnel observing radio interference shall report the incident to the Shift Manager (SM) immediately.
- B. The SM will notify Plant management of incidents of radio interference.
- C. The Plant Management representative will investigate each radio interference incident and based on the results will:
 - 1. Notify the Labeling Coordinator to tag the affected area/equipment susceptible to radio interference in accordance with TI-134, as necessary.
 - 2. Notify the Responsible Engineer to initiate an update of Appendix B and write a PER.

2.3 Maintaining Portable Radios

2.3.1 SEND all hand-held portable radios which require maintenance to the TPS Engineering Unit to evaluate the extent of the required maintenance and to determine whether the unit should be sent to the Central Laboratories.

- A. If a radio is found to be malfunctioning, the user is NOT authorized to tune or make internal adjustments.
- B. Maintenance of the base station and in-plant repeater units will be performed by TPS or the Central Laboratory.
- C. The user's section is responsible for providing an account number to TPS for Central Laboratories services if one is needed.
- D. All handheld radios will be purchased through the TPS.

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 13 of 18
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2.4 Transmission and Power Supply

2.4.1 INSPECT each base station and repeater annually, following initial installation, or any maintenance affecting the technical parameters.

3.0 RECORDS

3.1 QA Records

No QA Records are generated by this procedure.

3.2 Non-QA Records

Appendices are available for data update as appropriate.

4.0 DEFINITIONS

FREQUENCY - Frequency use has been designated (defined) as follows:

F2 - Plant Operations and Maintenance

F3 - Fire Operations/Fire Brigade and emergency use only

F4 - Security backup channel

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 14 of 18
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5.0 REFERENCES

5.1 Source Documents

Administrative Procedures, Operating Regulations, and Technical Standards for TVA Radio Stations, dated July 1, 1972

NER-82-0425-001 Document No. TB 73-024,R1
NER-82-0492-001 Document No. TB 77-012
NER-84-0040-001 Document No. 83-083
NER-89-0090-001 Document No. 88-3085
NER-89-1120-001 Document No. 89-3627
NER-89-1159-001 Document No. 327/88039,R1
NER-90-0230-001 Document No. 90-3815
NER-90-0526-001 Document No. 90-006
NER-90-0937-001 Document No. 90-4077

5.2 Commitment Documents

NUREG-0794, Protection of Unclassified Safeguard Information

5.3 Interface Documents

SOI-100.01, "Communications Systems"
N3-253-4003, "VHF Radio and MW Radio System"

5.4 Other Documents

TVA Drawings
55W1390
55W1391
55W1392
55W1392-1,3,4
55W1393-1
55W1395-5

WBN Unit 0	Control of Portable Two-Way Radios	TI-134 Rev. 0000 Page 15 of 18
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**Appendix A
(Page 1 of 1)**

Watts Bar Nuclear Plant

EQUIPMENT RADIO FREQUENCY INTERFERENCE REPORT

Reported by _____ Section _____ Date of Occurrence _____

Name and UNID of Equipment _____ Location _____

Radio Manufacturer _____ Model Number _____

TVA No. of Radio _____ Approx Distance of Radio to Equipment _____

Status of Equip

- Affected:
- In-service
 - Under Test
 - Door OPEN/CLOSED
 - Equipment Uncovered
 - Other _____

Circumstances: _____

Effect on Equipment: _____

Recommendations: _____

Report incident to Supervisor, Instrument Maintenance, and SM.

Send a copy of this report to Maintenance Planning and Technical Group (Responsible Engineer).

PER number _____

**Appendix B
(Page 1 of 1)**

Areas With Equipment Affected By Radio Transmission

<u>Equipment Location</u>	<u>Potentially Affected Equipment</u>	<u>Precaution/Statement</u>
U1 & 2 CB EL-708	Solid State Protection System Foxboro Process Control and Protection Panels R-1 through R-27 EHC R-56 GE/MAC BOP Panels R-121 through R-131	2.2.1.G, 2.2.1.H.1
U1 & 2 CB EL-755	Nuclear Instrumentation System M-19	2.2.1 Note 1 & 2
U1 & 2 AB EL-772	Rod Control L-117 through L-123	2.2.1.G
U1 & 2 AB EL-692	Auxiliary Feedwater Panel L-381	2.2.1.G
U1 & 2 CB EL-755	Radiation Monitoring 0-M-12	2.2.1 Note 1 & 2
Penetration Room EL-713 A3U, 1-L-336	Robertshaw Model 3101 Temperature Controllers	10 Feet
Penetration Room EL-713 A3U, 1-L-388	Barton Transmitters Model 763	10 Feet, 2.2.1.J
Unit 1 Lower Containment	Barton Transmitters Model 332/764 Barton Transmitters Model 763	Modes 1-4, No Radios 2.2.1.J
Unit 1 Incore Instrument Room	All Equipment	Modes 1-4, No Radios
Unit 1 Annulus	Barton Transmitters Model 332/764	Modes 1-4, No Radios 2.2.1.J
Diesel Generator Rooms	7 Day tank Level Transmitters	4 Feet
U1 & 2 AB EL-772	125VDC Vital Battery Chargers	All Modes, No Radios
U1 North Valve Vault RM	Barton Transmitters Model 763	Modes 1-4, No Radios 2.2.1.J
729 TB, MFP A and B	Main Feed Pump Front Standard	Modes 1-4, No Radios
713 AB, Blender Area	Wide Range Pressure (PR-68-63)	Modes 1-4, No Radios
755 CB, Relay Room	All Equipment	All Modes, No Radios

