EXHIBIT E

ENGINEERING REPORT RE AMENDMENT FOR CONSTRUCTION PERMIT BPCDT-19991021AAU FOR NEW DTV STATION WATE-DT, KNOXVILLE, TENNESSEE CHANNEL 26 930 KW 529.2 METERS

NOVEMBER 2001

COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS RADIO AND TELEVISION WASHINGTON, D.C.

Introduction

This engineering report has been prepared on behalf of WATE, G.P., licensee of TV station WATE-TV, Knoxville, Tennessee, in support of its amendment of its construction permit (FCC File No. BPCDT-19991021AAU, Facility ID No. 71082) for a new digital television (DTV) station. It is now proposed to increase the antenna height of WATE-DT, Channel 26 and to operate non-directionally with an ERP of 930 kW at 529.2 meters HAAT from a new tower. The proposed operation will comply with the Commission's guidelines with respect to protection afforded to other DTV and existing analog TV stations.

Antenna Site

It is proposed to install the Channel 26 DTV antenna on a new guyed tower located located on Sharp Ridge Memorial Road northeast of Knoxville, Tennessee. The geographic coordinates (NAD-27) of the existing tower are as follows.

North Latitude: 36° 00' 13"

West Longitude: 83° 56' 35"

The following data shows the pertinent information concerning the proposed DTV operation.

Equipment Data

Transmitter:	Harris, Model CD3200P2 rated at 42 kW average
Transmission Line:	435.3 meters (1428 feet) of Dielectric, Type EIA/DCA, 8-3/16" diameter coax
Antenna:	Dielectric, Type TUD-O5-16/80H-2-B, 0.75° electrical beamtilt, horizontally polarized panel antenna

Power	<u>Data</u>	
Transmitter output (average power)	42 kW	16.23 dBk
Combiner loss		0.25 dB
Line loss		1.20 dB
Power input to antenna	30.06 kW	14.78 dBk
		Horizontal Plane Horizontal
Antenna total power gain		11.46 dB
Effective Radiated Power	421 kW	26.24 dBk
		Peak Lobe (-0.75°) Horizontal
Antenna total power gain		14.91 dB
Effective Radiated Power	930 kW	29.69 dBk
Elevation of the site above mean sea level:		427.7 meters
Elevation of the top of supporting structure above ground	::	440.8 meters
Elevation of the top of supporting structure above mean sea level	::	868.5 meters
Height of DTV antenna radiation center: meters above ground		412.0 meters
Height of DTV antenna radiation center: above mean sea level		839.7 meters
Height of DTV antenna radiation center: above average terrain		529.2 meters
The FCC tower registration number is 1052	2156.	

Analog and DTV Allocation Situation

Since the proposed WATE-DT antenna is increased in height and ERP, an electromagnetic interference study has been conducted according to OET Bulletin 69 to determine any potential impact on the existing analog and allotted DTV operations. The attached Table I shows the percentage of population that may receive new interference from the proposed operation. Table I indicates the potential interference population will not exceed the Commission's guidelines provided in its Public Notice dated August 10, 1998 (Additional Application Processing Guidelines for Digital Television (DTV)). Therefore, the proposed operation would not have any adverse impact on the existing analog or proposed DTV allotments.

Topographic Data

The average elevation data of the eight cardinal and other radials, from 3.2 to 16.1 kilometers, is based on the NGDC 3-second terrain database.

Contour Data

Utilizing the formula in Section 73.625(b)(2) for the effective heights shown on the attached tabulation, the depression angle A_h , for each azimuth has been calculated. The maximum radiation values has been used to calculate ERP where the vertical radiation pattern at these angles is greater than 90% of the maximum.

The distances along each radial to the limits of F(50,90) 41 dBu and 48 dBu contours were determined as specified in Section 73.625(b) by reference to the propagation data for Channels 14-69, as published by the Commission in Figures 10b and 10c, Section 73.699 of its rules.

The distances along the eight cardinal radials to the 41 dBu and 48 dBu contours, the average elevations, and the effective antenna heights are included on the attached tabulation (Table II). The 41 dBu and 48 dBu contours determined from these distances are shown on the attached map (Exhibit E-1). The 48 dBu contour encompasses Knoxville, Tennessee.

Environmental Statement

An evaluation has been made to determine compliance with the Commission's specified standards for human exposure to RF fields as set forth in the OET Bulletin No. 65 dated August 1997. WATE-DT will be operating with a maximum effective radiated power of 930 kW and a radiation center of 412 meters above ground level. The TV antenna relative field factor is 0.113 in the downward direction. It is calculated that proposed operation would have less than 2.4 microwatts per square centimeter (μ W/cm²) RF field at 2 meters above the base of tower. The Commission's MPE guidelines for Channel 26 (542-548 MHz) TV operation are 1,817 μ W/cm² for the occupational/controlled and 363 μ W/cm² for the general population/uncontrolled environment. The computed RF field due to the proposed operation would be less than 1% of the MPE for the general population/uncontrolled environment.

Therefore, members of the public and personnel working around the proposed TV facility would not be exposed to RF fields exceeding the Commission's guidelines. With respect to work performed on the tower, station WATE-DT will establish modified procedures to ensure that workers are not exposed to RF fields above the Commission's guidelines, by reducing or turning off the power, as appropriate in cooperation with other station users on Sharp Ridge. A security fence with a locked gate will surround the new tower. An environmental assessment (EA) is categorically excluded under Section 1.1307 of the

FCC Rules and Regulations since the applicant indicates:

(a)(1)	The proposed facilities are not located in an officially designated wilderness area.
(a)(2)	The proposed facilities are not located in an officially designated wildlife preserve.
(a)(3)	The proposed facilities will not affect any listed threatened or endangered species or habitats.
(a)(3)(ii)	The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
(a)(4)	The proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
(a)(5)	The proposed facilities are not located near any known Indian religious sites.
(a)(6)	The proposed facilities are not located in a flood plain.
(a)(7)	The mounting of DTV antenna on the authorized tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
(a)(8)	The proposed tower structure is required by the FAA to use high intensity white lights as are other existing towers located on Sharp Ridge.
(b)	A security fence with a locked gate will surround the tower. Workers and the general public will not be subjected to RF radiation levels in excess of FCC standard. Authorized personnel will be alerted to areas of the tower where potential radiation levels are in excess of the FCC standard. The

transmitter power will be reduced or terminated as necessary.

TABLE I INTERFERENCE ANALYSIS NOVEMBER 2001

A study of predicted interference caused by the proposed WATE-DT service has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (July 2, 1997) and the Public Notice, "Additional Application Processing Guidelines for Digital Television (DTV)" (August 1998). The FCC's FORTRAN-77 code was modified only to the extent necessary (primarily input/output handling) for the program to run on a Windows98/Intel platform. Comparison of service/interference areas and populations indicates that this model closely matches the FCC's evaluation program. Best efforts have been made to use data and calculations identical to the FCC's program. Any slight differences are attributable to compiler, operating system and/or processor characteristics. The effect of any variance in calculated population values versus the FCC's program is minimized when differencing a given model's results, e.g., new interference equals total interference less baseline interference. The effect is further reduced for ratios of calculated population values, e.g., incremental population affected as a percent of total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 4 km² using 3-second terrain data sampled approximately every 0.1 km at one degree azimuth intervals with 1990 census centroids.

Baseline WATE-DT:	Allotment, CH.26, 1000 kW, 454 meters HAAT
	N 36° 00' 13", W 83° 56' 35" (NAD-27)

Proposed Change:	930 kW, 529.2 meters HAAT, C/R 839.7 meters AMSL
	N 36° 00' 13", W 83° 56' 35" (NAD-27)

Affected Station	Distance/Bearing	New Interference (% of Population Served)
WUNF-DT, CH.25, Asheville, NC	125 km/121°	0.2%
CP 98.6 kW (max DA) 826 M HAAT	fully spaced	OK
WUNF-DT, CH.25, Asheville, NC	125 km/121°	0.3%
APP 185 kW (max DA) 797 M HAAT	fully spaced	OK
WUNF-DT, CH.25, Asheville, NC	125 km/121°	0.2%
ALLOT 101 kW (max DA) 816 M HAAT	fully spaced	OK
WTJP-DT, CH.26, Gadsden, AL	334 km/224°	0.1%
CP 150 kW (max DA) 315 M HAAT	fully spaced	OK
WKPT-DT, CH.27, Kingsport, TN	169 km/73°	0.0%
CP 200 kW (ND) 699 M HAAT	fully spaced	OK
WKPT-DT, CH.27, Kingsport, TN	161 km/73°	0.0%
ALLOT 54.3 kW (max DA) 707 M HAAT	fully spaced	OK

<u>TABLE II</u> <u>DTV COVERAGE DATA</u> <u>WATE-DT, KNOXVILLE, TENNESSEE</u> <u>NOVEMBER 2001</u>

Radial	Effective*	Distance to F(50,90) Contour			
Bearing	<u>Height</u>	<u>41 dBu</u>	<u>48 dBu</u>		
N °E, T	metes	km	km		
0	501	113.9	98.6		
45	534	116.0	101.4		
90	567	118.1	103.6		
135	577	118.7	104.2		
180	584	119.1	104.5		
225	563	117.8	103.4		
270	527	115.6	100.8		
315	532	115.9	101.2		

*Based on NGDC 3-second terrain data base.

DTV Channel 26 (542-548 MHz) Average Elevation 3 to 16 km 310.5 meters AMSL Center of Radiation 839.7 meters AMSL Antenna Height Above Average Terrain 529.2 meters Site Elevation 427.7 meters AMSL Max. Effective Radiated Power 930 kW

NAD-27

North Latitude: 36° 00' 13" West Longitude: 83° 56' 35"



SECTION III-D - DTV Engineering

Complete Questions 1-5 of the Certification Checklist and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.

Certification Checklist: A correct answer of "Yes" to all of the questions below will ensure an expeditious grant of a construction permit. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be required prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.

1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:

	(a)	It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622.	Yes	No
	(b)	It will operate from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622.	Yes	No
	(c)	It will operate with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622.	Yes	No
2.	The pr the ge therefo	roposed facility will not have a significant environmental impact, including exposure of workers or neral public to levels of RF radiation exceeding the applicable health and safety guidelines, and ore will not come within 47 C.F.R. Section 1.1307.	Yes	No
	Applie	cant must submit the Exhibit called for in Item 13.		
3.	Pursua encorr	ant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will apass the allotted principal community.	Yes	No
4.	The re	equirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, receiving installations and FCC monitoring stations have either been satisfied or are not	Yes	No

5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.

Yes No

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1.	Channel Number: DTV Analog TV, if any
2.	Zone: I II III
3.	Antenna Location Coordinates: (NAD 27)
	$ \qquad \qquad$
4.	Antenna Structure Registration Number:
	Not applicable FAA Notification Filed with FAA
5.	Antenna Location Site Elevation Above Mean Sea Level: meters
6.	Overall Tower Height Above Ground Level:
7.	Height of Radiation Center Above Ground Level:
8.	Height of Radiation Center Above Average Terrain:
9.	Maximum Effective Radiated Power (average power):
10.	Antenna Specifications:
	a. Manufacturer Model
	b. Electrical Beam Tilt: degrees Not Applicable
	c. Mechanical Beam Tilt: degrees toward azimuth degrees True Not Applicable
	Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). Exhibit No.
	d. Polorization: Horizontal Circular Elliptical
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TECH BOX

e.	Direction	al Antenna Rotat	Relative F ion:	ield Values o	: Ш N Ш N	ot applicab o rotation	ole (Nondir	ectional)			
Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additiona Azimuths	1										
If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) Exhibit No. Exhibit required.											

11. Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? (Applicable only if **Certification Checklist** Items 1(a), (b), or (c) are answered "No.")

If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.

- 12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefor. (Applicable only if **Certification Checklist** Item 3 is answered "No.")
- 13. Environmental Protection Act. Submit in an Exhibit the following:
 - a. If **Certification Checklist** Item 3 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

By checking "Yes" to **Cettification Checklist** Item 3, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

If **Certification Checklist** Item 3 is answered "No," an Environmental Assessment as required by 47 C.F.R. Section 1.1311.

Exhibit No.

Yes No



Exhibit No.

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name Warren M. Powis Cohen, Dippell and Everist, P	P.C. Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer				
Signature Marrien M. Tow	Date November 26 2001				
Mailing Address 1300 L Street, N.W., Suite 1100					
City Washington	State or Country (if foreign address)ZIP CodeD.C.20005				
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WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).