Holland & Knight

Tel 202 955 3000
Fax 202 955 5564

Holland & Knight LLP
2099 Pennsylvania Avenue, N.W., Suite 100
Washington, D.C. 20006
www.hklaw.com

October 21, 2004

EDWARD L. DONOHUE
202-419-2455
ed.donohue@hklaw.com

By Hand Delivery

D.C. Board of Zoning Adjustment
Suite 210
441 4th Street, N.W.
Washington, D.C. 20001

Re: Board of Zoning Adjustment Application No. 17211 of NBC to Continue Use of a Broadcast Tower at 4001 Nebraska Ave., N.W. (Square 1722, Lot 1)

Honorable Members of the Board:

On behalf of the applicant in the above-referenced case, enclosed please find an Engineering Report prepared by Robert W. Denny, Jr., president of Denny & Associates, P.C., measuring the electromagnetic field strengths at the subject property. Mr. Denny's professional biography is also enclosed. Mr. Denny is a radio frequency engineer, and the applicant intends to qualify him as an expert in the field of radio frequency emissions and applicable federal guidelines at the hearing on this application. He has been qualified as such many times before.

In submitting this report, and in offering the testimony of Mr. Denny, the applicant wants it understood that it is not waiving any rights it has under the law. More specifically, the applicant maintains that the federal government has preemptive authority of all matter related to radiofrequency emissions and interference. The Federal Communications Commission (FCC) has exclusive authority for the regulation of all radiofrequency matters, including radio and television broadcast, wireless and paging, etc. No decision of the Board that is based upon radiofrequency could withstand a legal challenge.

Having said that, we feel it would be useful and informative for the Board to have this report and to have the benefit of Mr. Denny's testimony. We think you will find that the information he provides is most helpful.

BZA
Case No. 17211
Exhibit No. 28

Board of Zoning Adjustment
District of Columbia
CASE NO. 17211
EXHIBIT NO. 28

We respectfully request that the Board waive the requirements of section 3113.8 of the Zoning Regulations and permit the filing of these materials, as Mr. Denny required additional time to complete his report and ensure the accuracy of his findings. Moreover, the late filing of these documents should not prejudice any party since the Applicant's prehearing submission, filed on October 12, 2004, indicates that Mr. Denny will be a witness and that his report will be submitted prior to the hearing on the application.

As a courtesy, we are providing the Chairs of both ANC 3E and 3C with copies by electronic mail, as well as overnight mail.

Should you have any questions regarding this matter, please do not hesitate to contact me at (202)-419-2455.

Sincerely,



Edward L. Donohue

Enclosures

cc: Advisory Neighborhood Commission 3E (via email and UPS; w/enclosure)
Advisory Neighborhood Commission 3C (via email and UPS; w/enclosure)
Jennifer Steingasser, Office of Planning (via Hand Delivery; w/enclosure)
Karen Thomas, Office of Planning , (via Hand Delivery; w/enclosure)
Michael Jack; NBC (Via UPS; w/enclosure)
Andrew Fossett, NBC (Via UPS; w/enclosure)
Rachael Manning-Hymel, NBC (Via UPS; w/enclosure)
Chuck Lindner, NBC (Via UPS, w/enclosures)
Whayne S. Quin and Kyrus L. Freeman, Holland & Knight LLP (w/enclosures)

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DENNY & ASSOCIATES, P.C.
CONSULTING ENGINEERS
OXON HILL, MARYLAND

ENGINEERING REPORT
ELECTROMAGNETIC FIELD STRENGTH SURVEY
NBC TELEMUNDO LICENSE CO.
STATIONS WRC-TV/DT
WASHINGTON, DC

INTRODUCTION

Robert W. Denny, Jr., says that he is president of Denny & Associates, P.C., consulting engineers with offices in Oxon Hill, Maryland; that he is a professional engineer registered in the District of Columbia and other jurisdictions; that he is familiar with the stadards for human exposure to radiofrequency emissions that have been adopted by the Federal Communications Commission (FCC); and that he has performed many radiofrequency (RF) exposure surveys of the type presented herein. Tiffany E. Ligon, an electrical engineer with the firm, assisted with the measurements. This report has been prepared for NBC Telemundo License Co. (herein NBC) to report the findings of a electromagnetic field strength survey made on October 6, 2004, by the undersigned, at the studio and transmitter site of WRC-TV.

SITE DESCRIPTION

The WRC-TV transmitting antennas are located at the WRC-TV studio and transmitter site at 4001 Nebraska Avenue, N.W., Washington, DC. Two self-supporting towers are located adjacent to the WRC-TV studio building. The geographic coordinates of the taller, main supporting structure, referenced to the 1927 North American Datum, are: 38° 56' 24" North Latitude, 77° 04' 54" West Longitude. The supporting structures at the site are used to support the broadcast antennas of analog television (TV) stations WRC-TV, Washington, DC, and WFDC-TV, Arlington, Virginia; digital television (DTV) station WRC-DT, Washington, DC; and FM station WKYS, Washington, DC[1]. The taller tower is used to support the antennas of all of the broadcast stations at the site except that of WFDC-TV which is located on the adjacent shorter tower.

In addition to the broadcast operations located at the WRC-TV studio/transmitter site, numerous paging, two-way radio, and microwave facilities also are located on the supporting structures located at the site. In

[1] Broadcast facilities at the site were identified through a review of the FCC database.

addition, several transmitting earth station facilities are located on the property grounds.

RF EXPOSURE STANDARD

The exposure standard used in analyzing the survey data is that adopted by the FCC. The radiofrequency radiation exposure limits used in the survey are those set forth in Section 1.1310 of the FCC rules.[2] The FCC standard follows the maximum exposure limits set by the National Council on Radiation Protection and Measurements (NCRP) and includes some features of American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE) Standard C95.1-1992. NCRP is an expert group chartered by Congress, ANSI is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system, and the IEEE is a worldwide technical association of professionals involved in the practice of electrical engineering.

[2] See 47 CFR 1.1310.

The FCC classifies RF exposures into two categories: occupational/controlled exposure and general population/uncontrolled exposure. Occupational/controlled exposure occurs in those situations where persons are exposed as a consequence of their employment and in which those persons have been made fully aware of the potential for exposure and can exercise control over their exposure. General population/uncontrolled exposure occurs in those situations where the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. For example, exposure of the undersigned and WRC-TV engineers and technicians would be evaluated in accordance with the occupational/controlled exposure limits because we are fully aware of the potential for exposure. Exposure of all non-technical persons, including members of the general public and all non-technical personnel employed by WRC-TV, would be evaluated in accordance with the general population/uncontrolled exposure limits. As a general rule, the general population/uncontrolled maximum permissible exposure (MPE) limits are one-fifth of the higher occupational/controlled MPE limits.

The MPE limits established, even for occupational/controlled exposures, are not at the threshold where biological harm may result. The MPE limits are based on the scientific, peer-reviewed literature, including a database in excess of 10,000 papers, reporting experimental results. Studies show that the most sensitive indicator of a biological effect is behavioral. When animals are trained to do a particular task, their performance of that task changes when exposure is equivalent to a level approximately ten times greater than the MPE limits for occupational/controlled exposures and fifty times greater than the MPE limits for general population/uncontrolled exposures.

The modified behavior is not the result of harm or injury and disappears when the exposure is reduced. Nevertheless, the assumption is made that prolonged exposure in excess of the level causing the behavioral modification might be harmful.

As will be shown, exposures on the ground at the WRC-TV site and on the roof of the WRC-TV building are well within the MPE limits

established by the FCC which, as has been explained above, are premised on the avoidance of RF exposure that may have an adverse biological effect.

In applying the FCC exposure standard, it is important to note that exposure level is inversely proportional to the distance squared between the antenna and the observer. For example, the exposure level 200 feet from a constant RF source will be one quarter of that 100 feet from the source. If the distance from the source is increased to 400 feet (4 times the initial distance of 100 feet), the exposure level will be one sixteenth that at 100 feet (16 times less). Exposure levels decrease rapidly as the distance from the source is increased due to the mathematical relationship between exposure level and distance.

STATION FACILITIES

WRC-TV is licensed by the FCC (FCC File Number BLCT-19981230KE) to operate on channel 4 (66-72 megahertz (MHz)), using a circularly polarized antenna, 100 kilowatts (kW) peak visual effective radiated power (ERP), and 227 meters antenna centerline height above

average terrain (HAAT), 179 meters (587 feet) above ground level (AGL). WRC-DT is licensed (FCC File Number BLCDT-20000216AAT) to operate on channel 48 (674-680 MHz), using a horizontally polarized antenna, 813 kW maximum average ERP, and 242 meters antenna centerline HAAT 242 meters (794 feet) AGL.

WFDC-TV is authorized (FCC File Number BMPCT-19910730KE) to operate on channel 14 (470-476 MHz), using a circularly polarized antenna, 2880 kW peak visual ERP and 173 meters antenna centerline HAAT, 124 meters (407 feet) AGL.

WKYS(FM) is licensed to operate on channel 230B (93.9 MHz), using a circularly polarized antenna, 24.5 kW ERP and 215 meters (705 feet) antenna centerline HAAT. The WKYS(FM) antenna radiation center is located 168 meters AGL.

MEASUREMENT PROCEDURE

Electromagnetic field strength measurements were made using a Narda, model 8718, serial number 01155, radio-frequency electromagnetic field strength survey meter. A shaped broadband electric field probe, Narda model B8742D, serial number 01004, was used for measurements during the survey. The frequency response of the model B8742D probe is shaped to conform to the FCC MPE limits for general population/uncontrolled exposures over the frequency range from 300 kilohertz to 3,000 MHz. The Narda survey meter and probes are highly specialized electronic instruments that were developed specifically for measuring human exposure to nonionizing radiation. Narda is a leading manufacturer of exposure survey equipment, and Narda instruments are routinely used by engineers charged with protecting workers and the public from overexposure to nonionizing electromagnetic fields by federal, state, and local government agencies, the military, and industry.

The manufacturer specifies that configured with the model B8742D conformal electric field probe, the survey meter is capable of accurately measuring exposures over the range from 600 percent to 0.6 percent of the

MPE limit for general population/uncontrolled exposures. Extremely low levels of exposure that are less than 0.6 percent of the MPE limit are said to be below the sensitivity threshold of the instrument.

The FCC exposure standard is couched in terms of average whole body exposure. To facilitate average whole body exposure measurements, the survey meter was configured to make one measurement per second for a period of ten seconds. During the measurement period, the probe was moved over an area approximating that of the human body. At the end of the measurement period, the survey meter calculated the average of the ten measurement values, and the calculated average exposure was recorded for later analysis. The survey meter was initialized to display measurement data in terms of the percent of the FCC MPE for general population/uncontrolled environments. Average whole body exposure measurements were made at each location by raising the electric field probe to head height, approximately two meters above ground level, initializing the measurement sequence, and then slowly lowering the probe to approximately

10 centimeters above ground level.[3] The duration of the probe lowering motion coincided with the survey meter measurement period. The resulting average spatial data at each measurement location is tabulated in Figure 1 of this report.

DISCUSSION OF FINDINGS

STUDIO/TRANSMITTER BUILDING

Measurements were made mainly within the transmitter areas of the WRC-TV studio/transmitter building. The diagrams of Figure 2 and Figure 3 of this report identify the measurement locations made within the WRC-TV and WRC-DT transmitter rooms. Additionally, sweeps were made of existing transmission lines. Exposure levels at all locations in the building were found to be below the sensitivity threshold of the measurement apparatus and therefore well below the FCC MPE limit for general population/uncontrolled exposure.

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[3] The methodology followed in making average whole-body exposure measurements is described fully in IEEE Standard C95.3-2002, *IEEE Recommended Practice for Measurements and Computation of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz—300 GHz."*

GROUNDS AND BUILDING ROOFTOP

Measurements were made at several locations on the grounds surrounding the studio/transmitter building, and on the building roof at the locations identified in Figure 4 of this report. At all locations, exposure levels were found to be well below the established FCC MPE limit for general population/ uncontrolled exposure.

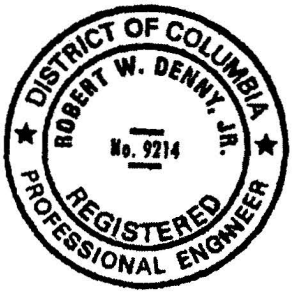
CONCLUSIONS

Exposure levels at all measured locations in the WRC-TV building, on the property grounds, and on the building roof were found to be well within the FCC MPE limits for general population/uncontrolled exposure. Due to the low exposure levels present, no risk exists to the public of exposure to power density levels even mildly approaching the FCC MPEs for general population/uncontrolled exposure. Based on the current science, exposure to radiofrequency emissions below the MPE limits adopted by the FCC is believed to be safe for all.

CERTIFICATION

We declare under penalty of perjury that the foregoing is true and correct to the best of our knowledge. Executed on October 21, 2004.

Robert W. Denny, Jr., P.E.



Tiffany E. Ligon

Figure 1

ENGINEERING REPORT
ELECTROMAGNETIC FIELD STRENGTH SURVEY
NBC TELEMUNDO LICENSE CO.
STATIONS WRC-TV/DT
WASHINGTON, D.C.

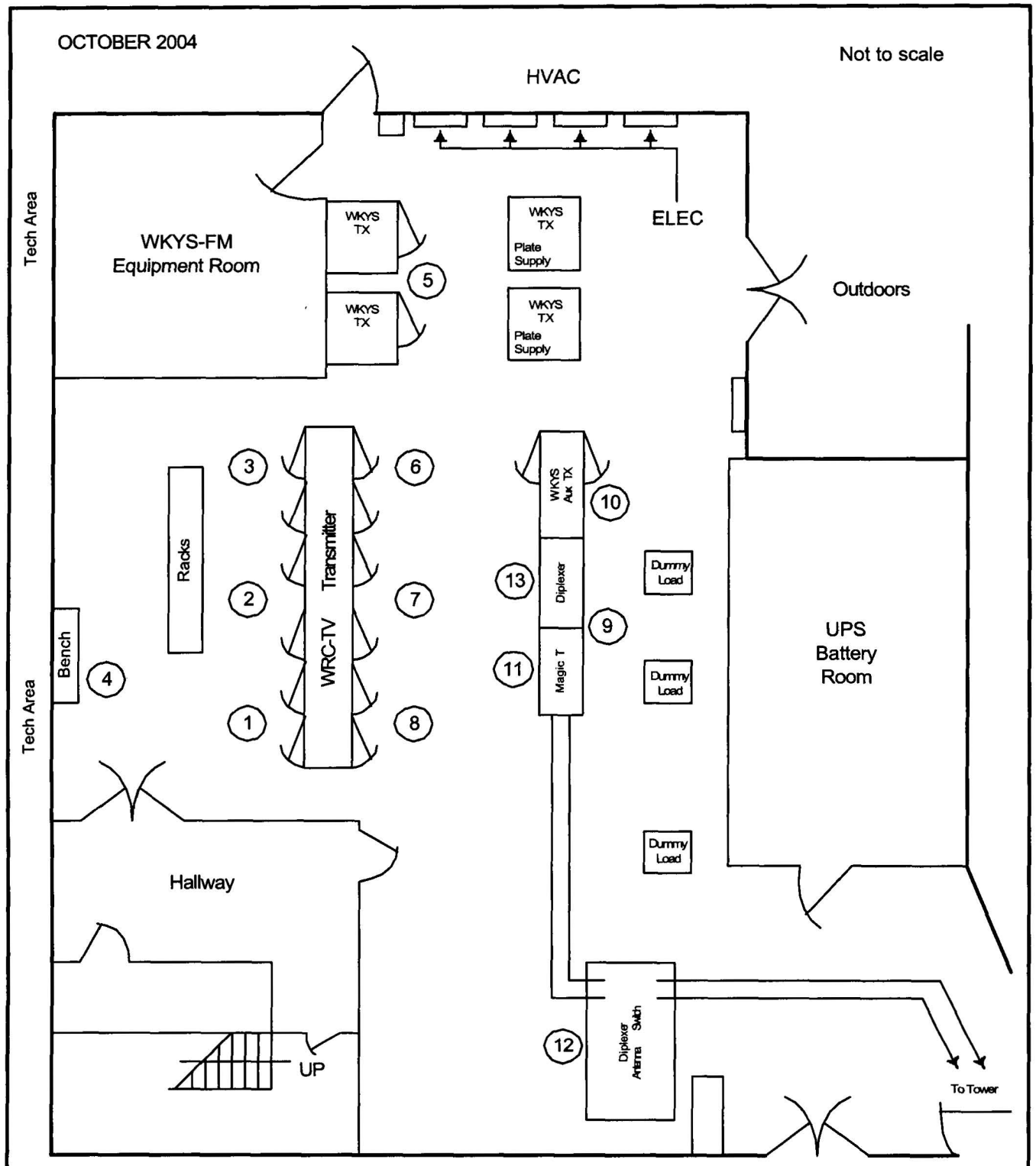
Measured Exposure Levels[1]

Measurement Location	Average Whole Body Exposure (percent of MPE)	Measurement Location	Average Whole Body Exposure (percent of MPE)
WRC-TV Transmitter Room		Property Grounds	
1	*	20	0.69
2	*	21	*
3	*	22	0.99
4	*	23	0.69
5	*	24	1.28
6	*	25	*
7	*	26	*
8	*	27	*
9	*	28	1.58
10	*	29	*
11	*	30	*
12	*	31	*
13	*	32	0.94
		33	0.66
WRC-DT Transmitter Room		34	1.18
14	*	35	*
15	*	36	0.94
16	*		
17	*	Roof of Studio Building	
		40	4.71
		41	1.26
		42	1.84
		43	2.18
		44	3.60
		45	2.04
		47	3.23
		48	4.11
		49	3.34

*Less than the sensitivity threshold of measurement apparatus of 0.6 percent of the FCC MPE limit for general population/uncontrolled exposure.

[1]The maximum permissible exposure level for general population/uncontrolled exposures was used as a reference.

Figure 2



WRC-TV TRANSMITTER ROOM
(MEASUREMENT LOCATIONS)

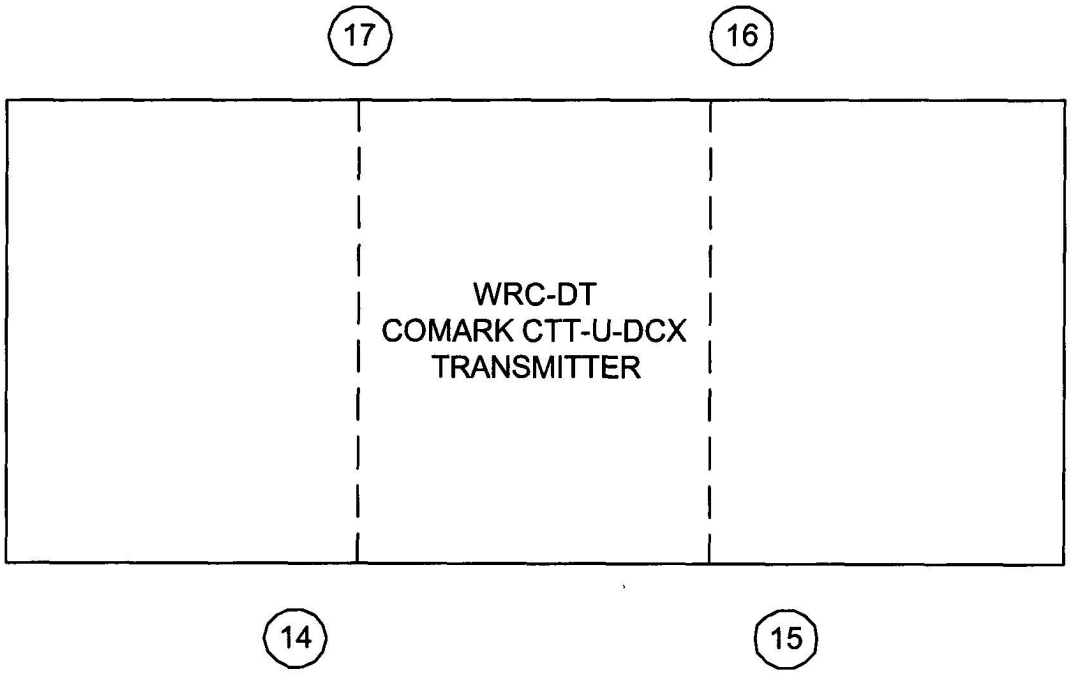
Prepared for
NBC TELEMUNDO LICENSE CO.

Denny & Associates, P.C. Consulting Engineers

Figure 3

OCTOBER 2004

Not to scale



WRC-DT TRANSMITTER ROOM
(MEASUREMENT LOCATIONS)

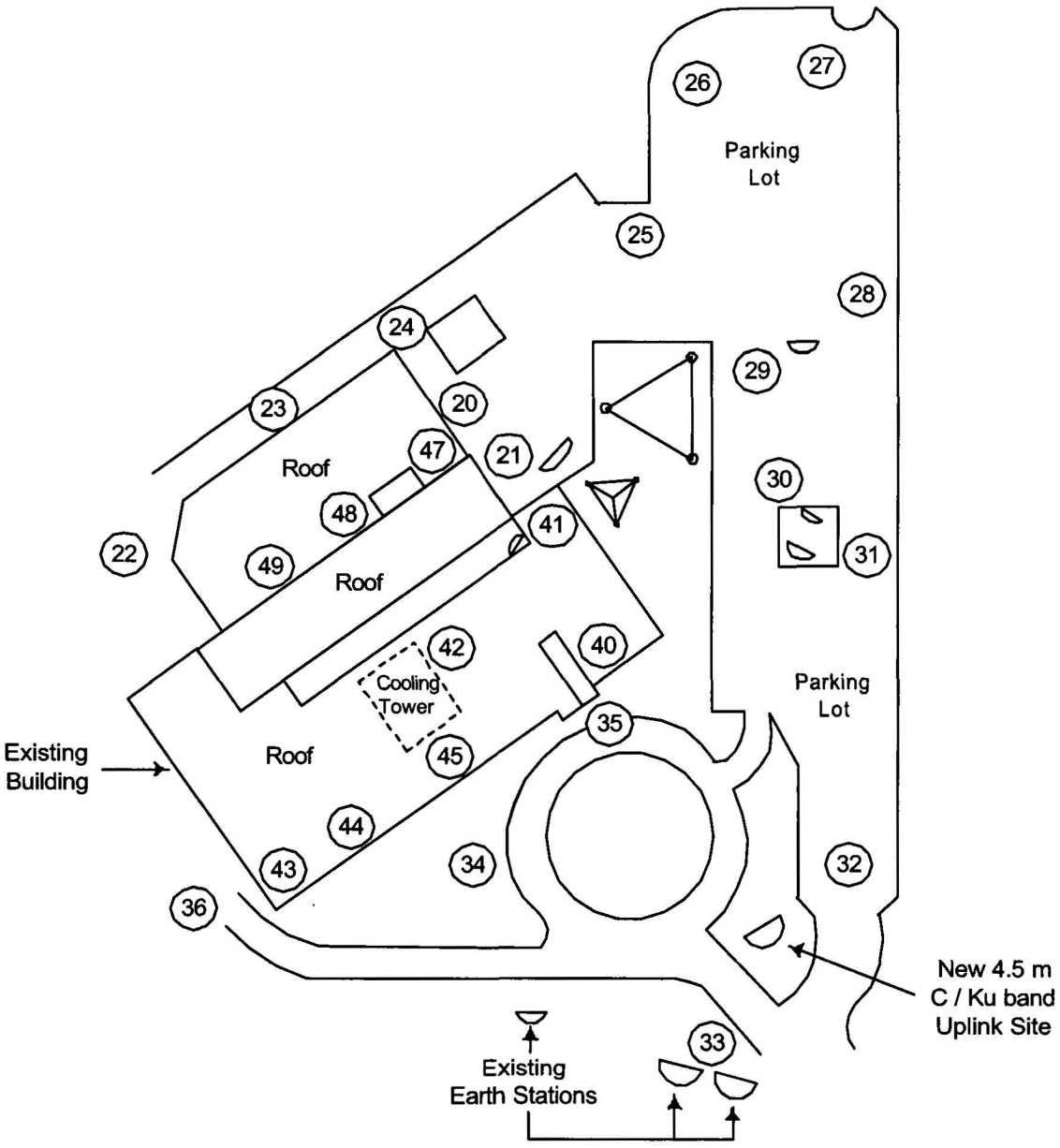
Prepared for
NBC SUBSIDIARY (WRC-TV), INC.
WASHINGTON, DC

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Figure 4

OCTOBER 2004

Not to scale



WRC-TV, WRC-DT PROPERTY GROUNDS AND STUDIO ROOFTOP
(MEASUREMENT LOCATIONS)

Prepared for
NBC SUBSIDIARY (WRC-TV), INC.
WASHINGTON, DC

Denny & Associates, P.C. Consulting Engineers

DENNY & ASSOCIATES, P.C.
CONSULTING ENGINEERS
OXON HILL, MARYLAND

BIOGRAPHICAL SKETCH OF ROBERT W. DENNY, JR.

Robert W. Denny, Jr., is a consulting engineer and president-treasurer of the firm of Denny & Associates, P.C. located in Oxon Hill, Maryland, a suburb of Washington, D.C. He is a professional engineer registered in the District of Columbia, registration number 9214; Mississippi, registration number 10768; Maryland, registration number 17475; and North Carolina, registration number 13298.

Work performed includes propagation studies, frequency allocation surveys, interference studies, planning and placement of communications structures, field strength surveys, radio-frequency radiation hazard analyses, surveys and expert testimony, communication system planning, inspection and appraisal of broadcast technical facilities, and the preparation of engineering material to support FCC applications for AM, FM, TV, and other services.

Mr. Denny has been accepted as an expert in radio engineering by the Federal Communications Commission, the United States Department of

Justice, the Broadcasting Board of Governors, and many state and local government agencies. He is routinely called upon to evaluate complex RF exposure environments at large multiple use transmitting sites around the world including the Empire State Building and Voice of America shortwave transmitting stations.

Prior to founding Denny & Associates, P.C. in 1994, he served as president of Jules Cohen & Associates, P.C. from 1992 to 1994, and was a principal engineer with that firm from 1987. Before joining Jules Cohen & Associates, P.C., he was a senior engineer with McCracken and Lopez, P.A., Charlotte, North Carolina, specializing in the design and specification of power, lighting, process control, and communications systems for large commercial and public facilities. From 1980 to 1986, he was engineering manager of AM broadcast station WBT and FM broadcast station WBCY, both Charlotte, flagship radio stations of the Jefferson-Pilot Communications Company. During his tenure with Jefferson-Pilot, he participated in the design and supervision of reconstruction of the radio stations and group-owned television station WBTV, Charlotte. He has also worked as a free-lance engineer in the production of live television sports programming for the

Mizlou Television Network and the Entertainment and Sports Programming Network (ESPN).

From 1978 to 1980, he was employed as chief engineer and vice president-engineering for the Lincoln Broadcasting Corp., a station group owner based in Syracuse, New York. Upon graduation from college, he joined the Harris Corporation, RF Communications Division in Rochester, New York, as a designer of high frequency communications systems for the military. In the course of his career, he has designed and supervised the construction of numerous broadcast and communications intensive facilities.

Mr. Denny received the degree of Bachelor of Science in Electrical Engineering from Drexel University, Philadelphia, Pennsylvania, in 1976. He is a member of the Institute of Electrical and Electronics Engineers (IEEE), a member of the Society of Motion Picture and Television Engineers (SMPTE), and a member and past officer of the Association of Federal Communications Consulting Engineers (AFCCE). He also is a member of the National Society of Professional Engineers (NSPE), the Society of Broadcast Engineers (SBE), and the Association of Public-Safety Communications

Officials, an associate member of the International Association of Electrical Inspectors (IAEI), and a life member of the American Radio Relay League (ARRL).

October 2004