

**August 2021
New FM Channel 236C3
Odell, Oregon
Allocation Study**

Background

The instant application is being filed by the winning bidder for the Channel 236A allotment at Trout Lake, Washington, offered as Permit MM-FM1169-A in FM Auction #109. This application proposes an upgrade to Channel 236C3 and a change of community of license to Odell, Oregon.

Spacing Study

A single allotment and transmitter site is proposed. The attached spacing study shows that the proposed operation meets the co-channel and adjacent channel spacing requirements for Class C3 stations as prescribed in §73.207 of the Commission's Rules. The spacing study also demonstrates that this proposal is mutually-exclusive with retention of Channel 236A at Trout Lake.

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SEARCH PARAMETERS FM Database Date: 20210815

Channel: 236C3 95.1 MHz Page 1

Latitude: 45 39 44.4 (NAD83)

Longitude: 121 28 18.2

Safety Zone: 32 km

Job Title: ODELL 236C3

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KIOK	RICHLAND	235C	100.000	46 5 46.5	73.9	183.25	176	
LIC	WA BMLH-20120420AAW	94.9	381.0	119 11 40.0		7.25	CLOSE	
K235CU	LONGVIEW	235D	0.020	46 2 57.4	291.5	120.49	0	
LIC	WA 0000112829	94.9	0.0	122 55 15.3		0.00	TRANS	
KITI-FM	WINLOCK	236A	0.410	46 32 36.3	309.9	154.64	142	
LIC	WA BLH-20141126AOC	95.1	256.4	123 1 10.4	SS	12.64	CLEAR	
KZAS-LP	HOOD RIVER	236L1	0.100	45 42 15.4	318.7	6.22	0	
LIC	OR BLL-20040921AAA	95.1	0.0	121 31 28.2		0.00	LPFM	
KISN-LP	PORTLAND	236L1	0.002	45 27 16.4	255.0	87.39	0	
LIC	OR BMLL-20190304AAA	95.1	279.8	122 33 4.3		0.00	LPFM	
NEW	TROUT LAKE	236A	0.000	46 3 9.4	350.7	43.97	142	
ALC	WA	95.1	0.0	121 33 51.3		-98.03	SHORT	
KXLE-FM	ELLENSBURG	237C1	51.000	47 9 47.4	17.0	174.77	144	
LIC	WA BLH-20040217ACW	95.3	125.0	120 47 40.3		30.77	CLEAR	
KBFF	PORTLAND	238C0	100.000	45 29 19.4	259.0	97.46	87	
LIC	OR BLH-20150819AAR	95.5	346.0	122 41 44.3		10.46	CLEAR	

===== END OF FM SPACING STUDY FOR CHANNEL 236 =====

**August 2021
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Odell, Oregon
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 236C3 (95.1 MHz) with an effective radiated power of 2.1 kilowatts. Operation is proposed with a 3-element circularly-polarized omni-directional half-wave-spaced antenna. The antenna will be side-mounted on an existing tower located on Hood River Mountain.

The proposed antenna support structure does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

DETERMINATION Results							
PASS SLOPE(50:1): NO FAA REQ-RWY 10499 MTRS OR LESS & 4519.87 MTRS (4.51989) KM AWAY							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	45-40-22.00N	121-31-40.00W	KEN JERNSTEDT AIRFIELD	HOOD RIVER HOOD RIVER, OR	182.1	926.60000000000002
Your Specifications							
NAD83 Coordinates							
Latitude						45-39-44.4 north	
Longitude						121-28-18.2 west	
Measurements (Meters)							
Overall Structure Height (AGL)						58	
Support Structure Height (AGL)						58	
Site Elevation (AMSL)						607	
Structure Type							
GTOWER - Guyed Structure Used for Communication Purposes							

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 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. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

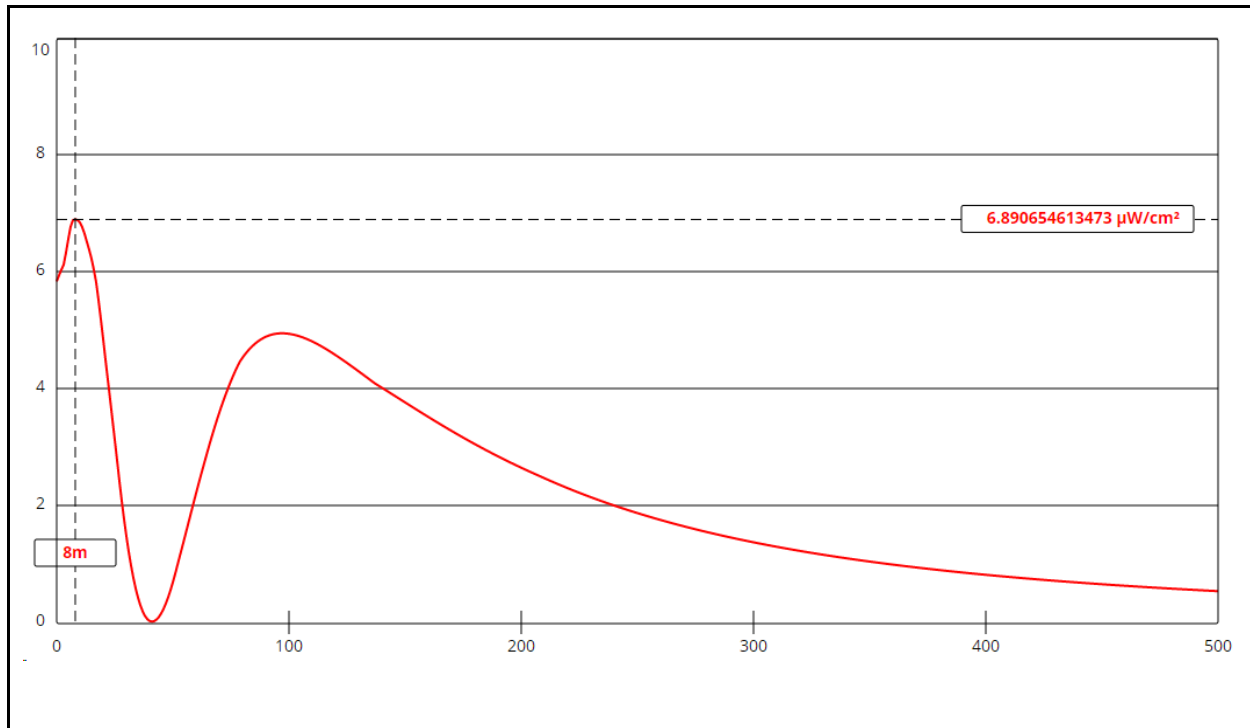
Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern for the adopted by the FCC for FMModel calculations, for the Shively 6812B-3-SS antenna proposed for use. The highest calculated ground level power density occurs at a distance of 8 meters from the base of the antenna support structure. At this point the power density is calculated to be 6.9 $\mu W/cm^2$.

Calculations of the power density produced by Odell 236C3 and the other stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pub FCC Limit	% of Limit
New 236C3	2.1 kW H 2.1 kW V SHI 6812B-3-SS 3-bay half-wave	FMModel Type 1	38.7 m	6.9 $\mu W/cm^2$	200 $\mu W/cm^2$	3.45%
KHRV 211A	0.065 kW H 0.065 kW V SHI 6812-2 2-bay half-wave	FMModel Type 1	43 m	0.3 $\mu W/cm^2$	200 $\mu W/cm^2$	0.15%
KCGB-FM 288A	1.0 kW H 1.0 kW V SWR FM3-2 2-bay full-wave	FMModel Type 2	55 m	4.5 $\mu W/cm^2$	200 $\mu W/cm^2$	2.25%
Total						5.85%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of Odell 236C3 and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 11.7 $\mu W/cm^2$, which is 5.85% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

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 exposure in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

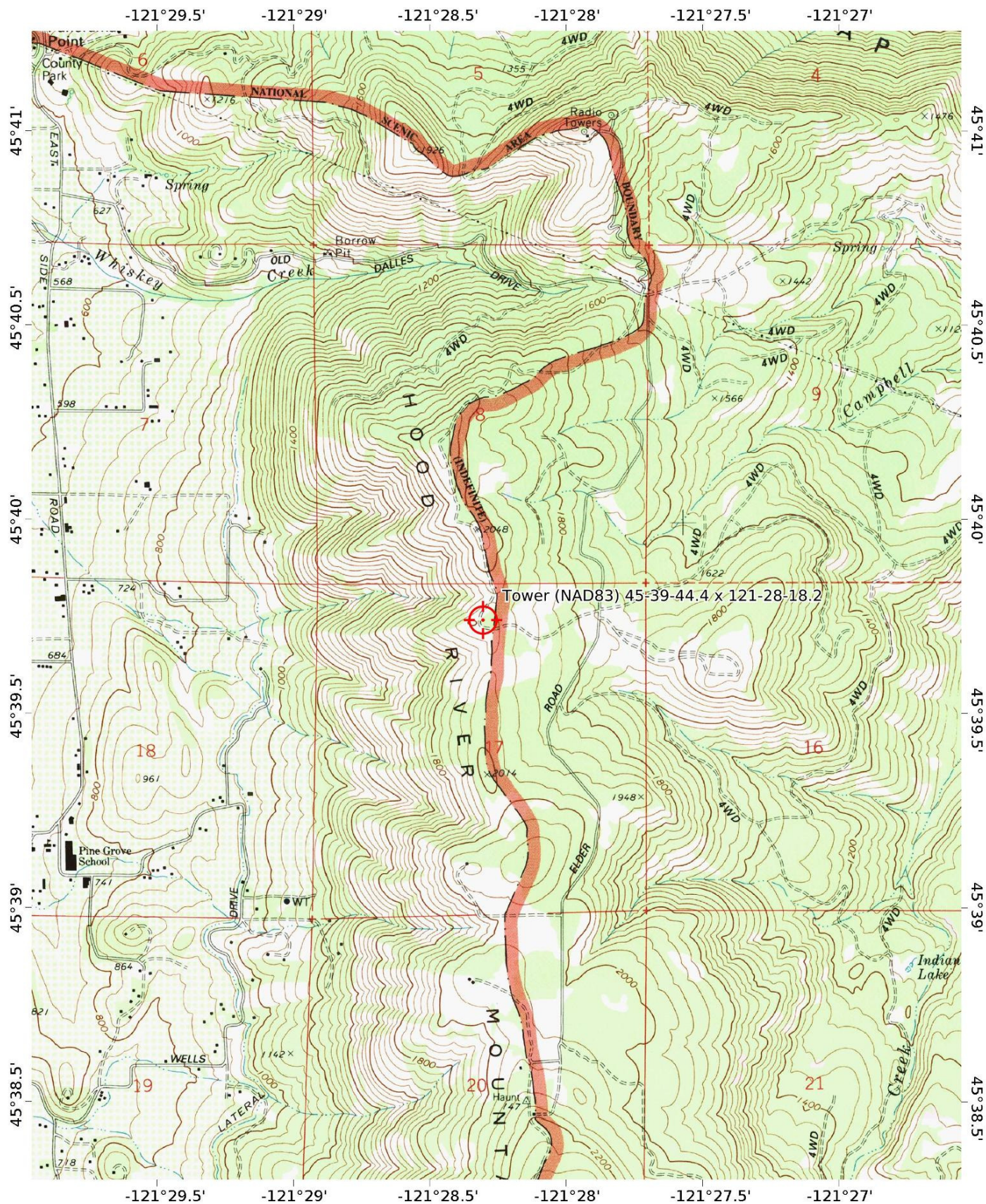
Odell 236C3

Antenna Type: Shively 6812B-3-HW (Type 1)
 No. of Elements: 3
 Element Spacing: 0.5 wavelength

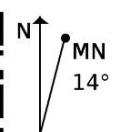
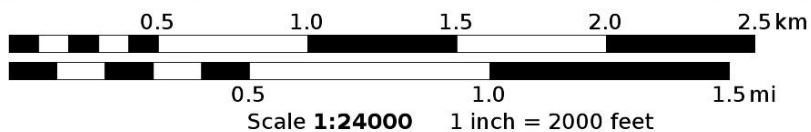
Distance: 500 meters
 Horizontal ERP: 2.1 kW
 Vertical ERP: 2.1 kW

Antenna Height: 38.7 meters AGL

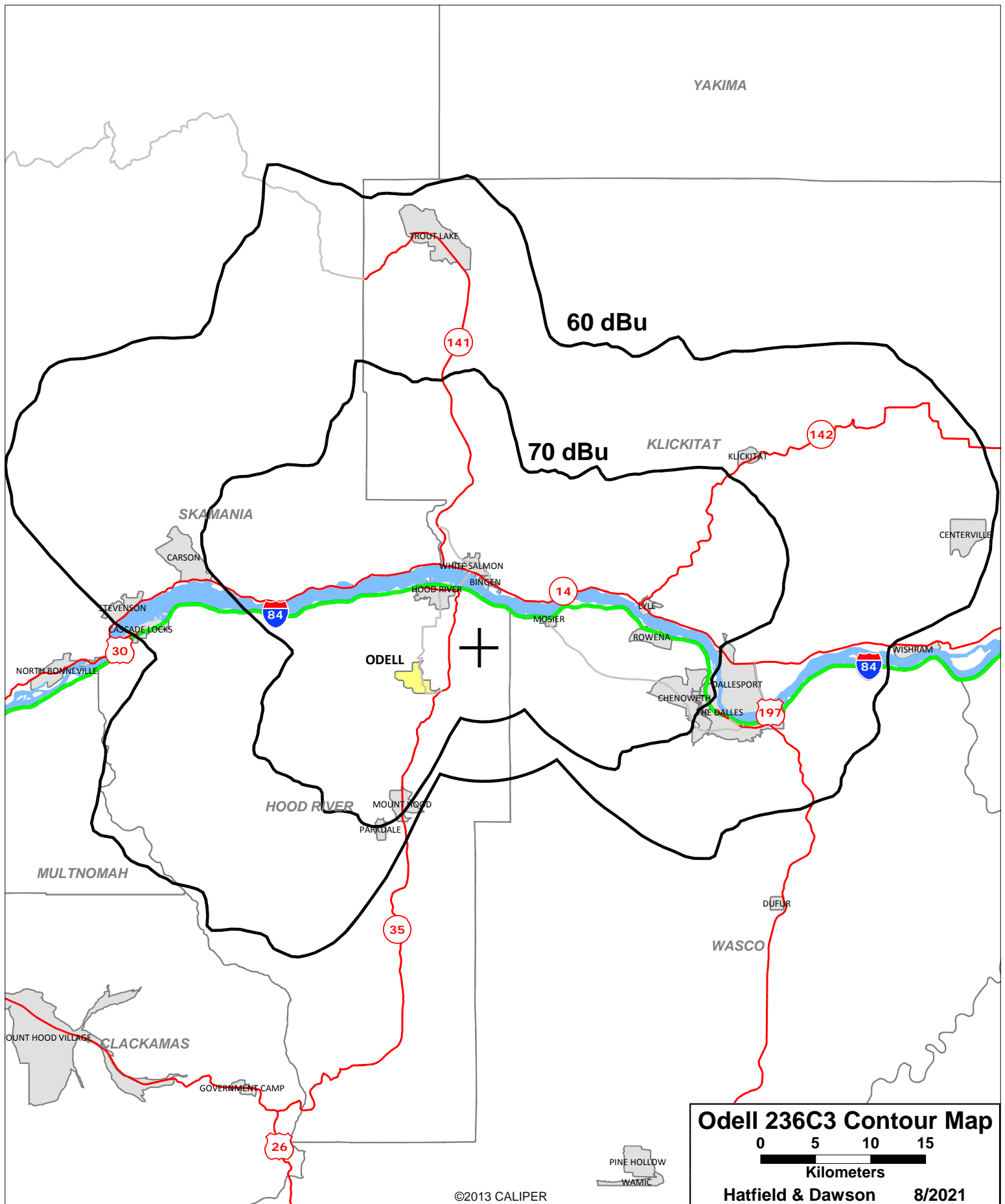
Maximum Calculated Power Density is 6.9 $\mu\text{W}/\text{cm}^2$ at 8 meters from the antenna structure.



Mercator Projection
 WGS84
 USNG Zone 10TFR



Hatfield & Dawson Consulting Engineers



**August 2021
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Odell, Oregon
Section 307(b) Analysis Engineering**

Background

The underlying allotment awarded in FM Auction #109 was for Channel 236A at Trout Lake, Washington. It is herein proposed to implement operation on Channel 236C3 at Odell, Oregon. As a result of grant of this proposal, the community of Odell will receive its first local service.

All FM station contours in this application are calculated using the 3-second terrain database, and population figures are from the 2010 Census unless otherwise indicated.

Odell Channel 236C3 Spacing Study

The allocation study exhibit included in this application demonstrates that the proposed Odell Channel 236C3 allotment site meets the co-channel and adjacent channel spacing requirements for Class C3 stations as prescribed in §73.207 of the Commission's Rules. The spacing study also demonstrates that this proposal is mutually-exclusive with retention of the original Channel 236A allotment at Trout Lake.

The proposed Channel 236C3 allotment site is located 8.5 kilometers from the far side of Odell. The standard 70 dBu contour distance for a Class C3 facility is 23.2 km. Therefore the proposed allotment will provide 70 dBu service to 100% of Odell.

Odell Will Receive Its First Local Service

This proposal will provide the first local service to the community of Odell (Priority 3), a Census Designated Place in Hood River County having a 2010 Census population of 2,255 persons. The FCC considers a town or city to be a community for allotment purposes when it is either incorporated or listed in the US Census.

While Trout Lake would lose its sole potential local service, the 2010 Census population of Trout Lake (557 persons) is significantly less than that of Odell (2,255 persons). Consequently, reallocation to Odell is preferred under the FM allotment priorities.

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No “Tuck” Study is Required

The community of Odell is not located within any Urbanized Area, and the 70 dBu contour from the Odell 236C3 facility will not encompass any part of any Urbanized Area. Indeed, the nearest Urbanized Area is the Portland, Oregon Urbanized Area, the nearest point of which is located some 64 kilometers distant from the proposed facility. That is more than twice the standard Class A 70 dBu contour distance of 23.2 kilometers.

The Second Report and Order in MB Docket No. 09-52, *Policies to Promote Rural Radio Service and to Streamline Allotment and Assignment Procedures* (“Rural Radio”), sets forth procedures to be used to rebut a presumption that a proposed change in community of license is intended to serve a nearby urbanized area. Specifically, the urbanized area service presumption may be rebutted if it can be demonstrated that the proposed facility could not be modified to cover over 50% of an urbanized area.

The determination of whether a proposed facility “could be modified” to cover 50 percent or more of an urbanized area will be made based on an applicant’s certification that there are no existing towers in the area to which, at the time of filing, the applicant’s antenna could be relocated pursuant to a minor modification application to serve 50 percent or more of an Urbanized Area.¹

Specifically, a proponent would need to certify that there could be no rule-compliant minor modification on the proposed channel to provide a principal community signal to over 50 percent or more of an Urbanized Area, in addition to covering the proposed community of license. In doing so, proponents will be required to consider all existing registered towers in the Commission’s Antenna Structure Registration database, in addition to any unregistered towers currently used by licensed radio stations. Furthermore, we expect all applicants and allotment proponents to consider widely-used techniques, such as directional antennas and contour protection, when certifying that the proposal could not be modified to provide a principal community signal over the community of license and 50 percent or more of an Urbanized Area.²

The attached Channel 236C3 spacing map demonstrates that the proposed Odell 236C3 facility is compelled to “stand off” from the edge of the Portland Urbanized Area by 53 kilometers in order

¹ *Rural Radio* at paragraph 35.

² *Rural Radio* at footnote 97.

to comply with the spacing requirement to second-adjacent-channel station KBFF 238C0 Portland, which is by definition a Portland-market station. Given that the standard range of the 70 dBu contour of a Class C3 station is 23.2 kilometers, no further analysis is necessary to demonstrate that the proposed Odell 236C3 facility could not be modified to provide a principal community signal over the community of license and 50 percent or more of the Portland Urbanized Area.

Consequently the instant proposal does not trigger the requirement of a “Tuck” study.

No Populated White or Gray Areas Will Be Created

As is detailed in the loss area study included below, the proposed deletion of Channel 236A at Trout Lake will not result in the creation of any populated white or gray areas. While a gray area will be created, it is unpopulated.

Gain and Loss Areas

There is some overlap of the Trout Lake loss area and the Odell gain area. The gain area directly associated with the reallocation encompasses an area of 1378 square kilometers and a population of 10,970 persons.³ The loss area directly associated with the reallocation encompasses an area of 1339 square kilometers and a population of 620 persons. There will be a net increase of 10,350 persons served.

Within the loss area, no actual service will be lost since the “station” is a vacant allotment which has never operated.

Trout Lake Loss Area Remaining Services Analysis

Most of the area within the Trout Lake loss area will remain well-served with at least 5 aural services. One small area will be underserved. As is depicted on the attached map exhibit, the following 16 stations each provide service to some portion of the Trout Lake loss area.⁴

³ Unless otherwise noted, all population figures quoted in this study are based on 2010 Census block-level data. Gain area is based on the proposed facility. Loss area is based on maximum Class A parameters of 6 kW ERP and 100 meters HAAT at the Trout Lake 236A allotment site.

⁴ In determining reception service provided by non-reserved band FM stations, the service contour used is that which is set forth for the class of station in §73.215(a)(1) of the Rules. The service contour has been calculated based on the facility’s authorized effective radiated power and height above average terrain,

A	KLCK	1400	Goldendale
B	KACI-FM	228C3	The Dalles
C	KATS	233C1	Yakima
D	KFFM	297C	Yakima
E	KINK	270C	Portland
F	KJYV	268C3	The Dalles
G	KKCW	277C	Beaverton
H	KKRZ	262C	Portland
I	KLTH	294C	Lake Oswego
J	KMSW	224C3	The Dalles
K	KQHR	201C2	The Dalles (CP shown)
L	KRSX	240C2	Goldendale
M	KXJM	298C0	Banks
N	KXL-FM	266C	Portland
O	KXXP	283C1	White Salmon
P	KYYT	272C2	Goldendale

The following table details the loss area population who reside in underserved areas. The underserved population (265) is only 0.5% of the total population (51,025) within the Trout Lake 60 dBu contour area. Furthermore, since the reallocation to Odell is made on the basis of a Priority 3 determination (first local service to Odell), the population in underserved areas does not affect this proposal.

taking into account actual terrain. Vacant FM allotments have not been counted. In determining reception service provided by reserved band FM stations, the service contour used is the 60 dBu contour.

In determining reception service provided by AM stations, the service contour used is the daytime 2.0 mV/m ground wave contour, calculated from the current transmitter coordinates using authorized facilities.

In the case of stations with granted, but unbuilt construction permits for modifications to their currently licensed or permitted facilities, the authorized but unbuilt modified facilities have been used.

Rural Radio 2nd Order on Recon at paragraphs 15-17, including Footnote 65.

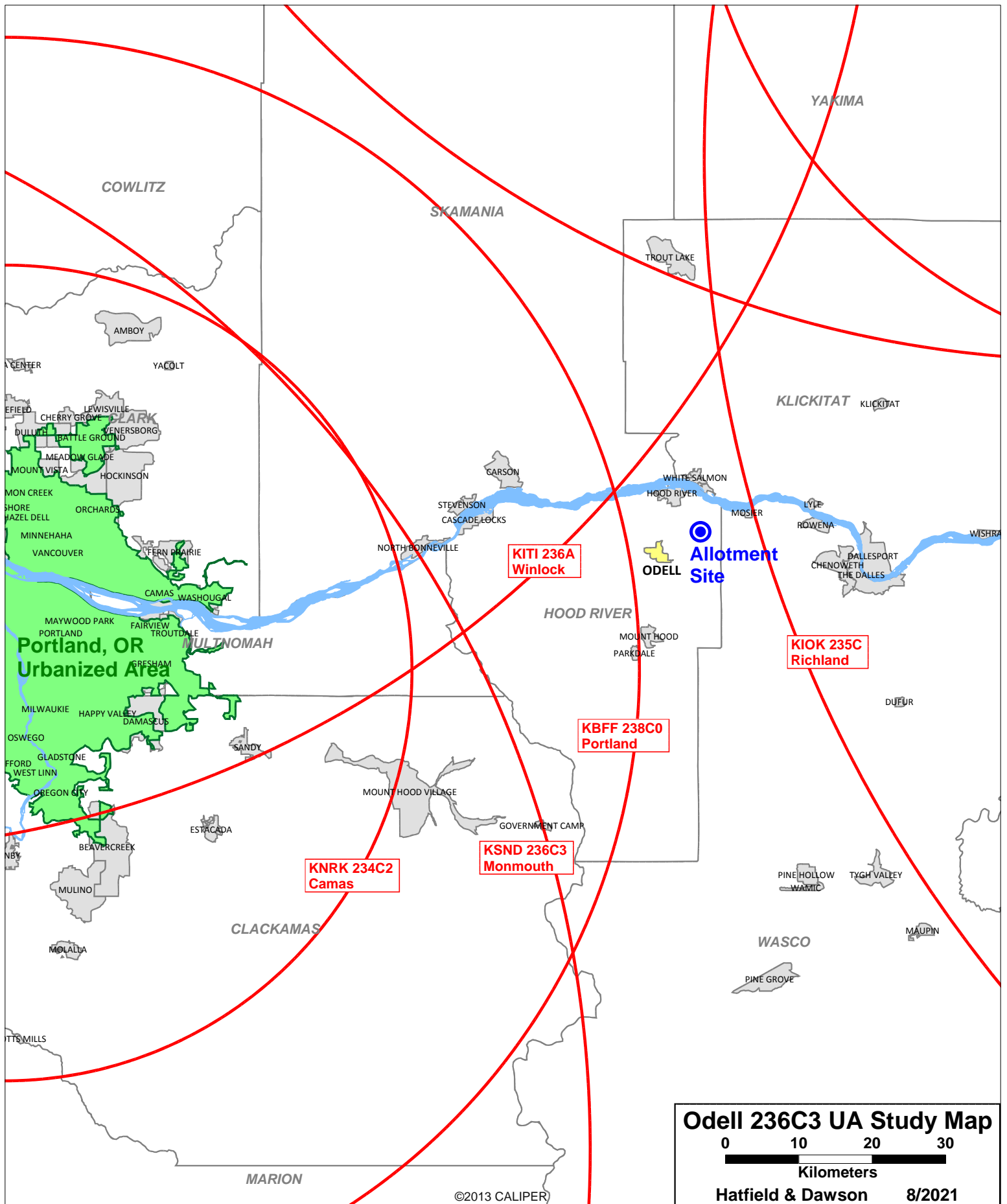
Hatfield & Dawson Consulting Engineers

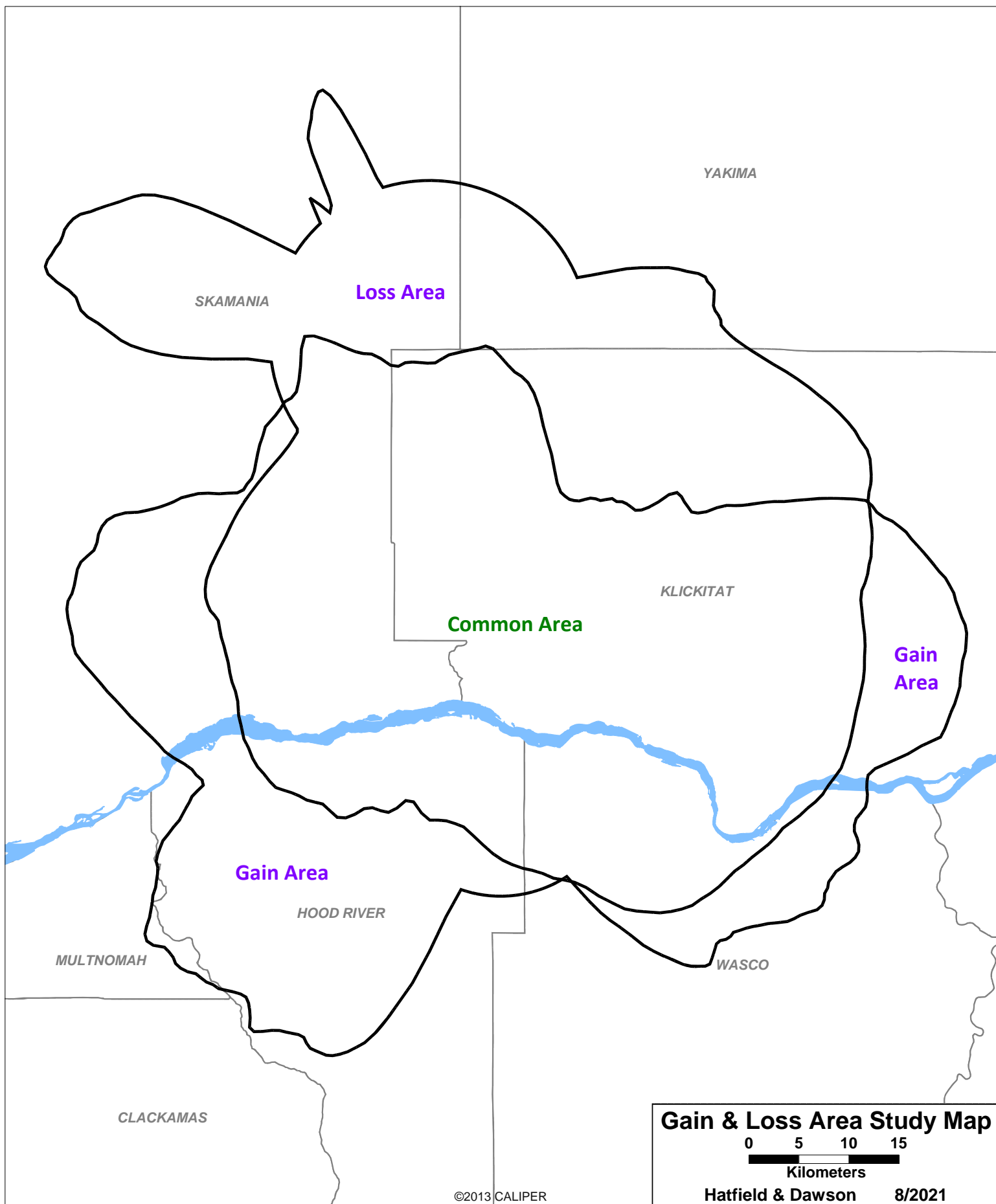
Services Remaining	Population
4	265
3	0
2	0
1	0
0	0
Total Underserved	265

The community of Trout Lake itself will not lose service as a result of this proposal.

Odell Gain Area Existing Services Analysis

All of the Odell gain area is considered to be well-served, with at least five aural services.





Gain & Loss Area Study Map

0 5 10 15
Kilometers

Letters are contour labels corresponding to the list in the accompanying text.

Numerals indicate the number of services remaining in the underserved portion of the loss area.

