Attachment B

Sioux Falls Tower & Communications

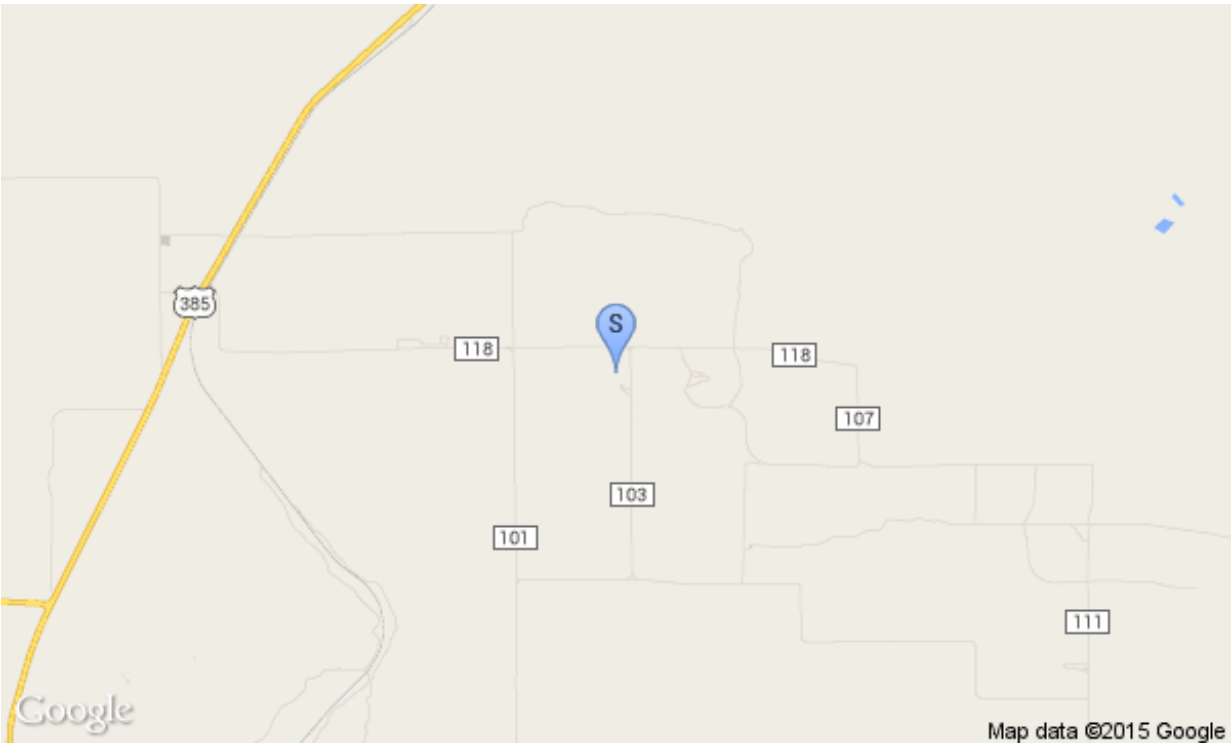
Quality Integrity Experience

INSPECTION REPORT

SITE NAME: Angora
SITE COORDINATES: 41.840833, -103.055556
HEIGHT / TYPE: 1380.6 Guyed
PREPARED FOR: Nebraska Educational TV
POINT OF CONTACT: Craig Emerick

INSPECTION DATE: 04/29/2015 **INSPECTED BY:** Bryant Kelly

Site Name: Angora	**Manufacturer:** Stainless		
Site Owner: Nebraska Educational Telecommunications	**Manufacturer's Tower ID:**		
FCC Registration #: 1029931	**Elevation - top of steel:** 1380		
GPS Latitude: 41.840833	**Elevation - uppermost antenna or lightning rod:** 1380		
GPS Longitude: -103.055556	**Tower face dimension:**	**Base:** 8'	**Top of taper:** 8'
Date: 04/29/2015	**Pivot Base?** Yes		



Inspection Failures:

Voltage reading of AnchorGuard system indicates insufficient cathodic protection for one or more anchor shafts. The system may be damaged or the anodes have been consumed and need replacement for the following anchors: **X Inner / X Middle / X Outer / Inner / Middle / Outer / Inner / Middle / Outer**		
		NO Safety Climb Cable. Recommend Installing Cable
	Whole Tower	Paint is coming off tower and is very light up top. Recommend Painting Tower

Table of Tension:

Anchor direction Guy Tensions were measured from: Southwest							
Tension measuring method used: Tangent Intercept							
Temperature: 65° F				**Tensions (lbs)**			
Level	**Elevation**	**Size**	**Type**	**As Found**	**Adjusted to**	**Target**	**Status**
1	159'	1 1/16"	BS	24	0	25	4.00%
2	334'	1 3/16"	BS	33	0	32	-3.12%
3	522'	1 1/8"	BS	45	0	44	-2.27%
4	721'	1 3/8"	BS	65	0	63	-3.17%
5	933'	1 5/16"	BS	137	0	136	-0.74%
6	1158'	1 7/16"	BS	190	0	178	-6.74%
7	1380'	1 7/16"	BS	222	0	203	-9.36%

Distance from tower base to Anchor:	**Inner:**	540'	**Middle:**	0'	**Outer:**	1026'
Anchor rise/drop relative to base:	**Inner:**	0'	**Middle:**		**Outer:**	0'
List guy levels attached to Anchor:	**Inner:**	159' 334' 522' 721'	**Middle:**		**Outer:**	933' 1158' 1380'

Were guys tensions found to be within design specification (Target +/- 5%)? **No**

Guys levels found outside of design specification: **Levels 6,7**

Table of Tower Plumb:

	AS FOUND						ADJUSTED TO					
	Transit 1			Transit 2			Transit 1			Transit 2		
Level	Left	0	Right	Left	0	Right	Left	0	Right	Left	0	Right
1			1"	1"								
2		0"		2"								
3	3			3"								
4	4			5"								
5	5			5"								
6	5			6"								
7	6			7"								
Wind Speed: 10-20				**Wind Direction:**N						**Temperature:** 65° F		
Transit 1 - behind Anchor: W							**Transit 2 – Azimuth:** S					
Was tower plumb found to be within TIA/EIA standards? **NO**												

Appurtenances:

Elevation: 129'
Location: SW LEG
Type: 4' Dish
Feed: 1/2"
Feed Location: Inside tower right of ladder
Azimuth: South west
Mfg: Andrew
Model: VHLP4-11-CR4B
Serial#: 11DESA1534135

Elevation: 176'
Location: SW LEG
Type: 2' dish
Feed: CAT 5 Outdoor Cable
Feed Location: SE Leg
Azimuth: SW Leg
Mfg: Radio Waves
Model: SPD2-4.7NS
Serial#:

Elevation: 180'
Location: SW LEG
Type: 2' Dish
Feed: CAT 5 Outdoor Cable
Feed Location:
Azimuth:
Mfg: Radio Waves
Model: SPD2-4.7NS
Serial#:

Elevation: 261'
Location: SE LEG
Type: 2' Dish
Feed: Cat 5 Cable
Feed Location: SE Leg
Azimuth: SE LEG
Mfg: Radio Waves
Model: SPD2-4.7NS
Serial#:

Elevation: 264'
Location: SE LEG
Type: 2' Dish
Feed: Cat 5 Outdoor Cabel
Feed Location: SE LEG
Azimuth: SE LEG
Mfg: Radio Waves
Model: SPD2-4.7NS
Serial#:

Elevation: 283'
Location: SE LEG
Type: 4' Dish
Feed: 1/2"
Feed Location: Inside Tower Right of Ladder
Azimuth: SE LEG
Mfg: Andrew
Model: VHLP800-11-CR4
Serial#:

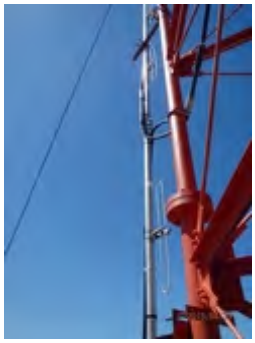
Elevation: 350'
Location: SE LEG
Type: Dipole Antenna
Feed: 7/8" Coax
Feed Location: Inside Tower Right of Ladder
Azimuth: SE LEG
Mfg:
Model:
Serial#:

Elevation: 338-344'
Location: SW LEG
Type: 2 WAY
Feed: 7/8" Coax
Feed Location: Inside Tower next to Transmision lines
Azimuth: SW LEG
Mfg:
Model:
Serial#:

Elevation: 388-344'
Location: SE LEG
Type: 2 Way
Feed: 7/8" Coax
Feed Location: Inside tower Next to Transmison lines
Azimuth: SE LEG
Mfg:
Model:
Serial#:

Elevation: 390-410'
Location: SE LEG
Type: 20' dipole
Feed: 7/8" Coax
Feed Location: Inside tower next to Ladder
Azimuth: SE LEG
Mfg:
Model:
Serial#:

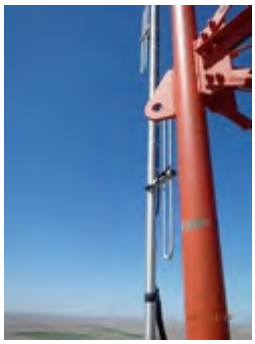
Elevation: 420-431'
Location: SOUTH FACE
Type: 6' Dish
Feed: 1/2" Coax
Feed Location: inside tower right of ladder
Azimuth: South
Mfg: Andrew
Model: HP6-59-P3A/K
Serial#:



Elevation: 466-510'
Location: SW LEG
Type: 42' dipole
Feed: 3/4"
Feed Location: inside tower between Transmision Lines
Azimuth: SW LEG
Mfg:
Model:
Serial#:

Elevation: 373-379'
Location: N LEG
Type:
Feed: 1/2" Coax
Feed Location: inside tower right of ladder
Azimuth: N LEG
Mfg: Andrew
Model: VHLP800-11-CR4
Serial#: 11DESA1534296

Elevation: 585-598'
Location: SE LEG
Type: 4- Yagis and ice sheild
Feed: 7/8" Coax
Feed Location: inside tower right of ladder
Azimuth: SE LEG
Mfg: Kathein
Model: HDCA-10/URM/75N
Serial#:



Elevation: 616-636'
Location: SW LEG
Type: 20' dipole
Feed: 7/8" Coax
Feed Location: inside tower right of ladder
Azimuth: SW LEG
Mfg:
Model:
Serial#:

Elevation: 1150-1250'
Location: SW LEG
Type: FM Bays
Feed: 3" Rigid
Feed Location: Inside tower
Azimuth: SW
Mfg:
Model:
Serial#:

Elevation: 600'
Location:
Type: Ice Shield
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

Elevation: 140'
Location: SW Leg
Type: Ice Sheild
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

Elevation: 182'
Location: SW Leg
Type: Ice Sheild
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

Elevation: 265'
Location: SE Leg
Type: Ice Sheild
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

Elevation: 290'
Location: SE LEG
Type: Ice Shield
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

Elevation: 435'
Location: South Face
Type: Ice Shield
Feed:
Feed Location:
Azimuth:
Mfg:
Model:
Serial#:

1. General Site Conditions	PASS	FAIL	N/A
A. Access roadbed and surface are in good condition.	X		
B. Site ID, FCC Registration #, and RF Warning signs posted and legible.	X		
C. Compound fenced and fences/gates/locks are in good condition.	X		
D. Compound surface is in good condition.	X		
E. Compound surface type? **Unimproved**			
F. Site is draining properly, no water is collecting in the site.	X		
G. Sidewalks, steps, stairways or ramps are in good overall condition.	X		
H. Outdoor propane tanks and generators are in good overall condition.	X		
I. Power and telco demarcations are in good condition.	X		
J. No vegetation is growing on fences, shelter, tower or guy anchors.	X		
K. No large trees are within falling distance for tower or guy anchors.	X		
L. Anchor points are readily accessible to tower crew.	X		
M. Guys and anchor points are protected from vehicle, machinery and cattle damage.	X		
N. Compound, anchor points and site are free from excess clutter.	X		

2. Shelter	PASS	FAIL	N/A
A. Equipment shelter is in good overall condition and secure.	X		
B. Shelter foundation is free from cracking, spalling or shifting.	X		
C. Outdoor radio enclosures are in good overall condition and secure.	X		
D. Equipment platforms are in good condition.	X		

3. Grounding	PASS	FAIL	N/A
A. Grounding connections on fence posts and gate are in good condition.	X		
B. Feedlines are properly grounded at the shelter entry port and at the bottom of the vertical run.	X		
C. All grounding connections on tower base are in good condition.	X		
D. All grounding connections on propane tanks and generators are in good condition.	X		
E. All grounding connections on shelter, equipment, and ice bridges are in good condition.	X		
F. Ground busses are properly mounted and are connected to ground.	X		
G. Feedlines are grounded at top and middle (or every 200?).	X		
H. Ground kits are properly installed with wires routed in downward direction.	X		
I. Lightning rod (and ground cable) are secure.	X		
J. Individual guy cables are grounded and grounding is connected and secure.	X		

4. Guys and Anchors	PASS	FAIL	N/A
A. Turnbuckle safety loops are present and properly installed	X		
B. No visible signs of settlement, erosion, or movement.	X		
C. Concrete anchor piers are free from cracking, spalling or shifting.	X		
D. Fan plates, nuts & bolts, welds, and pins are in good condition.	X		
E. The turnbuckles or hairpins free from vibration cutting, corrosion, bends and excessive adjustment.	X		
F. Cable thimbles are of proper type and free from vibration cutting, corrosion and collapse.	X		
G. Big Grips are installed properly including end sleeves, and free from cutting, corrosion and unwrapping.	X		
H. Ice breakers are in place and in good condition.			X
I. Cable clips are of proper type and installed with u-bolt on dead end.			X
J. Poured sockets are in good condition and secure?	X		
K. All shackles, pins, and cotter pins are in place, free from corrosion and secure.	X		
L. Vibration dampers and/or guy snubber system in good condition.	X		
M. Guy wire aviation markers and anti-bird devices are in good condition.			X
N. An anchor corrosion protection system is in place and in good condition.	X		

O. AnchorGuard Voltage (C to G, measured in VDC)	Anchor	Inner	Middle	Outer
	X			

P. Corrosion Severity Factor (at 2ft. Depth)	Anchor	Inner	Middle	Outer

5. Tower Base and Structure	PASS	FAIL	N/A
A. Tower foundation is free from cracking, spalling or shifting.	X		
B. All tower base nuts and locks are secure.	X		
C. There is no tower base bolt corrosion.	X		
D. The tower leg drain holes are open.	X		
E. Grout is in place and in good condition.	X		
F. Ice bridges are in good condition and horizontal lines secure.	X		
G. There are no bent members.	X		
H. There are no corroded members.	X		
I. There are no loose members.	X		
J. There are no missing members.	X		
K. There are no loose or missing bolts. (check 10%)	X		
L. There are no cracked, corroded or flawed welds.	X		
M. There is no evidence of water collection in members.	X		
N. There are no signs of the monopole cracking around the base or base welds.	X		
O. The Base Insulator, Spark Gap, and Isolation coupler are in good condition.	X		

6. Electrical and Tower Lights	PASS	FAIL	N/A
A. All bulbs/strobes are working.	X		
B. Lighting controller is working properly.	X		
C. Photocell is working properly.	X		
D. No alarms are activated.	X		
E. Remote alarm system is functioning.	X		
F. The conduit runs and/or electrical cords are secure.	X		
G. The conduit/cord systems are in good condition.	X		
H. Conduit drains and vents are open.	X		
I. Light fixtures are securely mounted and free from damage.	X		
J. Fixture closure bolts and latches are secure and functional.	X		
K. No broken or cracked glass on light fixtures.	X		
L. Inside of fixtures are clean and free from corrosion.	X		

M. The tower lights were relamped at the time of the inspection.		YES	**NO**
N. Number of each type of lamp replaced	Beacon: 0	Sidelight: 0	
O. Strobe Preventive Maintenance was performed.		YES	**NO**

Lighting System Make:		**Model Number:**	
BEACONS		**SIDELIGHTS**	
X	Incandescent	X	Incandescent
	White Strobe		Halogen
	Red/White Strobe		LED
	White Strobe/Incandescent		
	Halogen		
	LED		

7. Broadcast Antennas	PASS	FAIL	N/A
A. Antennas elements are not bent, broken, loose or missing.	X		
B. Radomes are in good condition.	X		
C. Mounting bolts are secure and in good condition.	X		
D. Interbay feedlines and hangers are secure.	X		
E. Feedstraps and stingers are in good condition.	X		
F. Feedline junction boxes are in good condition.	X		
G. Conduits, Cords, and J-Boxes are secure.	X		
H. Were de-icers tested?	YES	NO	
I. Climbing steps, ladders and platforms are secure.	X		
J. Antenna and mounting are free from corrosion.	X		
K. Water drain holes are open.	X		
L. Iceshields are secure and in good condition.	X		

8. Antennas, Reflectors, Mounting	PASS	FAIL	N/A
A. Antennas elements are not bent, broken, loose or missing.	X		
B. Radomes are in good condition.	X		
C. Water drain holes are open.	X		
D. Iceshields are secure and in good condition.	X		
E. No damaged, loose or missing hardware.	X		
F. Mounting is secure to tower and adjustments are locked.	X		
G. Antenna and mounting are free from corrosion.	X		
H. De-icers are in good condition and functioning	X		
I. Visual check for proper antenna downtilts and azimuths.	X		

9. Flexible Feedlines and Hangers	PASS	FAIL	N/A
A. The lines are straight with hangers properly spaced and secure.	X		
B. Hangers and supports are in good condition.	X		
C. Connectors and flanges are weatherproofed or watertight.	X		
D. The lines are free from kinks or other physical damage.	X		
E. All lines are properly supported with hoisting grip below upper ground kit.	X		
F. All feedline grounding is properly installed and in good condition.	X		

10. Rigid Feedlines and Hangers	PASS	FAIL	N/A
A. The lines are straight with hangers properly spaced and secure.	X		
B. Spring hangers and guideloops are in good condition.	X		
C. Lines hold air pressure.	X		
D. The lines are free from kinks or other physical damage.	X		
E. All lines properly supported with rigid hanger at the top.	X		

11. Coatings and Finish	PASS	FAIL	N/A
A. Color band lengths are correct.	X		
B. The paint is in good condition.		X	
C. The tower surface is free from rust or corrosion.	X		
D. Tower color passes FCC luminance standards.	X		
E. Tower galvanizing is in good condition.	X		

12. Climbing Facilities	PASS	FAIL	N/A
A. Climbing ladder, personnel platforms and hatches are secure and in good condition.	X		
B. Ladder safety climb system is in place, secure and in good condition.		X	

Site Photos:

Profile of anchor SE Ancvor4

Anchor shaft below grade of anchor Incased in Concrete

Anchor shaft below grade of anchor Incased in Concrete

Typical sidelight fixture

Typical beacon / strobe fixture

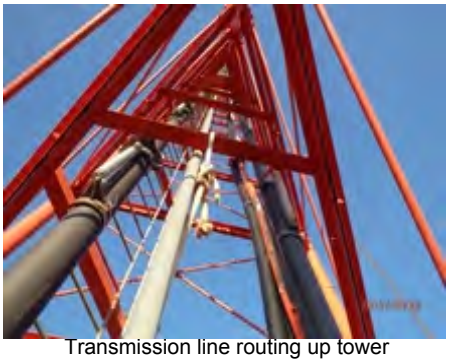
View from driveway

Shelter entry port

Tower base grounding

Transmission line routing under icebridge

Compound fence


Transmission line routing up tower