

**ENGINEERING REPORT  
Amendment to a New NCE FM  
CONSTRUCTION PERMIT  
APPLICATION**

for

**St. Gabriel Communications**

File No: 0000167515

Facility ID: 767664

Spencer, IA

May 2022

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**MUNN-REESE**

Broadcast Engineering Consultants  
Coldwater, MI 49036

## **Discussion of Report**

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This firm was retained to prepare the required engineering report in support of this Amendment to a New NCE FM Construction Permit Application for facility ID No: 767664 – Spencer, IA. The original proposal became part of a mutually exclusive group and in conflict with one or more other new NCE FM applications. The original proposal parameters were an ERP of 22 kW at 507.2 meters AMSL on CH210A. This proposal requests an ERP of 6.0 kW at 507.2 meters AMSL on CH210A to resolve the MX. This proposal will continue to serve the community of Spencer, IA.

The present and proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted contours are found in **Exhibit 1.0** of this report. This exhibit shows the 60 dBu contour which serves the community of license. The applicant would like to note the use of the NED 03 SEC terrain database for all allocation, contour and HAAT calculations contained here-in.

The proposed site for the Class A operation meets all the contour protection requirements towards other stations in the allocation. A tabulation of the proposed protections to each of station is found in **Exhibit 2.0**.

An exhibit describing the methods used is also included as required by the New NCE FM station application rules.

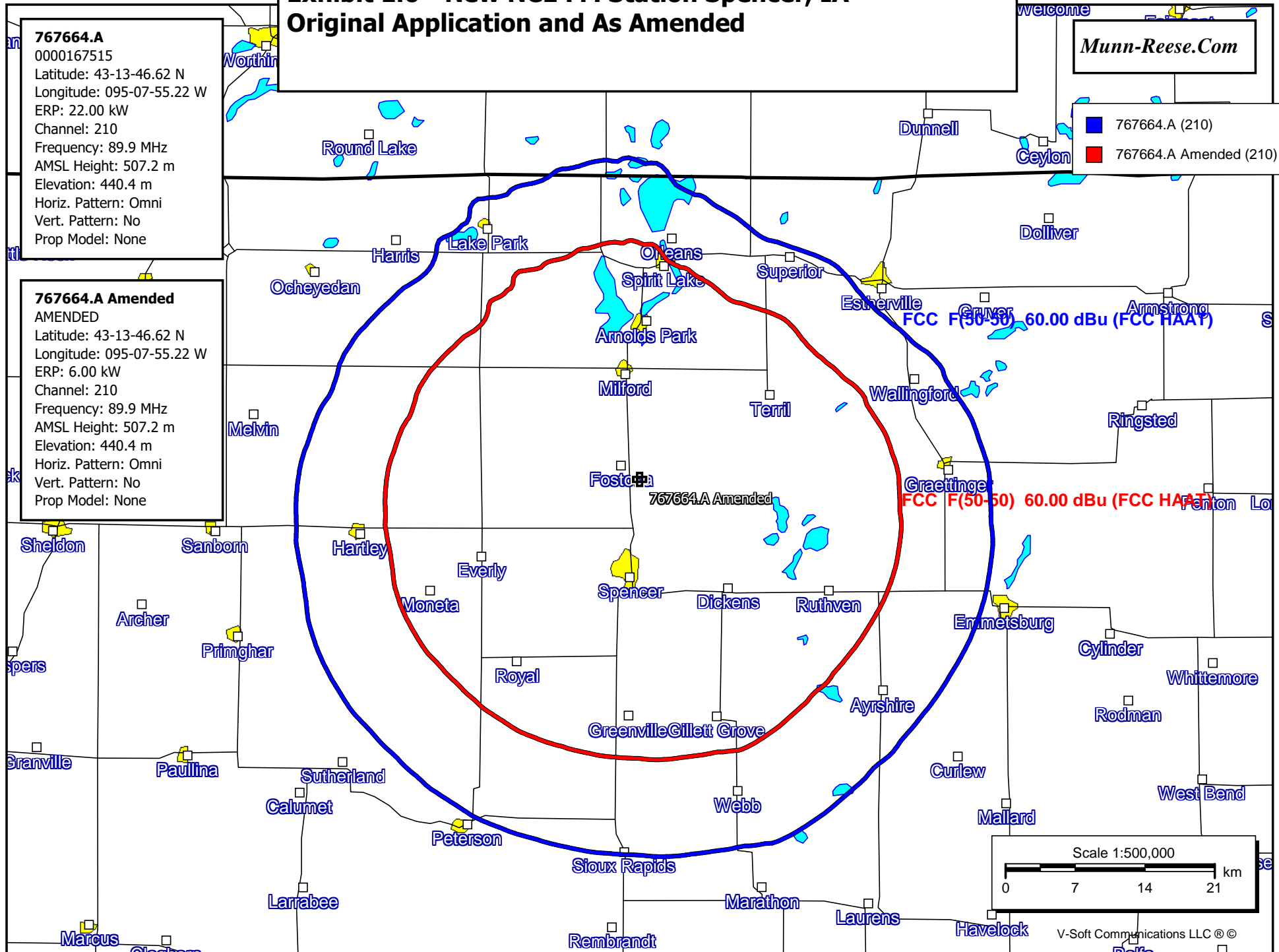
# Exhibit 1.0 - New NCE FM Station Spencer, IA Original Application and As Amended

**767664.A**  
0000167515  
Latitude: 43-13-46.62 N  
Longitude: 095-07-55.22 W  
ERP: 22.00 kW  
Channel: 210  
Frequency: 89.9 MHz  
AMSL Height: 507.2 m  
Elevation: 440.4 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

**767664.A Amended**  
AMENDED  
Latitude: 43-13-46.62 N  
Longitude: 095-07-55.22 W  
ERP: 6.00 kW  
Channel: 210  
Frequency: 89.9 MHz  
AMSL Height: 507.2 m  
Elevation: 440.4 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

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■ 767664.A (210)  
■ 767664.A Amended (210)



Spencer Allocation - As Amended											
St. Gabriel Communications											
REFERENCE		CH# 210A - 89.9 MHz, Pwr= 6 kw, HAAT= 84.3 M, COR= 507.2 M								DISPLAY DATES	
43 13 46.50 N.		Average Protected F(50-50)= 26.1 km								DATA 05-11-22	
95 07 56.20 W.		Omni-directional								SEARCH 05-16-22	
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kw)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)	
210C3	767664	APP _CN		0.0	0.00	43 13 46.50	22.000		---Reference---		
Spencer		IA		0.0	0000167515	95 07 56.20	84	507	St. Gabriel Communications		
211A	768510	APP _CN		35.9	64.86	43 42 05.00	6.000	39.6	25.6	2.2	4.0
Sherburn		MN		216.2	0000167877	94 39 34.00	98	472	Vcy America, Inc		
208C1	KLFG	LIC _CN		127.8	74.36	42 49 02.90	34.000	6.8	57.9	39.9	13.7
Fort Dodge		IA		308.3	BLED20180706AAE	94 24 41.90	257	608	Educational Media Foundati		
211A	768293	APP _CN		46.0	67.02	43 38 49.70	0.300	10.6	7.4	33.1	24.5
Fairmont		MN		226.4	0000167071	94 32 00.20	34	398	Fairmont Area Catholic Rad		
210A	768939	CP DCN		187.8	117.44	42 10 58.00	0.100	18.6	5.6	70.5	25.1
Kiron		IA		7.6	0000167834	95 19 29.00	3	428	Jkj Educational Foundation		
210C3	KRGM	LIC _CN		348.5	142.41	44 29 02.80	4.250	90.4	32.4	27.4	28.1
Marshall		MN		168.2	BLED20150604ABF	95 29 28.00	163	493	University of Northwestern		
211A	766426	APP _CN		0.7	72.85	43 53 05.30	0.250	10.1	7.1	38.3	28.7
Windom		MN		180.7	0000167166	95 07 17.00	8	442	We Have This Hope Christia		
209C1	KUSD	LIC _CN		262.1	135.71	43 02 59.90	32.000	77.9	52.7	31.4	42.2
Vermillion		SD		81.0	BLED19920212KA	96 47 13.10	202	614	South Dakota Board Of Dire		
207C1	KRSW	LIC DCN		318.8	97.00	43 53 00.90	100.000	7.5	60.6	64.9	34.0
Worthington		MN		138.3	BLED19941220KA	95 55 45.10	169	689	Minnesota Public Radio		
211C	WOI-FM	LIC _CN		141.3	200.99	41 48 32.90	100.000	122.1	82.2	50.6	75.7
Ames		IA		322.3	BLED978	93 36 53.70	454	745	Iowa State University Of S		
209C2	KMSU	LIC _CN		41.5	136.18	44 08 30.90	17.000	60.7	40.4	52.1	60.1
Mankato		MN		222.3	BLED20091202ABZ	94 00 06.80	133	425	Minnesota State University		
212C1	KWIT	LIC _CN		228.2	123.81	42 28 55.90	100.000	9.4	68.7	86.6	52.3
Sioux City		IA		47.5	BLED1740	96 15 31.00	277	648	Western Iowa Tech Communit		
211C3	KSFS	LIC _CN		285.5	136.40	43 32 42.30	18.000	38.4	24.3	72.7	71.9
Sioux Falls		SD		104.3	0000135996	96 45 49.40	32	479	Educational Media Foundati		
213C1	KNGA	LIC _CN		36.1	137.19	44 13 19.90	75.000	7.9	62.5	106.1	72.4
St. Peter		MN		216.8	BMLED20120501AAX	94 07 03.90	216	504	Minnesota Public Radio		
263C2	KXAC«	LIC _CN		36.4	100.04	43 57 02.90	34.000	0.0	601212400000000000000000.0		
St. James		MN		216.9	BLH19990402KE	94 23 25.90	180	502	Subarctic Media, LLC	14.5R	85.5M
209C	KIWR	LIC DCN		199.3	225.64	41 18 39.90	100.000	104.4	71.8	93.1	109.3
Council Bluffs		IA		18.7	BLED19810923AA	96 01 38.00	326	670	Iowa Western Community Col		

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference zone= - Zone 2, Co to 3rd adjacent.  
All separation margins (if shown) include rounding.  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
"«"affixed to 'IN' or 'OUT' values = site inside restricted contour.  
« = Station meets FCC minimum distance spacing for its class.

## **New NCE Station Application – 2021 Window Explanation of Methods Utilized**

The firm of Munn-Reese, Broadcast Engineering Consultants, with offices at 385 Airport Drive, Coldwater, Michigan, has been retained for the purpose of preparing the technical data forming this report.

The report has been prepared by the undersigned and whose qualifications are a matter of record before the Federal Communications Commission.

I declare that the contents of this report are true and accurate to the best of my knowledge and belief.

### ***MUNN-REESE***

385 Airport Drive, PO Box 220  
Coldwater, Michigan 49036  
Telephone: 517-278-7339

By

  
Bruce Bellamy, Owner/Engineer

## **Calculation of Technical Parameters**

The firm of Munn-Reese, Coldwater, MI, was retained to prepare the technical parameters and exhibits for a new NCE station application. Studies were completed to support the technical parameters for the following sections:

- Fair Distribution of Service, first or second noncommercial aural service
- Point System Factors/Tiebreakers, Diversity of Ownership
- Point System Factors/Tiebreakers, Coverage Contour Population and Area
- Channel and Facility Information
- Antenna Location Data
- Antenna Technical Data
- Technical Certifications

### ***MUNN-REESE***

Broadcast Engineering Consultants  
Coldwater, MI 49036

Station allocations were determined using the V-Soft Communications® FMCommander program. Non-Allocation based studies were developed using the V-Soft Communications® Probe4 program. All terrain-based calculations used the NED 03 Sec terrain database unless stipulated otherwise in the exhibit(s). The FCC data used was dated 10/31/21. Station Allocations are contour based and tested to the nearest point to verify no prohibited overlap. This would eliminate the need for detailed contour studies.

#### Fair Distribution of Service, first or second noncommercial aural service

This was determined with a service count study showing the populations and percentages of population within the coverage contour for 1, 2, 3, 4, and 5 or more non-commercial services. Certifications of a 1<sup>st</sup> or 2<sup>nd</sup> noncommercial aural service were made if the area(s) with 1<sup>st</sup> or 2<sup>nd</sup> service If the area with 1 or 2 services mad up 10% or more the coverage contour population and the population in these areas exceeds 2,000. These studies were based on the new NCE station coverage contour with the intersection of any other noncommercial service's coverage contour.

#### Point System Factors/Tiebreakers, Diversity of Ownership

This was determined with a service count study testing for intersection city grade contours of any commonly owned station with the proposed new station city grade contour. The applicant certifies that if diversity points are claimed, the applicant has performed the necessary study to determine that the city grade contours of commonly owned stations do not intersect the city grade contour of the proposed station. This determination of qualification for Diversity of Ownership does not include stations for which we are seeking an exemption from attribution. An exhibit is included for this section only in the case where the applicant wishes to identify and divest the intersecting stations to claim diversity points.

#### Point System Factors/Tiebreakers, Coverage Contour Population and Area

Area of coverage calculations exclude substantial areas of water such as the Great Lakes and Oceans. Inland lakes, rivers, and streams were not excluded from the coverage area calculation. Currently V-Soft Communications does not have a software feature to automatically exclude substantial areas of water. For applications with substantial areas of water within the coverage contour, where practical to do so, polygons were manually drawn around the shoreline of the major land masses. The coverage area was then calculated by counting only the common area within the coverage contour and the hand drawn polygon. For the V-Software suite the above method is considered the standard method for removing large bodies of water from the area calculation.

The Coverage Contour Population was determined using the 2010 US Census block data. Contours are based FCC curves using the NED 03 Second terrain database along 360 radials. HAAT calculations are based on standard radials.

#### Technical Certifications

The applicant certifies that proposed station complies with the applicable rules using the methods described above.