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**Engineering Statement  
Minor Modification Application for KWYP-TV  
Post-Transition Channel 8 at Laramie, Wyoming  
March 2008**

This Engineering Statement has been prepared on behalf of Central Wyoming College ("CWC"), licensee of television station KWYP-TV at Laramie, Wyoming. KWYP-TV presently operates on analog Channel 8, with no paired digital channel. KWYP-TV will be implementing digital operation on its present analog channel. This material has been prepared in connection with a minor modification application for the KWYP-TV post-transition facilities on digital Channel 8.

The following table lists the KWYP-TV post-transition facilities approved in Appendix B of the DTV Seventh Report and Order MO&O<sup>1</sup>, as well as CWC's requested post-transition facilities as proposed herein:

	<b>DTV Table Appendix B</b>	<b>Proposed Form 340</b>
<b>Channel</b>	8	8
<b>ERP</b>	3.2 kW	1.4 kW
<b>HAAT</b>	318 meters	308 meters
<b>Antenna</b>	ID #74718 (FCC-created directional)	Kathrein K523357 directional array 1X2
<b>Coordinates</b>	41-17-17 105-26-42	41-18-35 105-27-19
<b>DTV Population (thousand)</b>	109	109

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<sup>1</sup> See *Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service*, MB Docket No. 87-268, Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking, FCC 08-72, Released March 6, 2008.

## **I. Waiver Request For Minor Expansion**

In accordance with the policy announced in paragraphs 151-152 of the *Third DTV Periodic Review R&O*,<sup>2</sup> CWC respectfully requests a waiver to allow a minor expansion of the KWYP-TV Appendix B facility. The proposed facility satisfies the waiver requirements that the minor expansion:

- (1) Would allow the station will use its analog antenna or a new antenna to avoid a significant reduction in post-transition service from its analog service area;
- (2) Would be no more than five miles larger in any direction than its authorized service area, as defined by the post-transition DTV Table Appendix B; and
- (3) Would not cause impermissible interference, i.e., more than 0.5 percent new interference, to other stations.

The waiver will allow KWYP-TV to operate post-transition utilizing the existing KWYP-TV analog Channel 8 antenna pattern. An antenna identical to the present analog antenna will be installed on a nearby tower for use by the digital facility. Therefore, CWC will be able to construct the KWYP-TV digital facility without disrupting analog service, and the digital facility will be ready for operation at midnight on February 17, 2009.

The Appendix B facility contour has been compared to that of the proposed facility, and we have determined that the greatest extension of the service area is 8.0 kilometers (5 miles).

Results of an interference analysis to other stations are discussed below.

## **II. Allocation Study**

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause impermissible interference (i.e. more than 0.5 percent new interference) to any stations beyond that level listed in the post-transition DTV Table Appendix B. This study was performed using the SunDTV program from V-Soft Communications and a 2 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

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<sup>2</sup> *Third Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MB Docket No. 07-91, Notice of Proposed Rulemaking, FCC 07-228, Released December 31, 2007.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on this allocation and interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

#### Summary Study

#### TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-07-2008 Time: 16:45:35

Record Selected for Analysis

KWYP-TV USERRECORD-01 LARAMIE WY US  
Channel 08 ERP 1.4 kW HAAT 311. m RCAMSL 02713 m  
Latitude 041-18-35 Longitude 0105-27-19  
Status APP Zone 2 Border  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	36.0 dBu F(50,90) (km)
0.0	0.018	204.5	39.6
45.0	0.386	331.7	69.5
90.0	1.400	301.7	77.5
135.0	0.386	211.8	62.2
180.0	0.018	101.7	29.8
225.0	0.386	429.6	76.1
270.0	1.400	481.4	89.4
315.0	0.386	421.9	75.6

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KWYP-TV 08 LARAMIE WY USERRECORD01

and station

SHORT TO: KWYP-TV 08 LARAMIE WY BPET 19921210KE  
041-17-17 0105-26-42  
Req. separation 273.6 Actual separation 2.6 Short 271.0 km

Proposed facility OK to FCC Monitoring Stations  
 Proposed facility OK toward West Virginia quite zone  
 Proposed facility OK toward Table Mountain  
 Proposed facility is beyond the Canadian coordination distance  
 Proposed facility is beyond the Mexican coordination distance  
 Proposed station is OK toward AM broadcast stations

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 Start of Interference Analysis

	Proposed Station		
Channel	Call	City/State	ARN
08	KWYP-TV	LARAMIE WY	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
07	KMGH-TV	DENVER CO	176.5	CP MOD	BMPCDT	-20000421AAV
07	KDUH-TV	SCOTTSBLUFF NE	206.6	CP MOD	BMPCDT	-20030224AAW
08	KTSC	PUEBLO CO	289.5	CP	BDTV	-00000030
08	KZSD-TV	MARTIN SD	398.0	CP	BDTV	-00000029
08	KCWC-TV	LANDER WY	304.0	CP	BDTV	-00000025
09	KUSA-TV	DENVER CO	176.5	CP MOD	BMPCDT	-20000501ADN
09	KFNR	RAWLINS WY	157.1	CP	BDTV	-00000041

%%%

Study of this proposal found the following interference problem(s):

NONE.

Furthermore, it has been verified that the proposed facility will not reduce the population served by KWYP-TV digital facility by more than 5%, compared to the DTV population listed in Appendix B.

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# Analysis of Interference to Affected Station 8

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
08	KWYP-TV	LARAMIE WY	USERRECORD-01

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
07	KMGH-TV	DENVER CO	176.5	CP MOD BMPCDT	-20000421AAV
07	KDUH-TV	SCOTTSBLUFF NE	206.6	CP MOD BMPCDT	-20030224AAW
08	KTSC	PUEBLO CO	289.5	CP BDTV	-00000030
08	KZSD-TV	MARTIN SD	398.0	CP BDTV	-00000029
08	KCWC-TV	LANDER WY	304.0	CP BDTV	-00000025
09	KUSA-TV	DENVER CO	176.5	CP MOD BMPCDT	-20000501ADN
09	KFNR	RAWLINS WY	157.1	CP BDTV	-00000041

Total scenarios = 1

Result key: 2

Scenario 1 Affected station 8

Before Analysis

Results for: 8A WY LARAMIE USERRECORD01 APP

HAAT 311.0 m, ATV ERP 1.4 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	109394	13656.6
not affected by terrain losses	108885	12191.7
lost to NTSC IX	0	0.0
lost to additional IX by ATV	2	36.0
lost to ATV IX only	2	36.0
lost to all IX	2	36.0

Potential Interfering Stations Included in above Scenario 1

8A CO PUEBLO	BDTV	00000030	CP
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### III. NIER Study

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed KWYP-TV digital Channel 8 operation will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques and formulas outlined in the OET Bulletin 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower.

Power density levels produced by the proposed KWYP-TV digital Channel 8 antenna were calculated using the attached vertical pattern for the Kathrein K523357 panel antenna proposed in this application. The worst-case power density occurs at a distance of 88 meters from the base of the antenna support structure. At this point the power density is calculated to be  $2.2 \mu\text{W}/\text{cm}^2$ , which is 0.2% of  $1000 \mu\text{W}/\text{cm}^2$  (the FCC standard for controlled environments) and 1.1% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments at the Channel 8 frequency).

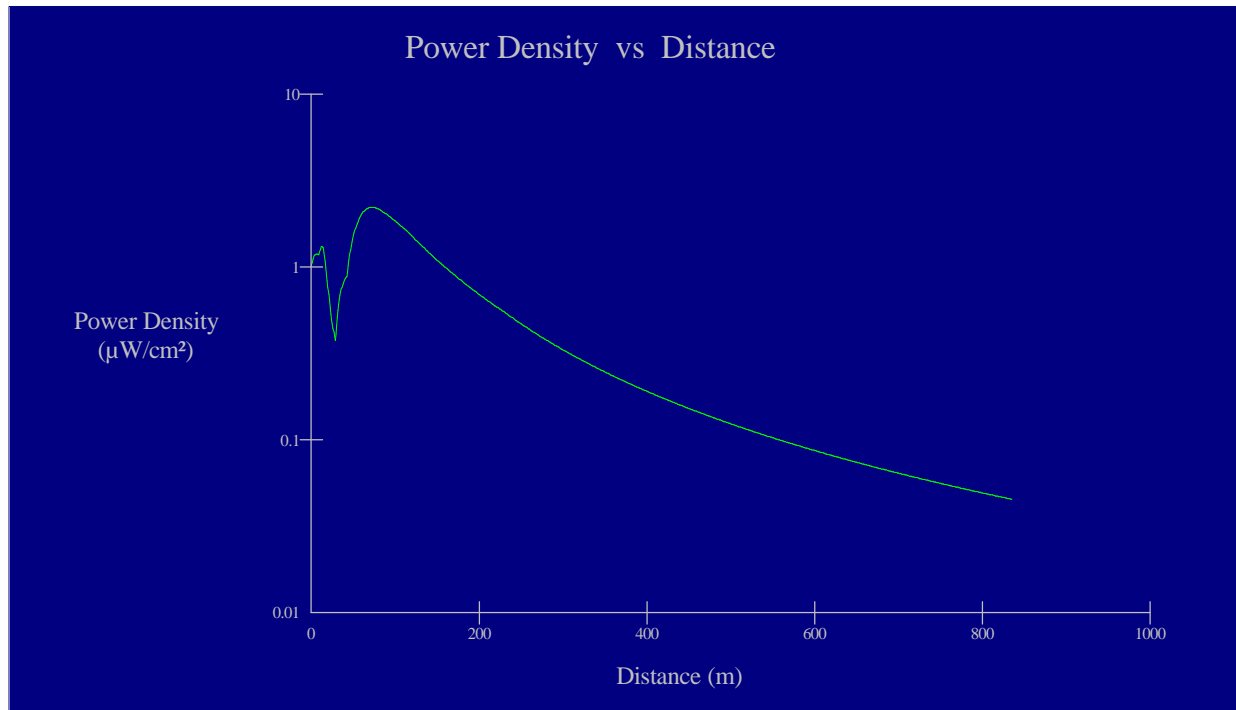
These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed KWYP-TV digital Channel 8 operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants

proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.

March 7, 2008

Erik C. Swanson



## Ground-Level NIER

### KWYP-TV Digital Channel 8 Laramie

Antenna Type: Kathrein K523357 (1 level)

Distance: 1000 meters

Horizontal ERP: 1.4 kW

Antenna Height: 26 meters AGL

Maximum Power Density is 2.2 : W/cm<sup>2</sup> at 88 meters from the antenna structure.



