



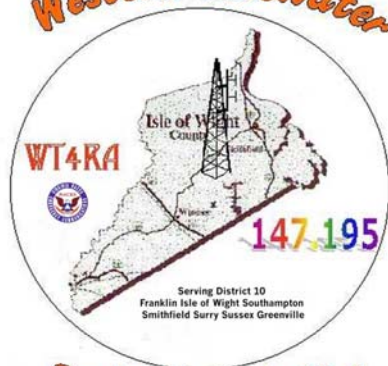
*VIRGINIA RACES Inc./ VA ARES
DISTRICT 10*

SUPPORT FOR

*ISLE OF WIGHT, SURRY,
SUSSEX, GREENSVILLE AND
SOUTHAMPTON COUNTIES,
CITIES AND TOWNS OF
FRANKLIN, SMITHFIELD AND
EMPORIA.*



Western Tidewater



Radio Association

August 13, 2007

WHAT IS ARES?

- **The Amateur Radio Emergency Service (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service when disaster strikes.**
- **Every licensed amateur, regardless of membership in ARRL or any other local or national organization, is eligible for membership in the ARES.**

WHAT IS RACES?

- **RACES = Radio Amateur Civil Emergency Service, created 47 CFR 97 Subpart E and administered by local governments and FEMA**
 - **Virginia RACES Inc. was created to provide training and support to Radio Amateurs involved in emergency communications.**
- **The sole purpose of RACES is to provide communication during response to disasters on behalf of local, state and federal government.**

Why?

- **We provide communications when standard means of communications are not available, i.e., when a *communication emergency* exists**
- **We replace the telephone, fax and radio systems that are disabled by an event**

Get the Message Through



VIRGINIA ARES/RACES CHAIN OF COMMAND

- **We work for a local government on a volunteer basis**
 - Think of **ARES/RACES** as an **NGO**
- **State Level Leadership -**
 - **Tony Amato, KR4UQ (VA RACES, SERO)**
 - **Henry Wyatt, K4YCR (ARES, SEC)**
- **District Emergency Coordinator (DEC)
District Emergency Radio Operator
(DERO) District 10 – Chris Hanslits, W4VX**

ARES/RACES REGISTRATION

Why you **MUST** register...

Once registered, state Code and Federal law give certain benefits and protection against civil liability

Registration required for RACES participation

- **47 CFR 97.407(a) Appendix F**
- **Federal Volunteer Protection Act of 1997**
- **42 USC 139**
- **Virginia Laws protecting you are:**
 - **Virginia State Government Volunteers Act §2.1-554**
 - **VA Emergency Mgt Assistance Compact §44-146**



ARES/RACES REGISTRATION

- **Helps us know who is willing to serve**
 - **Provides local EC/EROs with list of volunteers and capabilities**
 - **ARES online registration database is located at <http://aresva.org/aresva.html>**
 - **Provides protection under the Volunteer Protection Act**



What does this mean you?

Disasters don't respect jurisdictional boundaries!

- **Ensure that no locality needing help goes without**
- **Database for alerting, statewide mobilization**
- **Provides multi-jurisdictional coordination, mutual aid**
- **Can be mobilized statewide**

D10 Communications Plan

- **Local EOC to State EOC (Richmond)**
 - 146.76 Williamsburg (-600 kHz, no tone)
 - This is the primary link to the state EOC
 - *The primary function of the stations installed at the each EOC is to maintain this link*
 - This is the Operations Net
 - Individual ARES/RACES do not check into this net
 - This net is for the EOCs in the Tidewater area
 - Tactical callsigns are used
 - “ this is Isle of Wight EOC over”
 - Backup frequency is Virginia Emergency Net Alpha (VEN A)
 - **3947 kHz LSB** – Use this if the repeater is down

D10 Communications Plan

- **Local EOC to State EOC (Richmond)**
 - **Comments:**
 - **The 146.76 repeater will be active prior to formal activation with Logistics communications**
 - **Good frequency to monitor prior to a Level 1 activation**

D10 Communications Plan

- **Local EOC to Shelters**
 - **444.825 MHz (+5 MHz, 131.8 Hz PL)**
 - **70 cm band is used to minimize interference with 2 meter packet and logistics frequencies**
 - **Backup is 147.195 (+600 kHz, 100 Hz PL)**
Logistics repeater
 - **These frequencies will be monitored at the EOC**
 - **If communications cannot be established on the primary frequency, go to the backup**

D10 Communications Plan

- **Local Logistics Net (LOGNET)**
 - **147.195 (+600 kHz, 100 Hz PL)**
 - **Do check in on this frequency when notified of an activation (Level II or Level I)**
 - **Backup is 147.195 simplex**
 - **Use this if the repeater is down**
 - **Coordination of relief operators and other resource assignments will take place on this frequency.**
 - **The EOC and Shelter station(s) will monitor this frequency**

D10 Communications Plan

- **Packet 145.73 Virginia Digital Emergency Net (VDEN)**
 - **System of nodes and store/forward BBSs**
 - **Use for health and welfare traffic, long lists or detailed lengthy traffic**
 - **Each EOC and shelter has packet station capability**
 - **Confirm each message sent on packet via LOGNET or OPNET**
 - **Local node is DTENND**

D10 Communications Plan

- **Logistics Net Control**
 - This will be a home station with emergency power
 - Will not be an EOC station – too much going on to run effectively
 - May act as liaison to other nets (NTS or VEN A)
 - Helps keep logistics traffic organized
 - Who is available for assignment etc.
 - Will need multiple NCS stations for relief

D10 Communications Plan

- **Miscellaneous**
 - **444.825 repeater has 3 remote base radios to link to the 146.76, 147.195 and 147.300**
 - **Maybe used if Franklin EOC cannot contact the 146.76 directly**
 - **147.195 repeater has a remote base (frequency agile)**
 - **Maybe used to link to a repeater in the Richmond area if the 146.76 is down and VEN A is unreliable)**

EMERGENCY OPERATIONS CENTERS (EOC)

- **ARES/RACES EOCs have been established in the following areas.**
 - **Isle of Wight Dispatch Center**
 - **Franklin Dispatch Center**
 - **Smithfield Police Department in the old Council Chamber**
 - **Courtland Sheriff's Office (planned)**



ARES/RACES SERVICES

- **The primary purpose is to provide emergency communications.**
 - Provide communications link to the state EOC
 - Link shelters, hospitals etc. to local EOC
- **Provide and conduct training to maintain and enhance emergency communications skills**
- **Establish relationships and emergency communications response plans with local governments.**



RACES DISTRICT 10 ORGANIZATION

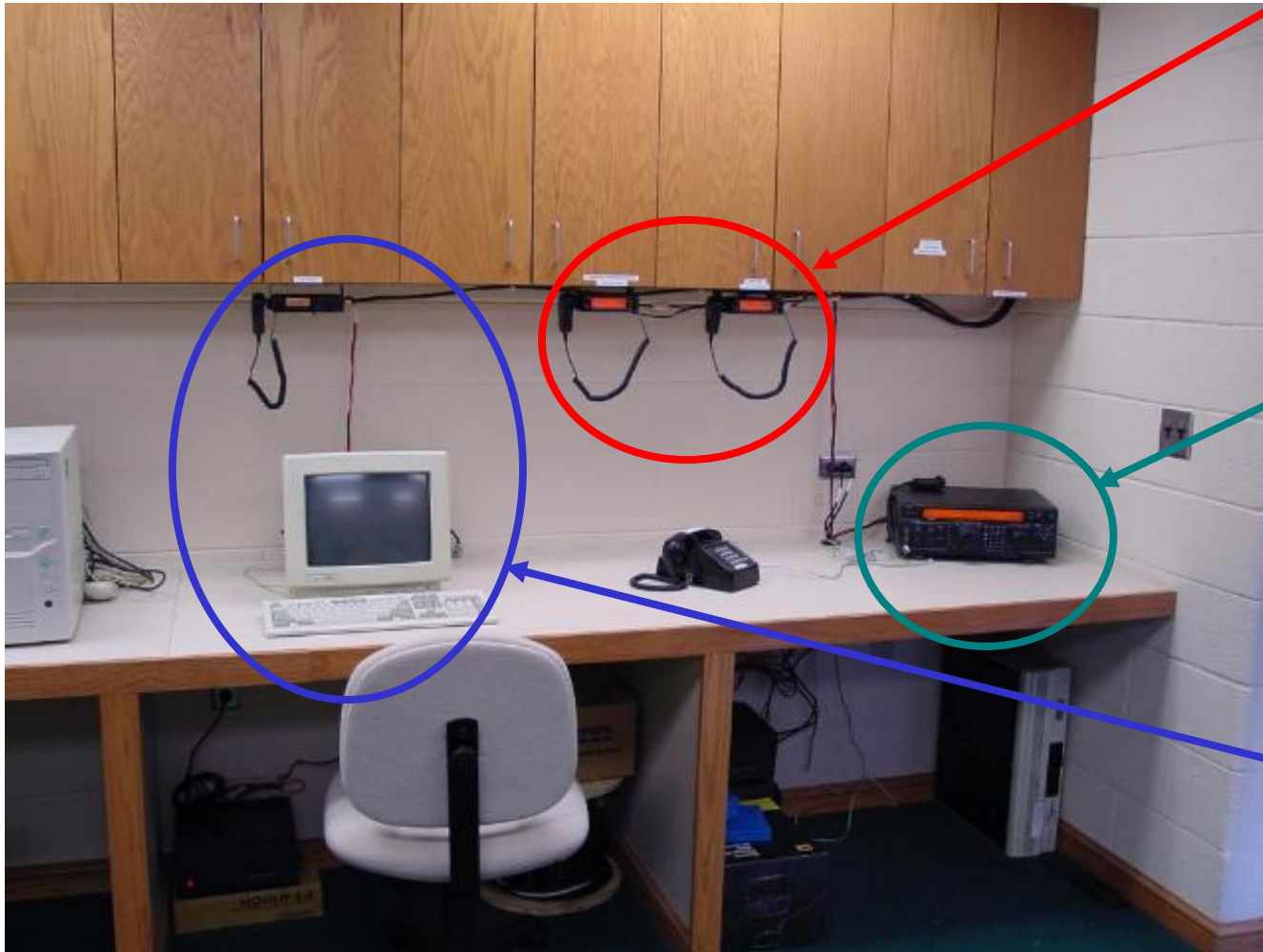
- **District 10 DEC/DERO – Chris Hanslits, W4VX**
- **Isle of Wight EC/ERO – Bruce Powell, KE4GFM**
- **Southampton EC/ERO – Chris Hanslits, W4VX**
- **Franklin EC/ERO – Fred Weaver, KG4BKI**

The Western Tidewater Radio Association is an organized group of amateur radio operators that supports and implements the RACES programs in Virginia District 10



RECENT RACES ACTIVATIONS

- **Hurricane Floyd Flooding in the City of Franklin, Isle of Wight and Southampton Counties (September 1999)**
- **Y2K Activation**
- **Surry Nuclear Power Station emergency drills (2001-2007)**
- **Hurricane preparedness drills (2001)**
- **North Anna Nuclear Power Station emergency drills (2002)**
- **Statewide drill (June 2002)**
- **Training (October 2002)**
- **Hurricane Isabel (September 2003)**



**VHF/UHF FM
RADIOS
FOR VOICE COMM
WITH SHELTERS,
VA EOC, AND
ARES-RACES
NETS**

**HF SSB RADIO
FOR VOICE COMM
WITH VA EOC
AND
SUPPORTING
EMERGENCY
SERVICES**

**VHF DIGITAL
(PACKET) RADIO
AND COMPUTER
FOR FORMAL OR
SECURE MESS-
AGES WITH THE
VA EOC**

*RACES EQUIPMENT AT THE
ISLE OF WIGHT COUNTY EOC*

SHELTERS

- **The following shelters are currently supported by VA ARES/RACES District 10 .**
 - **Smithfield High School**
 - **Windsor High School**
 - **Franklin High School**
 - **Southampton County High School**
- **There are permanent antennas and radio equipment cached for the Isle of Wight County shelters. Permanent antennas are installed and equipment cached for the Franklin HS Shelter**
- **Additional shelters can be equipped and manned on short notice.**



**PORTABLE
EQUIPMENT
INCLUDES
VHF/UHF FM
RADIOS FOR
COMM WITH
EOC'S AND
DIGITAL
(PACKET) VHF
RADIO AND
COMPUTER
FOR PRIVATE
MESSAGES**

*PORTABLE RACES COMMUNICATIONS
EQUIPMENT - FRANKLIN VA*



TRAINING

- **Training Requirements**
 - **Make sure that everyone is on the same page prior to the ‘event’.**
 - **Ensure a level of familiarity with emergency procedures and local EOC/Shelter gear**
 - **FEMA courses**
 - **May be required in the future**
- **Introductory training class on the 25th at 9AM (0900L/1300Z) at the Smithfield Library Community Room**

RACES/WTRA WIDE AREA REPEATER

WT4RA 147.195 (+, 100 Hz PL)

- **The WTRA/RACES wide area repeater (WT4RA) at Isle of Wight, VA provides the following voice capabilities:**
 - **Mobile to mobile communications within a 35 to 40 miles radius of Isle of Wight, VA.**
 - **Hand held radio communications within Isle of Wight County.**
 - **Ability to operate on emergency power.**
 - **Ability to contact emergency dispatchers via phone lines.**
 - **Ability to contact the National Weather Service WX4AKQ station in Wakefield, VA.**
- **This capability was placed in service in 1995, using a combination of funds donated by VA POWER (via VDEM through I of W County) and by funds raised by the WTRA.**
- **Net, Thursdays at 19:30 L**

FRANKLIN REPEATER USERS GROUP

REPEATER (W4LG) 147.300 MHz

(+, 131.8 Hz PL)

- **The Franklin Repeater Users Group wide area repeater (W4LG) in Courtland, VA provides the following voice capabilities:**
 - **Mobile to mobile communications within a 35 to 40 miles radius of Franklin, VA.**
 - **Hand held radio communications within the City of Franklin and Southampton County.**
 - **Ability to operate on emergency power.**
 - **Ability to contact emergency dispatchers via phone lines.**
 - **Ability to contact the National Weather Service WX4AKQ station in Wakefield, VA.**
- **This capability was placed in service in 1980's, using a private funds donated by local Amateurs dedicated to emergency communications.**
- **Net, Sundays, 21:00 L**



**POWER
SUPPLY**

**PACKET
NODE**

REPEATER

CONTROLLER

AMPLIFIER

**REMOTE BASE
CABINET
(FUTURE)**

DUPLEXER

**PARTS
LOCKER**

**WTRA RACES District 10 Repeater, Duplexer,
Packet Node, and Remote Base - Equipment Installation**



OLD TOWER
WHICH HAS NOW
BEEN REMOVED.

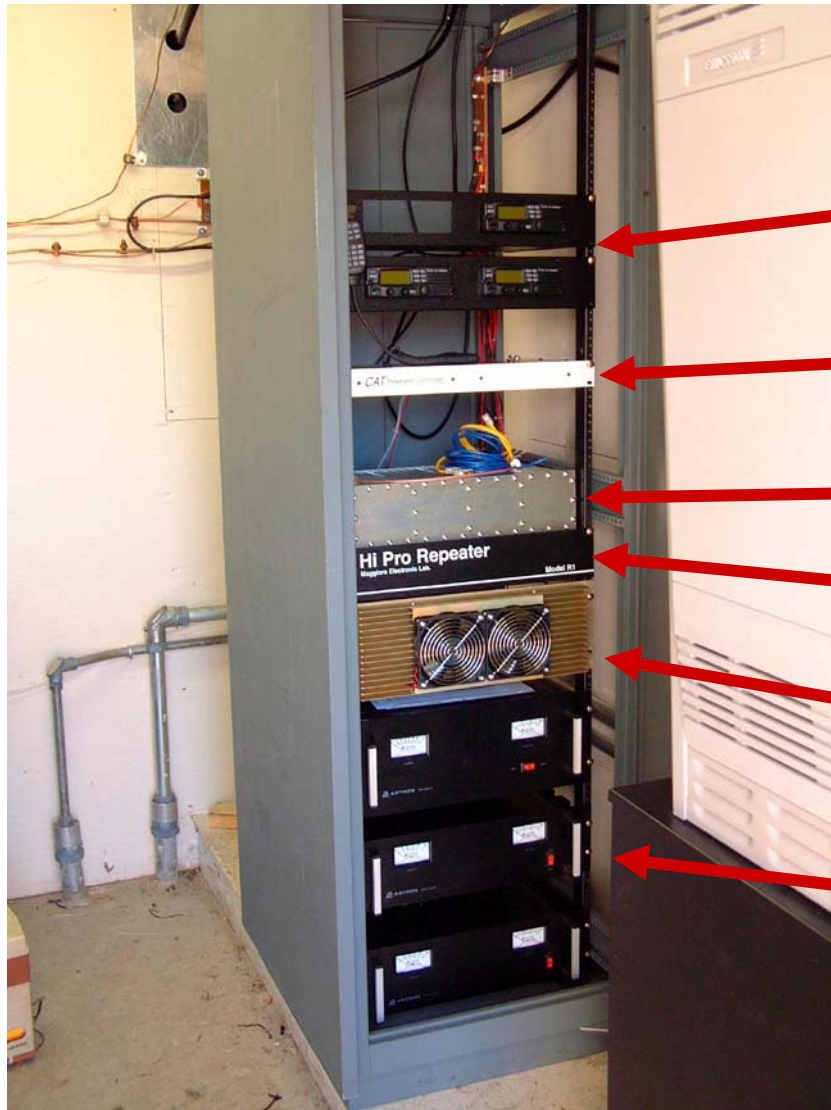
TEMPERORY GUY
WIRES AT 302
FOOT LEVEL –
LATER RELOCATED
TO TORQUE ASSY
AT 298 FOOT
LEVEL.

WT4RA RACES
REPEATER
ANTENNA
ASSEMBLY.

THE ANTENNA
CONSISTS OF TWO
SECTIONS, EACH
CONSISTING OF
FOUR ONE-HALF
WAVE DIPOLE
ANTENNA
ASSEMBLIES.

THE SECTIONS
ARE SPACED 1 1/8
WAVELENGTHS
APART AND FED IN
PHASE VIA A
CUSTOM BUILT
PHASING
HARNASS.

**Current WTRA RACES Repeater Antenna
302 to 324 foot level, Receive and Transmit**



**REMOTE BASE
RADIOS**

CONTROLLER

DUPLEXER

REPEATER

AMPLIFIER

**POWER
SUPPLYS**

**RACES SHELTER REPEATER (KG4BKI) FRANKLIN
444.825 MHz (+, 131.8 Hz PL)**



**ANTENNA
INSTALLATION
ON WATER
TOWER IN CITY
OF FRANKLIN**

**RACES SHELTER REPEATER (KG4BKI) FRANKLIN
444.825 MHz (+, 131.8 Hz PL)**



**Current WTRA RACES Combined Packet Node and
Remote Base Antenna
150 foot level, Receive / Transmit**



NATIONAL WEATHER SERVICE (NWS) SKYWARN SYSTEM

- **SKYWARN is a nationwide network of volunteer severe weather observers. The program is an effort to save lives and property during severe weather conditions. SKYWARN is an integral part of the NWS detection and warning process.**
- **VA RACES supports the NWS SKYWARN system.**
 - **Provides trained weather observers.**
 - **Provides direct VHF radio communication between observers and the NWS office in Wakefield VA.**
 - **Receives direct Weather information from the NWS during times of emergencies.**

Summary

**Through WTRA, RACES, and SKYWARN
your local federally licensed Amateur Radio
Operators provide:**

- **Trained message handling**
- **Advanced radio skills --**
 - **HF, VHF, UHF**
 - **SSB, FM, digital**
 - **and More!**
- **Trained Weather Observers**

All at no cost to the taxpayer.

Additional Information Available on the Internet

Virginia RACES Website:

www.varaces.org

National Weather Service Office in Wakefield

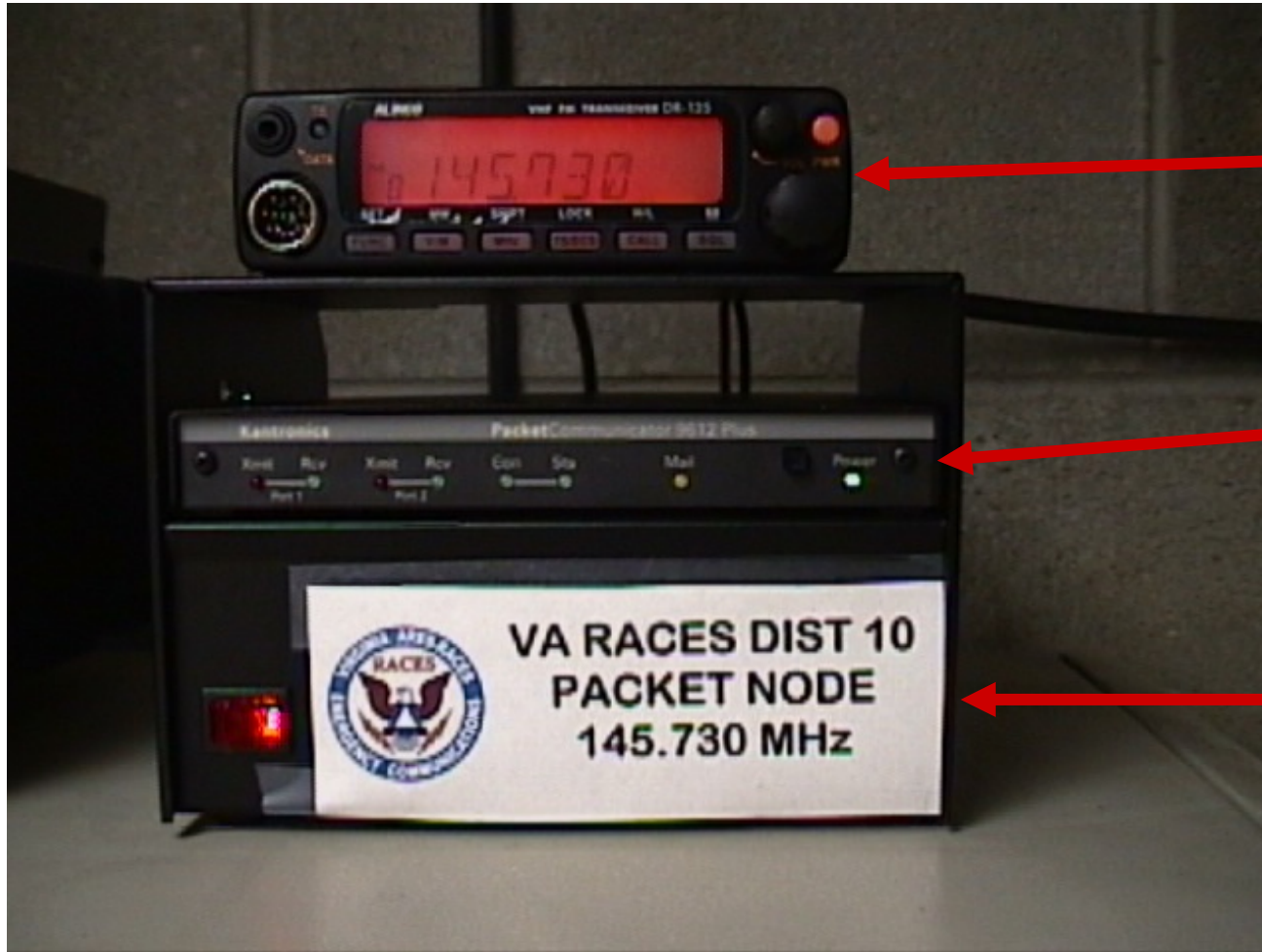
www.nws.noaa.gov/er/akq

Western Tidewater Radio Association Website

www.wt4ra.org

WTRA/RACES WIDE AREA DIGITAL RADIO (PACKET) NODE

- **The WTRA RACES PACKET NODE (WT4RA, DTENND) at Isle of Wight, VA provides the following digital capabilities:**
 - **Allows digital (packet) radios in local EOC's and Shelters to link with the node using relative small antennas and low transmit power.**
 - **Operates with a antenna at the 150 foot level on North-west side of the tower and has a output power of 50 watts on 145.730 MHz. Data is transmitted at a 1200 baud rate.**
 - **Once linked to the node, District 10 EOC's and/or shelters can communicate directly with each other and the following:**
 - **Virginia EOC in Richmond**
 - **Virginia Department of Emergency Management (VDEN)**
 - **National Weather Service**
 - **Basically any other EOC in Virginia or individual packet station via links with other packet nodes around the state**
- **This capability was placed in service on October 4, 2001, using a combination of equipment funded by Isle of Wight County and City of Franklin.**



50 WATT
VHF RADIO

TNC

POWER
SUPPLY

**WTRA RACES District 10
Packet Node - Equipment Installation**

RACES SHELTER REPEATER (KG4BKI) FRANKLIN 444.825 MHz (+, 131.8 Hz PL)

- **Through the support of the Franklin Police Dept. and local charities a repeater was constructed to support shelter communications on the 70 cm band.**
 - **Minimize interference caused when operating 2 meter FM voice and data circuits simultaneously by offloading traffic to 70 cm.**
 - **Ability to operate on emergency power.**
 - **Ability to contact emergency dispatchers via phone lines**
 - **Tie shelters in IOW, Southampton County and the City of Franklin together**
 - **Provide remote base linking capabilities offering redundant communications circuits to critical repeaters such as the 146.76 (-) in Williamsburg.**
- **This capability was placed in service in September of 2004.**
- **Net, Sundays, 21:00 L, a net with the linked 147.300 MHz (+, 131.8 Hz PL) repeater.**

AREA DIGITAL RADIO (PACKET) NODES ON 145.73 MHz

- **OBCHND - Obici Hospital Node - Suffolk**
- **LPEN - Lower Peninsula – Newport News City Hall**
- **LARCND - Langley Amateur Radio Club Node - NASA in Hampton**
- **TIDE - Williamsburg**
- **FPDND - Franklin Police Department Node - Franklin**

VA RACES and ARES Overview

- *Define Ares and Races (technical)*
- *Chain of command update (VARI and ARES)*
- *Need to register (VPA)*
 - *ARES registration URL*
 - *Sign in Sheet (contact information)*
- *Training Requirements*
 - *Make sure that everyone is on the same page prior to the 'event'.*
 - *Ensure a certain level of familiarity with emergency procedures and local EOC/Shelter gear*
 - *FEMA courses*
- *Training class on the 25th at 9AM (0900L/1300Z)*