



**STATEMENT OF JOHN E. HIDLE, P.E.  
IN SUPPORT OF AN APPLICATION FOR  
POST REPACK CONSTRUCTION PERMIT  
KPTH - SIOUX CITY, IOWA  
DTV - CH. 30 - 670 kW - 613 m HAAT**

Prepared for: KPTH LICENSEE, LLC

I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Licensed Professional Engineer in the Commonwealth of Virginia, License No. 7418, and in the State of New York, License No. 63418.

**GENERAL**

This office has been authorized by KPTH LICENSEE, LLC, licensee of KPTH, channel 49, facility ID number 77451, licensed to Sioux City, Iowa, to prepare this statement, FCC Form 2100, Schedule A, its technical sections, and the associated exhibits in support of an application for construction permit, in accordance with the Incentive Auction Closing and Channel Reassignment Public Notice, DA 17-314, and the technical information provided in the confidential reassignment letter from the FCC announcing the substitution of DTV channel 49 for DTV channel 30 to be used by KPTH for its post-reassignment broadcasting.

## **DIRECTIONAL ANTENNA**

The applicant proposes to install a new Dielectric model TFU-20ETT/VP-R P210 elliptically polarized directional transmitting antenna with its center of radiation located at a height above ground of 599 meters, and a height above average terrain of 613 meters. The antenna manufacturer's horizontal plane azimuth radiation pattern for the horizontally polarized component is shown and tabulated in exhibit 2. The manufacturer's horizontal plane azimuth pattern for the vertically polarized component is shown and tabulated in exhibit 3. The manufacturer's vertical plane elevation radiation pattern, illustrating the antenna's radiation characteristics above and below the horizontal plane is shown and tabulated in Exhibit 4.

The former channel 49 analog antenna will be removed from the tower structure and the new channel 30 antenna will be installed in its place, while maintaining the overall structure height of 1012.2 meters Above Mean Sea Level (AMSL). (See ASR #1057963) Since the Height Above Average Terrain (HAAT) is to increase from 587 meters to 613 meters the applicant proposes a corresponding reduction in KPTH's Effective Radiated Power (ERP) from 694 kW to 670 kW to maintain its coverage contour within the 1% expansion allowed.

## **PREDICTED COVERAGE CONTOURS**

The predicted coverage contours were calculated in accordance with the method described in Section 73.625(b) of the Rules, utilizing the appropriate F(50,90) propagation curves (47 CFR Section 73.699, Figure 9), proposed Effective Radiated Power, and

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antenna height above average terrain as determined for each profile radial. The average terrain on the eight cardinal radials from 3 kilometers to 16 kilometers from the site, was determined using the NED Three Second US Terrain Database as permitted in the FCC Rules. The antenna site elevation and coordinates were determined from FCC antenna registration data. Exhibit 1 shows the predicted Noise Limited (40.32 dBu) contour, and the principal community (48 dBu) contour. The 48 dBu contour completely encompasses the principal community of license, Sioux City, Iowa.

**ALLOCATION CONSIDERATIONS**

***Post-Transition DTV Considerations***

A study was performed, using the FCC's software, tv\_study, v. 2.2.2, to determine if the instant application for construction permit is predicted to cause new prohibited interference to post reassignment DTV stations, construction permits, DTV allotments or Class A DTV stations. The study results, shown in Appendix B, indicate that the instant application for construction permit is predicted to cause no new interference exceeding 0.5% to the populations served by any post reassignment DTV station, construction permit, allotment or Class A DTV stations. The study also shows that KPTH's proposed service area is within the baseline plus 1%. (See Appendix B)

***International DTV Considerations***

The KPTH site is located neither within the Canadian nor the Mexican coordination zone, Therefore no international considerations are necessary.

## **BLANKETING AND INTERMODULATION INTERFERENCE**

Other broadcast and non-broadcast facilities are either co-located with, or located within 10 km of the proposed KPTH site. The applicant does recognize its responsibility to remedy complaints of interference that might result from this proposal in accordance with applicable Rules.

## **RADIO FREQUENCY IMPACT**

The FCC's guidelines and procedures for evaluating environmental effects of radio frequency (RF) emissions are generally based on recommendations by the National Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86 (1986) and by the American National Standards Institute and the Institute of Electrical and Electronic Engineers, LLC (IEEE) in ANSI/IEEE C95.1-1992 (IEEE C95.1-1991). The guidelines define a maximum permissible exposure (MPE) level for occupational or "controlled" situations, and for "uncontrolled" environments that apply in all other cases that might affect the general public. The FCC Office of Engineering and Technology's technical bulletin No. 65 entitled, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" (Edition 97-01, August 1997), provides assistance to determine whether FCC-regulated transmitting facilities, operations or devices comply with guidelines for human exposure to radio frequency electromagnetic fields as adopted by the Commission in 1996. OET Bulletin No. 65 contains the technical information necessary to evaluate compliance with the FCC's policies and guidelines.

The Maximum Permitted Exposure (MPE) level for broadcast facilities that operate

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on a frequency between 30 MHz and 300 MHz is 200 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) for an “uncontrolled” environment, and is 1000 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) for a “controlled” environment. The MPE level for broadcast facilities that operate on a frequency between 300 MHz and 1500 MHz, primarily UHF TV stations, is determined, in  $\mu\text{W}/\text{cm}^2$  for an “uncontrolled” environment by dividing the operating frequency in MHz by 1.500, and is similarly determined for a “controlled” environment by dividing the operating frequency in MHz by 0.300.

The predicted emissions of KPTH must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For KPTH, which will operate on television Channel 30 (566-572 MHz), the MPE is 379.33 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) in an “uncontrolled” environment and 1,896.7  $\mu\text{W}/\text{cm}^2$  in a “controlled” environment. The proposed KPTH facility will operate with a maximum ERP of 670 kW from an elliptically polarized omni-directional transmitting antenna with a centerline height of 599 meters above ground level (AGL). Considering a predicted vertical plane relative field factor of 0.300 the KPTH facility is predicted to produce a power density at two meters above ground level of 11.505  $\mu\text{W}/\text{cm}^2$ , which is 3.03% of the FCC guideline value for an “uncontrolled” environment, and 0.606% of the FCC’s guideline value for “controlled” environments. There are two other full-power DTV stations and two Lo-VHF LPTV stations that are located at the KPTH site. Therefore, the total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all authorizations within the relevant proximity, is 8.18% of the limit applicable to “uncontrolled” environments, and 1.636% of the limit for “controlled” environments. (See Appendix A)

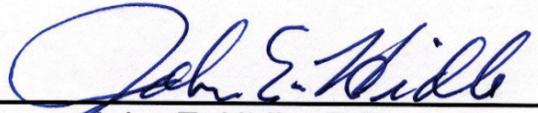
**OCCUPATIONAL SAFETY**

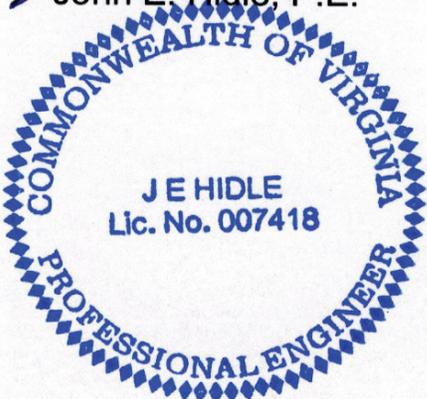
The licensee of KPTH is committed to the protection of station personnel and/or tower contractors working in the vicinity of the KPTH antenna, and is committed to reducing power or ceasing operation during times of maintenance of the transmission systems, when necessary, to ensure protection to personnel.

**SUMMARY**

It is submitted that the instant application for construction permit to change KPTH from channel 49 to channel 30, as described herein, complies with the Rules, Regulations and relevant Policies of the Federal Communications Commission. This statement, FCC Form 2100, its technical sections, and the attached exhibits were prepared by me or under my direct supervision and are believed to be true and correct to the best of my knowledge and belief.

DATED: May 23, 2017

  
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John E. Hidle, P.E.



## SUMMARY OF RADIOFREQUENCY

### RADIATION STUDY

KPTH, Sioux City, IA

Channel 30, 670 kW, 613 m HAAT

May, 2017

<u>CALL</u>	<u>SERVICE</u>	<u>CHANNEL</u>	<u>FREQUENCY</u>	<u>POLAR- IZATION</u>	<u>ANTENNA HEIGHT</u>	<u>ERP (kW)</u>	<u>VERT. RELATIVE FIELD FACTOR</u>	<u>WORST-CASE PREDICTED POWER DENSITY (<math>\mu\text{W}/\text{cm}^2</math>)</u>	<u>FCC UNCONTROLLED LIMIT (<math>\mu\text{W}/\text{cm}^2</math>)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
KPTH	DT	30	569	H & V	596	675.000	0.300	11.505	379.33	3.03%
KTIV	DT	14	473	H	595	484.000	0.300	4.139	315.33	1.31%
KMEG	DT	32	581	H & V	596	870.000	0.300	14.828	387.33	3.83%
K03IS-D	DT	3	63	H	550	0.300	0.300	0.003	200.00	0.00%
K06QG-D	DT	6	85	H	550	0.300	0.300	0.003	200.00	0.00%
<b>TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =</b>										<b>8.18%</b>

\* For television stations a very conservative vertical relative field factor of 0.3 was assumed pursuant to OET Bulletin 65.