

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF FM CONSTRUCTION PERMIT  
RADIO STATION KPKK(FM)  
OAKLEY, UTAH

MARCH 11, 2002

CH 268C    89 KW-H/38 KW-V    647 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared as to modify the outstanding construction permit for station KPKK(FM) in Oakley, Utah. KPKK(FM) is authorized on Channel 268C1 with an effective radiated power of 14.5 kilowatts and an antenna height above average terrain of 619 meters.<sup>1</sup> By this instant application, it is proposed to modify the station class to Channel 268C employing the "one-step" allotment process, along with specifying new transmission parameters. No site change is requested.

Along with the upgrade to Channel 268C, it is proposed to modify the existing construction permit by increasing the antenna height above terrain to 647 meters and effective radiated power to 89 kilowatts, horizontal polarization and 38 kilowatts, vertical polarization (using an elliptically polarized Shively 6814-16D-SS antenna). No transmitter site change is proposed. Co-located station KWKD(FM) on Channel 272C will also be seeking authorization to be to operate in the same vertical aperture as this same antenna system.<sup>2</sup>

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<sup>1</sup> See FCC Construction Permit: BMPH-20010730ABY.

<sup>2</sup> See FCC Modification of Construction Permit Application: BMPH-20020214AAM.

The proposal would not be subject to environmental processing in accordance with Section 1.1306. It is believed that this proposal conforms with all applicable rules and regulations of the FCC.

One-Step Upgrade

It is proposed to modify the station class from the present Class C1 to Class C via the "one-step" upgrade process. Since the herein proposed transmitter site is already fully-spaced as a Class C facility, the Channel 268C allotment reference point is also the proposed transmitter site and described by the following geographic coordinates.

40° 52' 16" North Latitude  
110° 59' 43" West Longitude

Figure 4 is an Allocation Study for Channel 268C at the reference allotment site. As can be seen, the proposed allotment reference site satisfies the Commission's minimum distance separations contained in Section 73.207(b) of the Commission's Rules toward all other stations and allotments.

The proposed allotment reference coordinates is also the location of the proposed operation. Therefore, it is obvious that the site is suitable for a transmission facility. Figure 3 is a coverage map showing that the allotment site (and transmitter site) FCC predicted 70 dBu contour entirely encompasses the community of Oakley.

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Proposed Transmitter Location

A map showing the transmitter site location is provided in Figure 1. A sketch showing the proposed antenna and supporting structure is shown on Figure 2. Since the overall tower height is less than 200 feet and no public airports are located within 10 kilometers, a tower registration number is not required.

Transmitting Antenna

It is proposed to mount the proposed elliptically polarized Shively 6814-16D-SS antenna in the same vertical aperture as that antenna proposed by KWKD(FM) on Channel 272C.<sup>3</sup> Provided in Attachment A is a statement from both station's antenna manufacturer, Shively Laboratories, that placement of both co-located antennas in the same vertical aperture will have "insignificant" pattern variations (both in the vertical and horizontal planes) on each antenna, caused by the other antenna.

Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 4 kilometers from the transmitting site. No interference is expected as the proposed transmitter site is located in a rural area. However, the applicant recognizes its responsibility to resolve complaints of interference, including blanketing and

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<sup>3</sup> See KWKD(FM) FCC Modification of Construction Permit Application: BMPH-20020214AAM.

receiver-induced interference as required by Sections 73.315(b), 73.316(e) and 73.318.

#### Coverage Contours

The predicted coverage contours for the proposed operation were calculated in accordance with the provisions of Section 73.313. In accordance with current FCC practice, the distances to the contours were calculated without consideration given to terrain roughness correction factors.

The average terrains over the evenly spaced radials to determine the overall average terrain were obtained from the past KWKD(FM) application for construction permit.

As can be seen, the FCC predicted 70 dBu coverage entirely encompasses the principal community of Oakley.

#### Allocation Study

Figure 4 is an allocation study for channel 272C at the proposed site. The figure contains a tabulation of actual and required separation distances from other pertinent stations and allotments. The proposed site meets the FCC's minimum separation requirements, specified in Section 73.207(b) of the Commission's Rules, to all assignments and stations.

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Radiofrequency Electromagnetic Field Exposure

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, *Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.<sup>4</sup> The power density at the base of the tower was calculated using the appropriate procedure contained in Section 2, Supplement A, *Additional Information for Radio and Television Broadcast Stations*, of the Bulletin.

For the calculation, an assumed downward vertical factor of 0.1 was employed (see the plot of the proposed antenna vertical radiation pattern in Figure 5) with a combined (horizontal and vertical polarization) effective radiated power of 127 kilowatts and radiation center of 47 meters (155 feet) above ground level. It is calculated that the power density would not exceed 0.025 mW/cm<sup>2</sup> at ground level. This is less than 15 percent of the Commission's guideline value in an uncontrolled environment for a FM radio station.<sup>5</sup>

The only other authorized co-located high powered emitter is KWKD(FM) on Channel 272C assigned to Randolph, Utah. KWKD(FM) has an application pending to mount an identical antenna in the same vertical aperture as the herein KPKK(FM) with the same effective radiated power. Therefore, KWKD(FM) will also have a ground level power

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<sup>4</sup> OET Bulletin 65, Second Edition 97-01, August, 1997.

<sup>5</sup> The FCC maximum guideline for a FM broadcast station in an uncontrolled environment is 0.2 mW/cm<sup>2</sup>.

density less than 15% of the Commission's uncontrolled standard. Therefore, the herein proposed KPKK(FM) and the proposed KWKD(FM) facilities are predicted to have a cumulative ground level power density of less than 30% of the uncontrolled standard.

Access to the transmitting site is restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency radiation will not exceed the FCC guidelines.

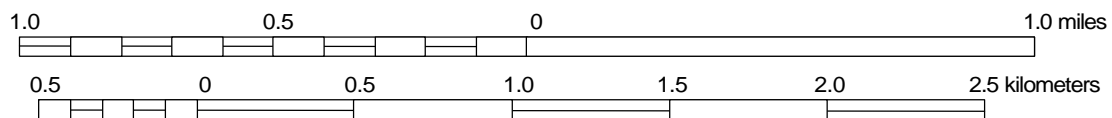
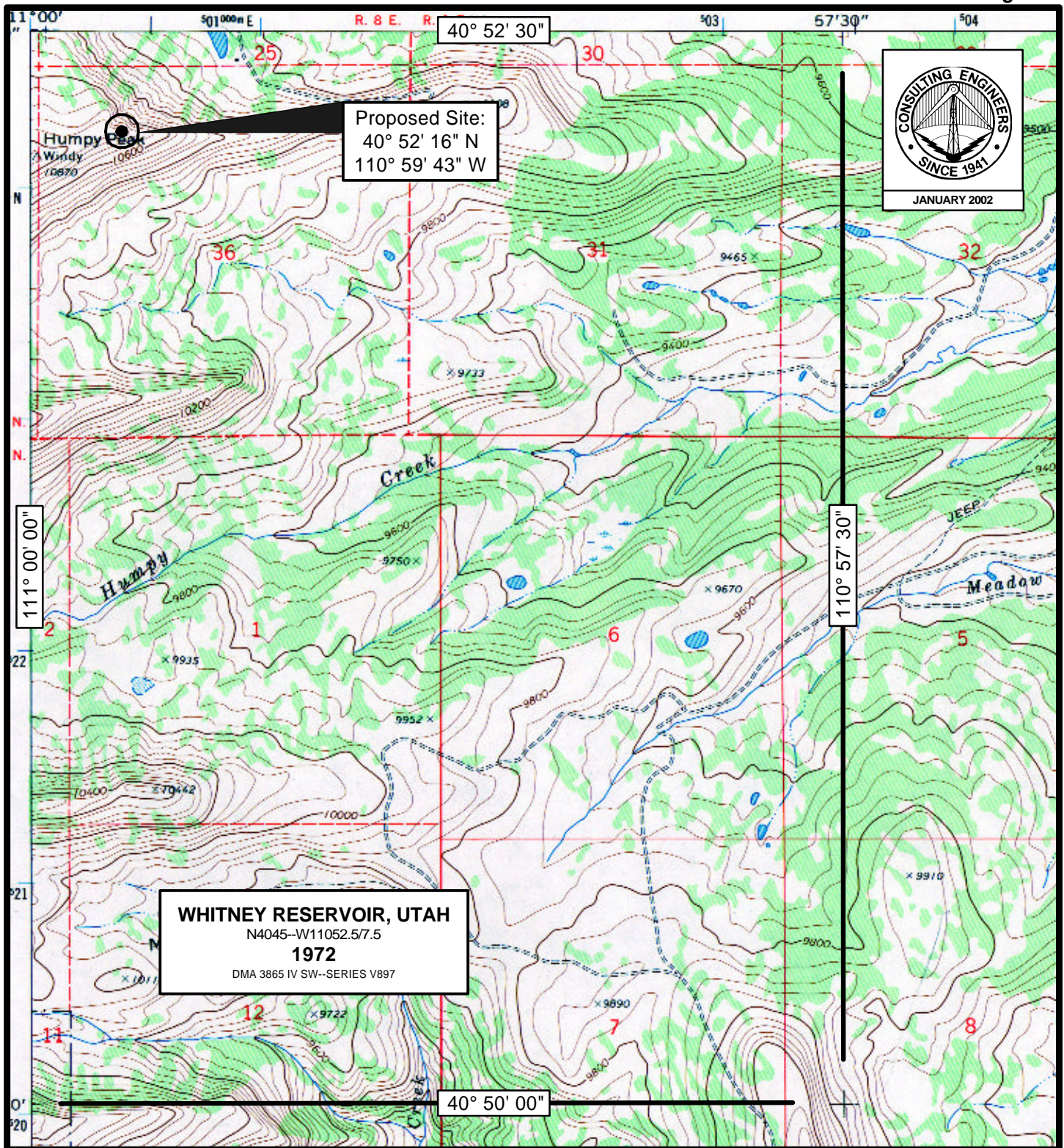
Charles A. Cooper

March 11, 2002

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
941.329.6000

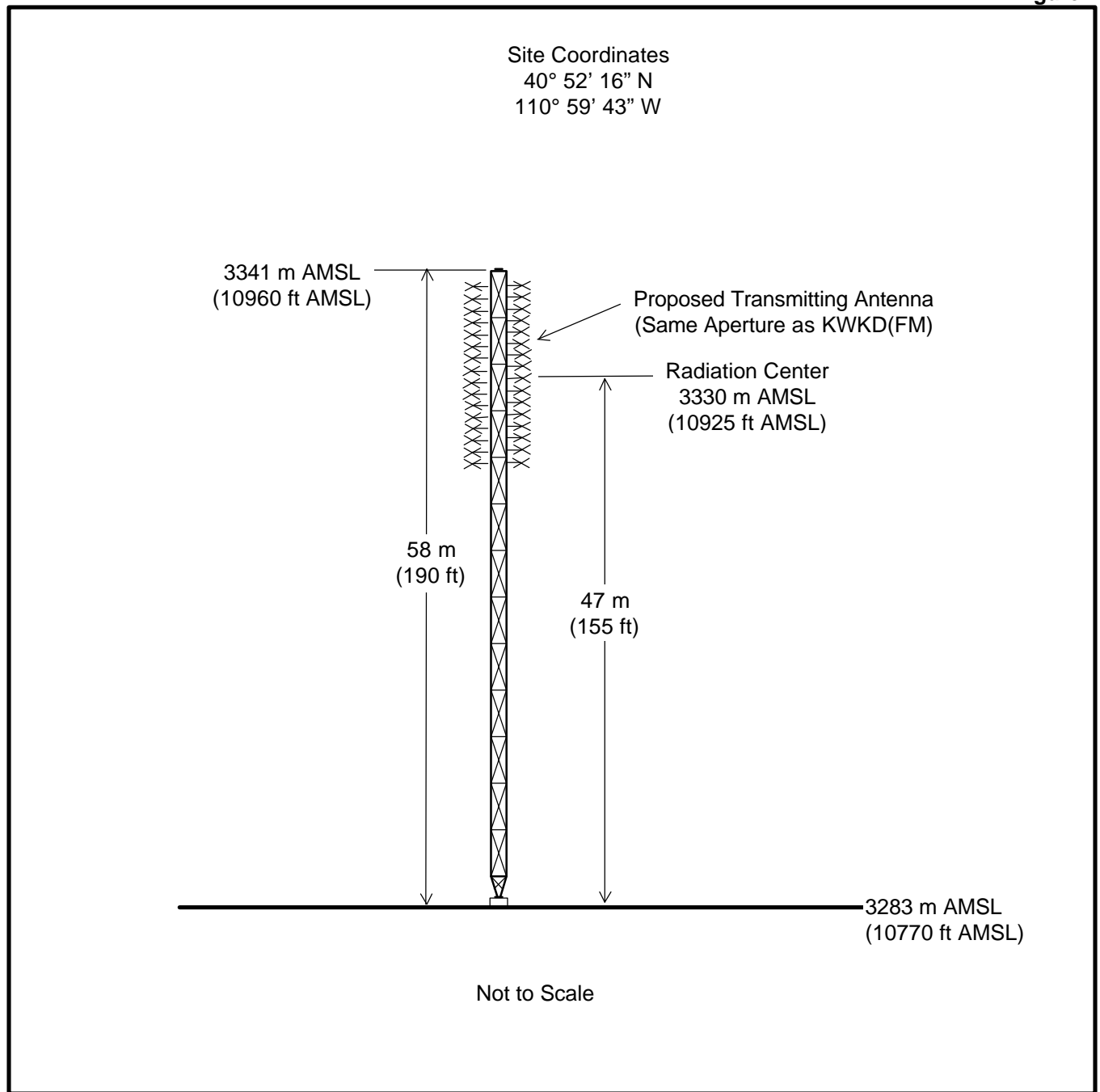


Figure 1



**PROPOSED TRANSMITTER SITE**  
**RADIO STATION KPKK(FM)**  
**OAKLEY, UTAH**  
**CH 268C 89 KW-H / 38 KW-V 647 M**  
 du Treil, Lundin & Rackley, Inc. Sarasota, Florida



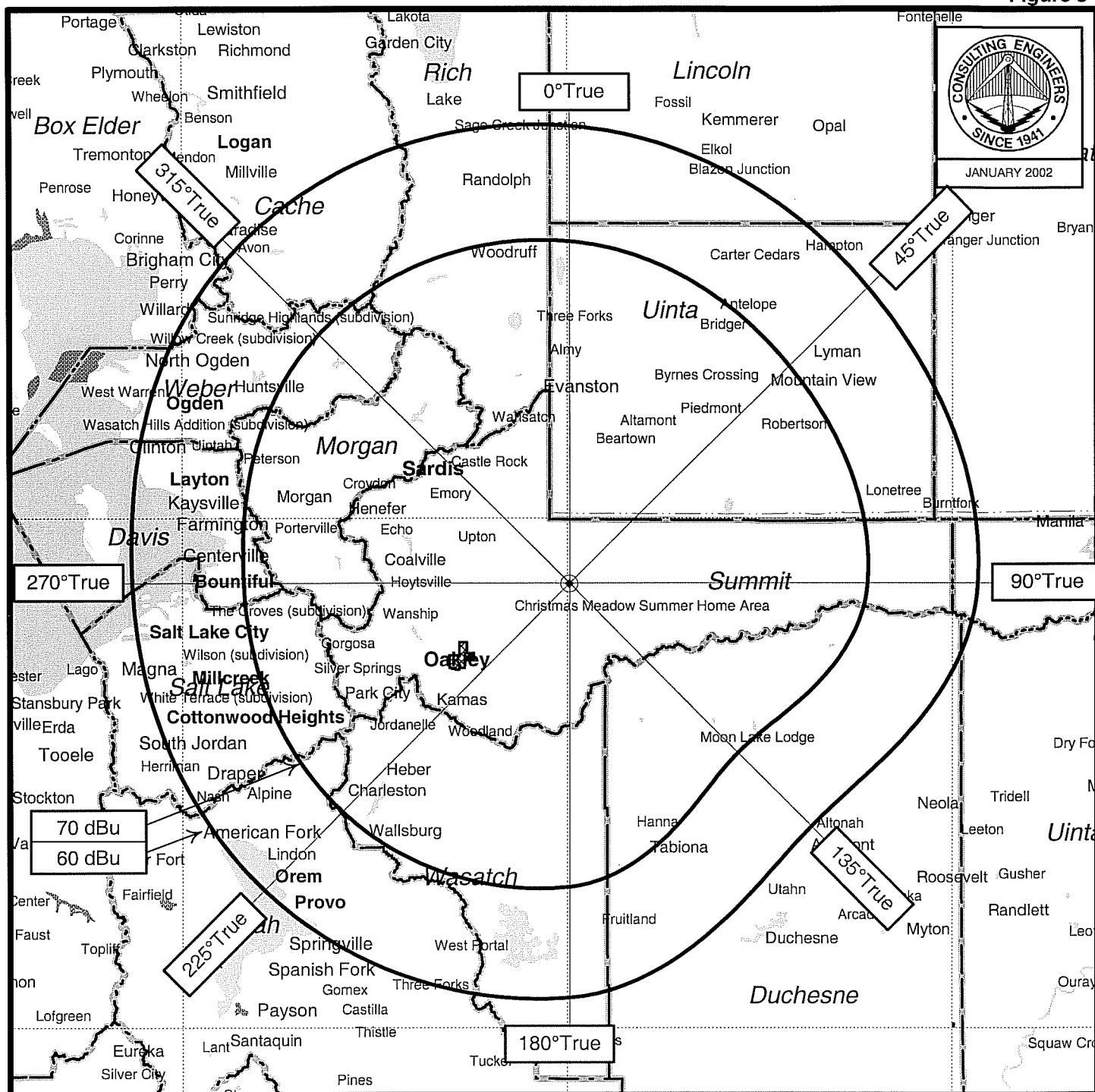


## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

RADIO STATION KPKK(FM)  
OAKLEY, UTAH  
CH 268C 89 KW-H/38 KW-V 647 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 3



## FCC PREDICTED COVERAGE CONTOURS

RADIO STATION KPKK(FM)  
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du Treil, Lundin & Rackley, Inc., Sarasota, Florida

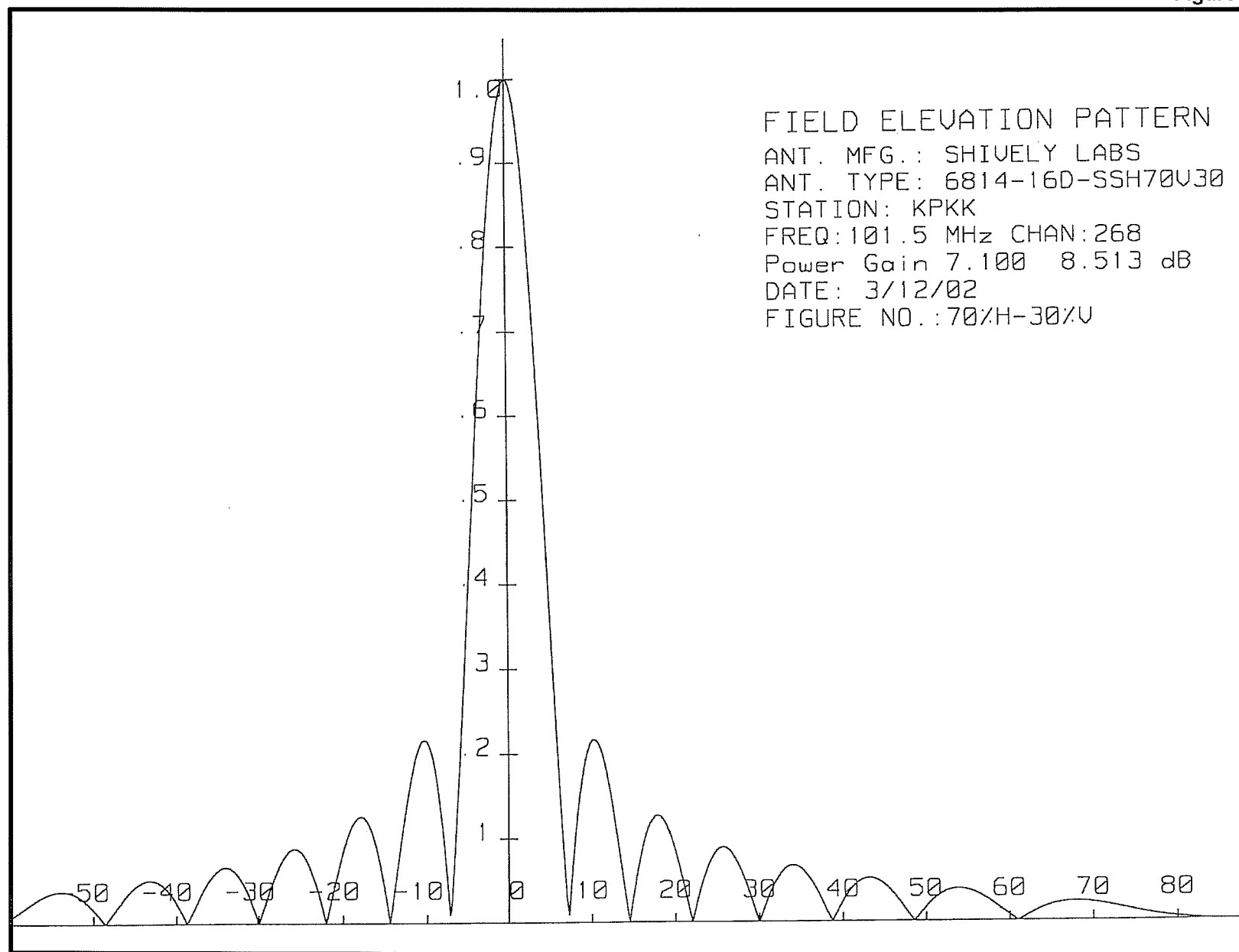
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Channel 268C Allocation Study

40° 52' 16" North Latitude  
 110° 59' 53" West Longitude

Call Status	City State	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-Tru	Dist. (km)	Req. (km)
KBER 10779	OGDEN UT	BLH LIC C 19790130AE	266C 101.1	25 1140	40-39-35 112-12-05	N 257.4	104.53	105.0
<i>(Separation distance rounds to 105 kilometers. No allocation issue.)</i>								
KPKK 89255	OAKLEY UT	BMPH CP C 20010730ABY	268C1 101.5	14.5 619	40-52-16 110-59-42	N 100.6	0.00	
<i>(Applicant's authorized facility.)</i>								
KKAT 2444	OGDEN UT	BLH LIC C 19830912AH	270C 101.9	26 1140	40-39-35 112-12-05	N 257.4	104.53	105.0
<i>(Separation distance rounds to 105 kilometers. No allocation issue.)</i>								
KKAT 2444	OGDEN UT	BPH APP C 20011210AAL	270C 101.9	25 1140	40-39-34 112-12-05	N 257.4	104.54	105.0
<i>(Separation distance rounds to 105 kilometers. No allocation issue.)</i>								

Figure 5

**ANTENNA VERTICAL PLANE PATTERN (RELATIVE FIELD)**

RADIO STATION KPKK(FM)

OAKLEY, UTAH

CH 268C 89 KW-H/38 KW-V 647 M

du Treil Lundin &amp; Rackley, Inc. Sarasota, Florida

## ATTACHMENT A

March 11, 2002

Charles A. Cooper, P.E.  
du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237

Dear Charles:

The KWKD(FM) on Channel 272C at Randolph and KPKK(FM) on Channel 268C at Oakley, Utah are non-directional transmitting antennas. These antennas will be mounted in the same vertical aperture on the same supporting structure. Each antenna will be a Shively 6814-16D-SS antenna, which is a sixteen element half-wave length spaced array, with 70%/30% power split between horizontal and vertical polarizations, respectively.

Since the antennas will be mounted on separate faces of the tower, it can be shown that the mutual coupling loss between the antennas will be approximately 30 dB. Therefore, any pattern variations (both vertical and horizontal planes) on each antenna, caused by the other antenna, will be insignificant.

Sincerely,



Robert A. Surette  
Manager, RF Engineering

RAS/slt