ENGINEERING REPORT

PROPOSED KKTU-DT

CHANNEL 11
CHEYENNE, WYOMING

[MODIFICATION OF BPCDT-19991028AFR]

JANUARY, 2003

CONTENTS

EXHIBIT A

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of WYOMING CHANNEL 2, INC., permittee of KKTU-DT, Channel 11 in Cheyenne, Wyoming, in support of its Application for Modification of Construction Permit BPCDT-19991028AFR, to specify a change in transmitter site.

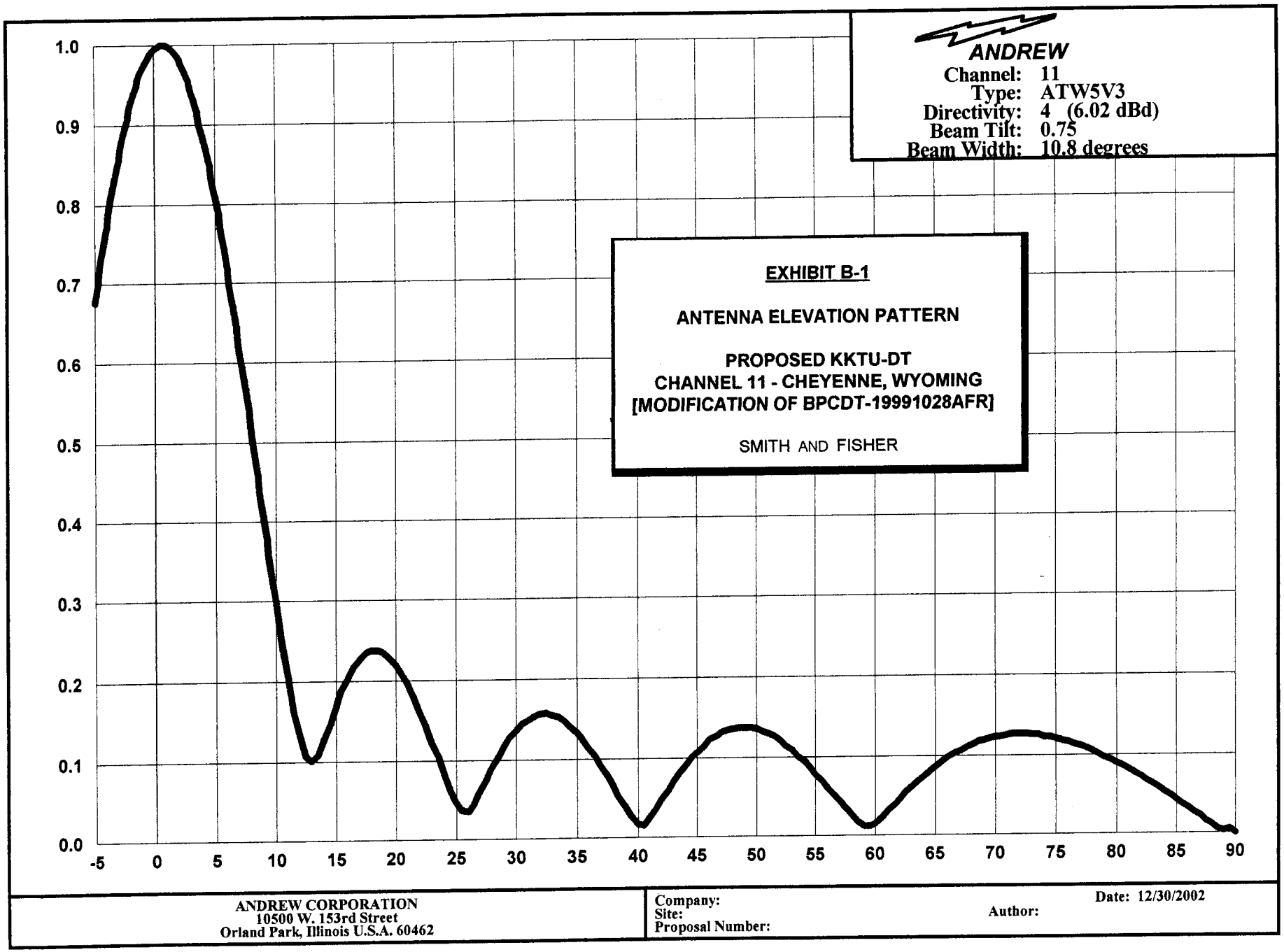
Exhibit B provides directional antenna pattern data, and proposed operating parameters are tabulated in Exhibit C. Exhibit D is a map upon which the predicted service contours are plotted. As shown, the city of license is completely contained within the proposed 43 dBu service contour. Since the proposed ERP is greater than that specified in the allotment in certain directions, and since the proposed site is not within 5 kilometers of the allotment site, an allocation study is included in Exhibit E. A power density calculation is provided in Exhibit F. It is not expected that the proposed facility would cause objectionable interference to any other user of the site proposed herein, but the owners of KKTU-DT recognizes its obligation to correct any such interference that may occur.

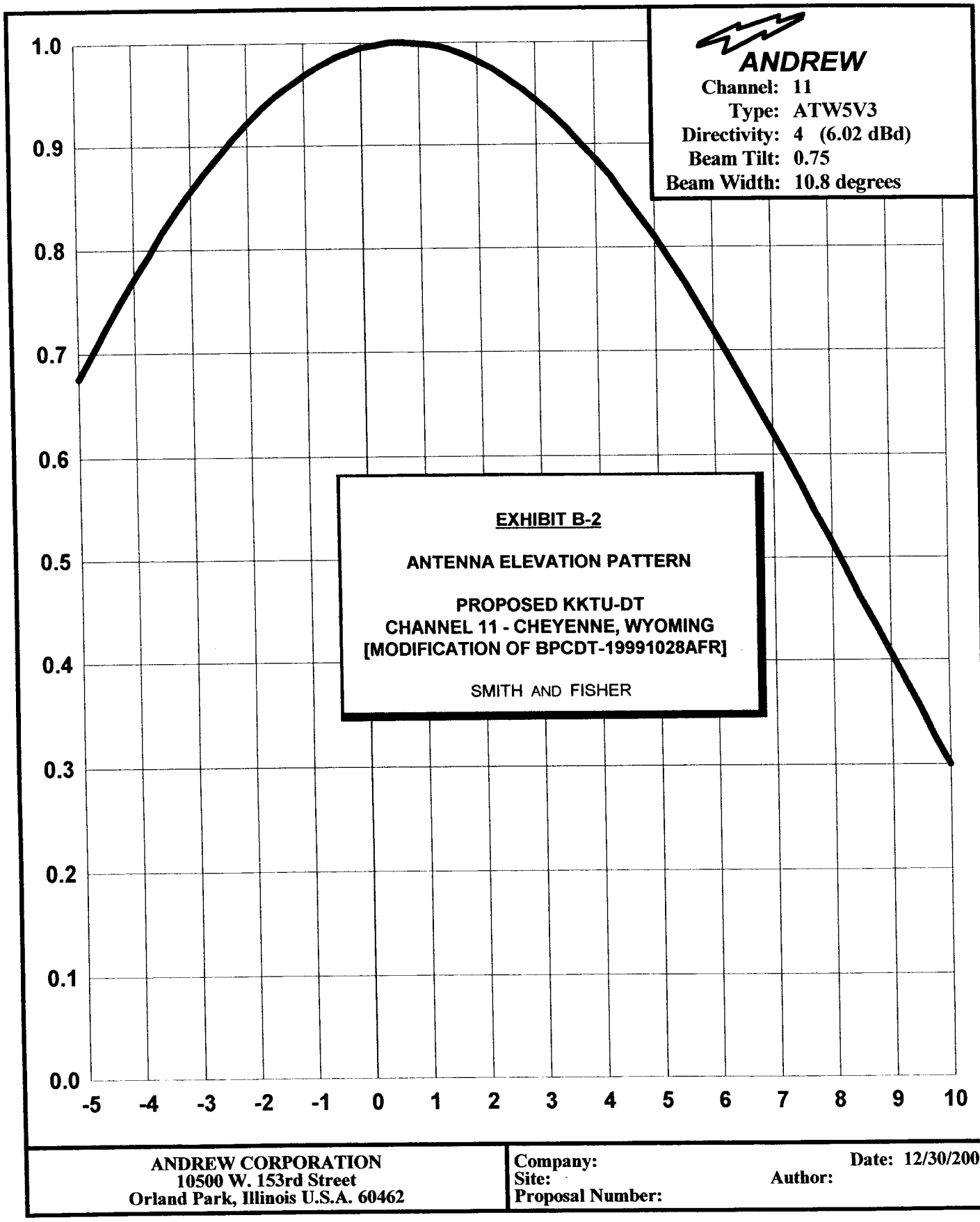
Since no change in the overall height or location of the existing tower is proposed herein, the FAA has not been notified of this application. In addition, the FCC issued Antenna Structure Registration Number 1224099 to this tower.

I declare under penalty of perjury that the foregoing statements and the attached Engineering Report, which was prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

KEVIN T. FISHER

January 6, 2003

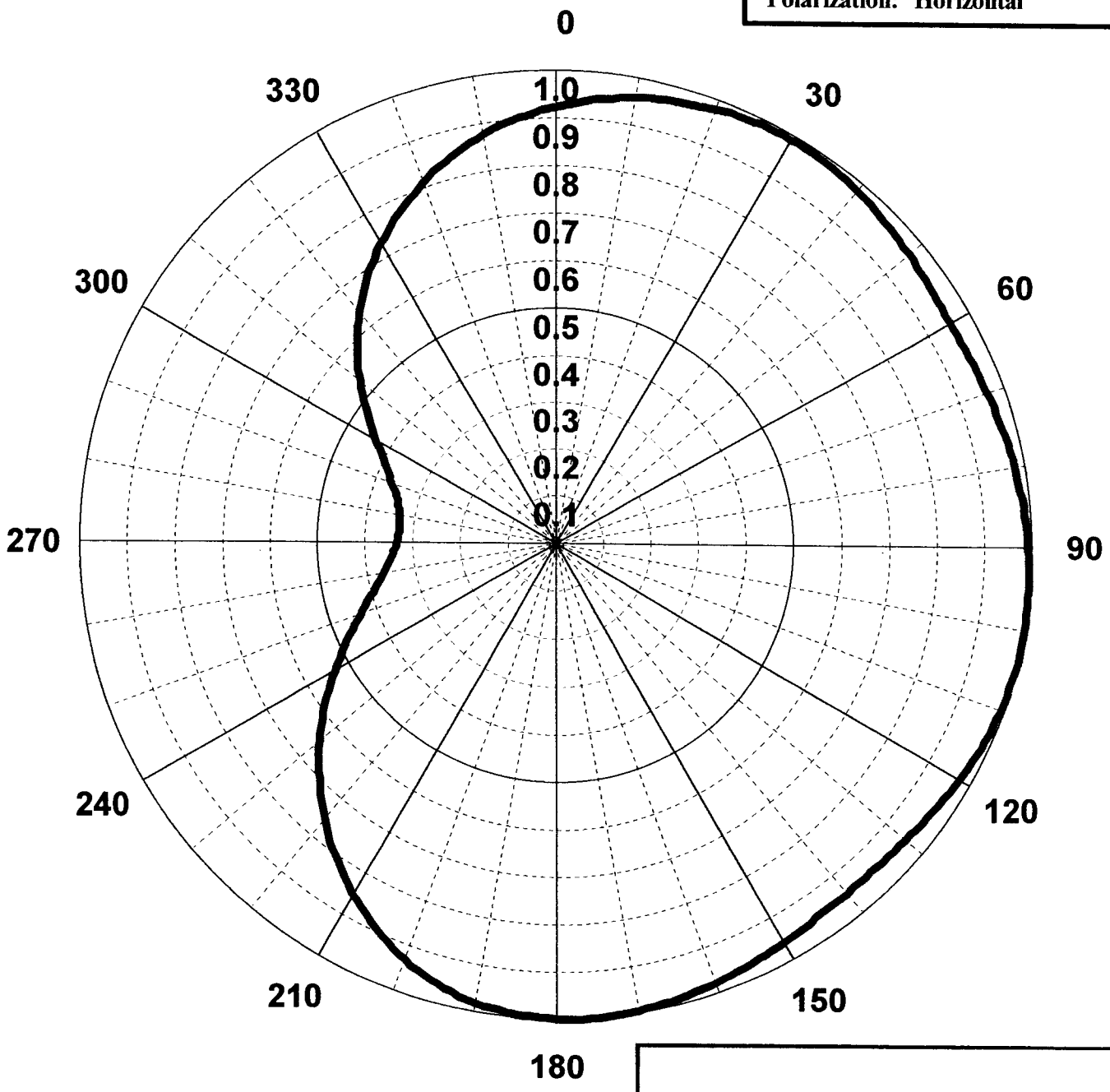

ANDREW
Channel: 11
Type: ATW5V3
Directivity: 4 (6.02 dBd)
Beam Tilt: 0.75
Beam Width: 10.8 degrees
EXHIBIT B-1
ANTENNA ELEVATION PATTERN
PROPOSED KKTU-DT
CHANNEL 11 - CHEYENNE, WYOMING
[MODIFICATION OF BPCDT-19991028AFR]
SMITH AND FISHER
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462
Company:
Site:
Proposal Number:
Author:
Date: 12/30/2002



ANDREW CORPORATION 10500 W. 153rd Street Orland Park, Illinois U.S.A. 60462	Company: Site: Proposal Number: Date: 12/30/2002 Author:

ANDREW

Channel: 11
Type: ATW-WC
Gain: 1.5 (1.76 dB)
Polarization: Horizontal



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

EXHIBIT B-3

ANTENNA AZIMUTH PATTERN

PROPOSED KKTU-DT
CHANNEL11 - CHEYENNE, WYOMING
[MODIFICATION OF BPCDT-1999102AFR]

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EXHIBIT B-4

ANTENNA AZIMUTH PATTERN DATA

PROPOSED KKTU-TV
CHANNEL 11 – CHEYENNE, WYOMING
[MODIFICATION OF BPCDT-19991028AFR]

Azimuth (° T)	Relative Field	ERP (dbk)	Azimuth (° T)	Relative Field	ERP (dbk)
0	0.924	11.3	180	1.000	12.0
10	0.957	11.6	190	0.981	11.8
20	0.980	11.8	200	0.930	11.4
30	0.990	11.9	210	0.851	10.6
40	0.982	11.8	220	0.753	9.5
50	0.964	11.7	230	0.645	8.2
60	0.954	11.6	240	0.533	6.5
70	0.963	11.7	250	0.434	4.7
80	0.979	11.8	260	0.365	3.2
90	0.991	11.9	270	0.333	2.4
100	1.000	12.0	280	0.331	2.4
110	0.992	11.9	290	0.364	3.2
120	0.973	11.7	300	0.434	4.7
130	0.953	11.6	310	0.532	6.5
140	0.947	11.5	320	0.637	8.1
150	0.948	11.5	330	0.731	9.3
160	0.978	11.8	340	0.811	10.2
170	0.995	12.0	350	0.877	10.9

EXHIBIT C

PROPOSED OPERATING PARAMETERS

PROPOSED KKTU-DT
CHANNEL 11 – CHEYENNE, WYOMING
[MODIFICATION OF BPCDT-19991028AFR]

Transmitter Power Output:	2.8 kw
Transmission Line Efficiency:	96.2%
Antenna Power Gain – Toward Horizon:	5.9
Antenna Power Gain – Main Lobe:	6.0
Effective Radiated Power – Toward Horizon:	15.9 kw
Effective Radiated Power – Main Lobe:	16.0 kw
Transmitter Make and Model:	Type-accepted
Rated Ouput	3.0 kw
Transmission Line Make and Model:	Andrew HJ8-50B
Size and Type:	3" air heliax
Length:	80 feet
Antenna Make and Model:	Andrew ATW5V3-HSWC-11
Orientation	90 degrees true
Beam Tilt	0.75 degrees
Effective Height Above Ground:	15 meters
Effective Height Above Mean Sea Level:	2189 meters

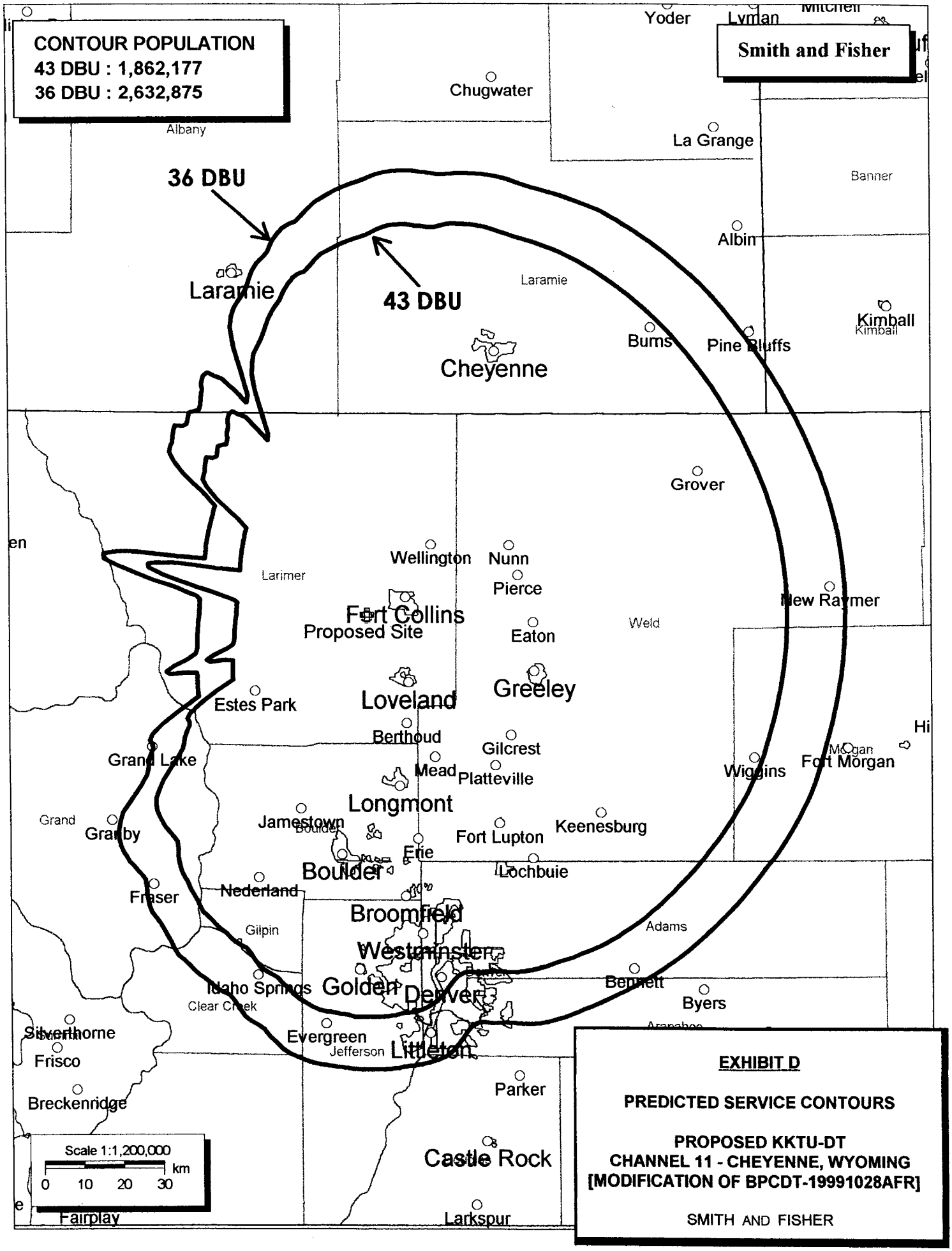
CONTOUR POPULATION
43 DBU : 1,862,177
36 DBU : 2,632,875
Smith and Fisher
36 DBU
43 DBU
Yoder
Lyman
Chugwater
Albany
La Grange
Banner
Albin
Laramie
Kimball
Burns
Pine Bluffs
Cheyenne
Grover
Wellington
Nunn
Larimer
Pierce
New Raymer
Fort Collins
Proposed Site
Weld
Eaton
Greeley
Loveland
Estes Park
Berthoud
Gilcrest
Grand Lake
Mead
Platteville
Wiggins
Fort Morgan
Longmont
Grand
Granby
Jamestown
Boulder
Fort Lupton
Keenesburg
Erie
Boulder
Lochbuie
Fraser
Nederland
Broomfield
Gilpin
Adams
Westminster
Idaho Springs
Golden
Denver
Bennett
Byers
Clear Creek
Silverthorne
Evergreen
Jefferson
Littleton
Frisco
Parker
Breckenridge
Castle Rock
Scale 1:1,200,000
km
0 10 20 30
Fairplay
Larkspur
EXHIBIT D
PREDICTED SERVICE CONTOURS
PROPOSED KKTU-DT
CHANNEL 11 - CHEYENNE, WYOMING
[MODIFICATION OF BPCDT-19991028AFR]
SMITH AND FISHER

EXHIBIT E-1

INTERFERENCE STUDY

PROPOSED KKTU-DT
CHANNEL 11- CHEYENNE, WYOMING

[MODIFICATION OF BPCDT-19991028AFR]

The Commission allotted Channel 11to KKTU-DT with a nominal ERP of 3.2 kw (directional) at 148 meters above average terrain. The instant application specifies an ERP of 16.0 kw (directional) at 650 meters, which is allowable under the FCC's *de minimis* standards with respect to various NTSC and DTV facilities.

In evaluating the interference effect of this proposal, we have relied upon the V-Soft Communications "Probe" computer program, which has been found generally to mimic the FCC's program. In conducting our studies, we employed a signal resolution of 1 kilometer and an increment spacing of 0.1 kilometer along each radial. In addition, we utilized the 2000 U.S. Census, not the 1990 Census. Changes in interference caused by KKTU-DT to other pertinent stations are tabulated in Exhibit E-2.

As indicated, the proposed KKTU-DT facility would not contribute more than two percent DTV interference to the service population of any affected NTSC or DTV station. In addition, this proposal does not result in any NTSC or DTV station receiving more than ten per-cent total DTV interference to viewers living within its present service area.

Therefore, this proposal meets the FCC's *de minimis* interference standards for DTV operations.

EXHIBIT E-2

DE MINIMIS INTERFERENCE ANALYSIS

PROPOSED KKTU-DT
CHANNEL 11 – CHEYENNE, WYOMING

[MODIFICATION OF BPCDT-19991028AFR]

NTSC FACILITIES

				INTERFERENCE LOSSES (POPULATION)								
Call Sign	City, State	Ch.	Grade B Population F(50,50)	NTSC Only	NTSC & DTV Without KKTU-DT	Unmasked DTV	%[1]	NTSC & DTV With KKTU-DT	Unmasked DTV	%[1]	KKTU-DT Contribution	%[2]
KBDI-TV	Broomfield, CO	12	3,459,957	0	0	0	0	53,158	53,158	1.5	53,158	1.5
KBDI-TV (CP)	Broomfield, CO	12	3,424,341	0	0	0	0	55,629	55,629	1.6	55,629	1.6
KKTV	Colorado Springs, CO	11	2,310,337	667,408	0	0	0	684,179	16,771	0.7	16,771	0.7

DTV FACILITIES

				INTERFERENCE LOSSES (POPULATION)								
Call Sign	City, State	Ch.	NTSC/DTV[3] Grade B Pop. Longley-Rice	NTSC Only	NTSC & DTV Without KKTU-DT	Unmasked DTV	%[1]	NTSC & DTV With KKTU-DT	Unmasked DTV	%[1]	KKTU-DT Contribution	%[2]
KKTV-DT (CP)	Colorado Springs, CO	10	2,062,298	677,191	677,191	0	0	677,191	0	0	0	0
KKTV-DT (Allot.)	Colorado Springs, CO	10	2,062,298	677,191	677,191	0	0	677,191	0	0	0	0

1 Cannot exceed 10%, under FCC *de minimis* interference standards.
2 Cannot exceed 2%, under FCC *de minimis* interference standards.
3 Larger of either NTSC Grade B population (with no DTV losses) or DTV Grade B population with all losses.

EXHIBIT F

POWER DENSITY CALCULATION

PROPOSED KKTU-DT
CHANNEL 11 – CHEYENNE, WYOMING

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Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Cheyenne facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 16.0 kw, an effective antenna height of 15 meters above ground, and the vertical pattern of the Andrew antenna, maximum power density two meters above ground of 0.049 mw/cm^2 is calculated to occur 4 meters east of the base of the tower. Since this is only 24.5 percent of the 0.2 mw/cm^2 reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 11, a grant of this proposal may be considered a minor environmental action with respect to public exposure to nonionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive nonionizing radiation.