

Wind Power GeoPlanner™

Off-Air TV Analysis

Baron Wind Farm



Prepared on Behalf of
Baron Winds LLC

August 18, 2017



COMSEARCH
A CommScope Company

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1. Introduction

Off-air television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those off-air stations whose service could potentially be affected by the proposed Baron Wind Farm project in Steuben County, New York. Comsearch then examined the coverage of the stations and the communities in the area that could potentially have degraded television reception due to the location of the proposed wind turbines.

2. Summary of Results

The proposed wind energy project area and local communities are depicted in Figure 1, below.



Figure 1: Wind Farm Project Area and Local Communities

signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

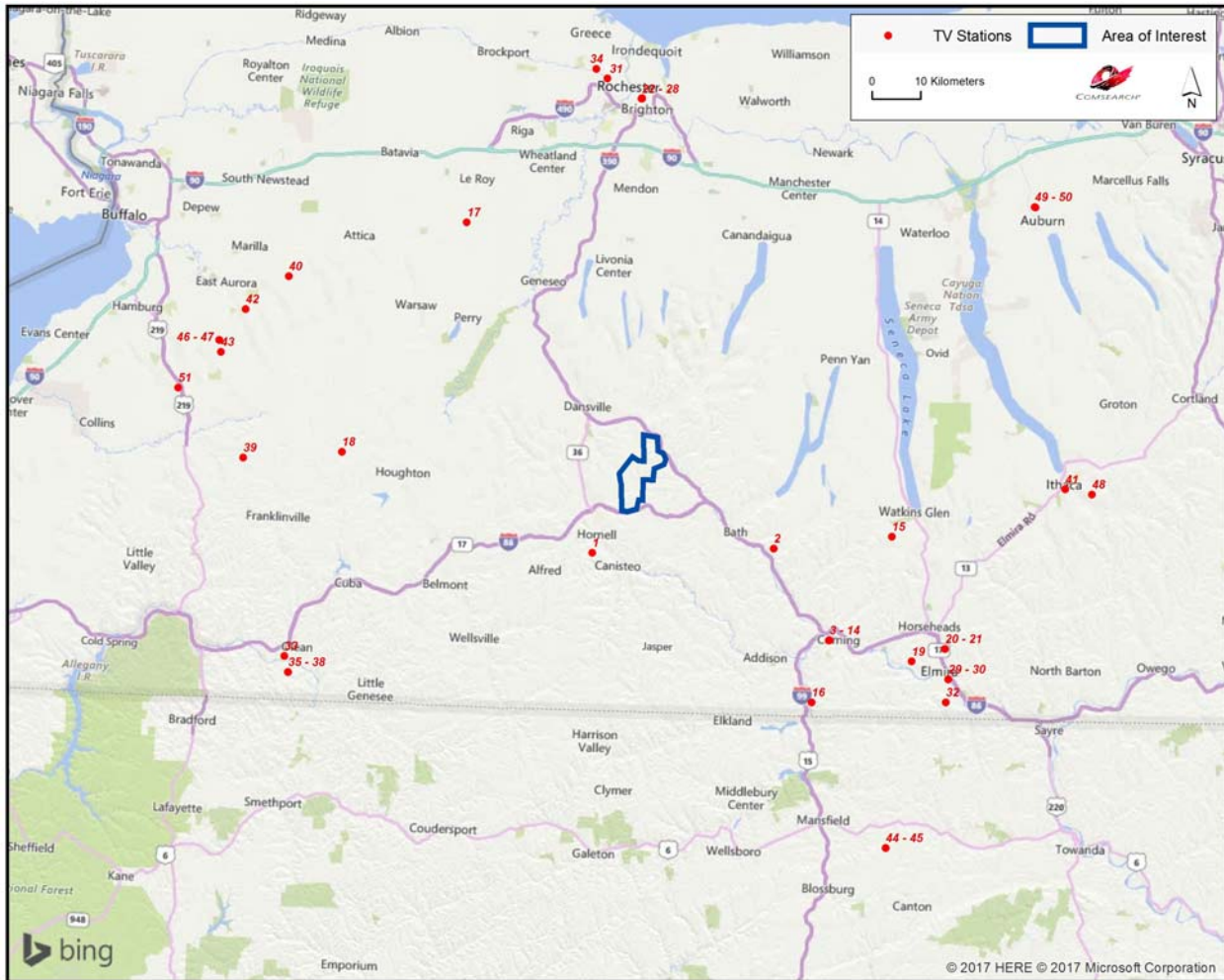


Figure 3: Plot of Off-Air TV Stations within 100 Kilometers of Project Area



ID	Call Sign	Status	Service ²	Channel	Transmit ERP ³ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	W16BE-D	LIC	LD	16	0.277	42.292222	-77.674167	11.14
2	W20BL-D	LIC	LD	20	0.593	42.309167	-77.221389	28.74
3	W16DR-D	CP	LD	16	10.0	42.141944	-77.077778	48.69
4	WPBY-LD	CP	LD	22	15.0	42.141944	-77.077778	48.69
5	WENY-TV	LIC	DT	36	75.0	42.141944	-77.077778	48.69
6	WJKP-LD	LIC	LD	39	0.314	42.141944	-77.077778	48.69
7	W41DB	LIC	TX	41	7.0	42.141944	-77.077778	48.69
8	W45DZ-D	CP	LD	45	5.0	42.141944	-77.077778	48.69
9	W46EZ-D	CP	LD	46	15.0	42.141944	-77.077778	48.69
10	W50ES-D	CP	LD	50	15.0	42.141944	-77.077778	48.69
11	NEW	APP	LD	51	15.0	42.141944	-77.077778	48.69
12	WPBY-LD	LIC	LD	22	15.0	42.141861	-77.077808	48.69
13	WYDC	LIC	DT	48	7.6	42.141667	-77.077500	48.72
14	WSKA	LIC	DT	30	25.0	42.141592	-77.077531	48.73
15	-	CP	LD	40	0.1	42.336861	-76.927806	49.27
16	W38FM-D	CP	LD	38	2.0	42.026250	-77.117361	54.71
17	WPXJ-TV	LIC	DT	23	455.0	42.895000	-78.015556	57.27
18	W30BW	CP MOD	LD	30	3.5	42.461603	-78.307486	57.94
19	WETM-TV	LIC	DT	18	45.0	42.106111	-76.871389	65.26
20	W26BF	LIC	TX	26	1.09	42.130833	-76.789167	69.41
21	W26BF	APP	LD	26	15.0	42.130833	-76.788889	69.43
22	WUHF	LIC	DT	28	320.0	43.134722	-77.585278	69.57
23	WHAM-TV	LIC	DT	13	18.0	43.135278	-77.584167	69.63
24	WXXI-TV	LIC	DT	16	236.6	43.135278	-77.584167	69.63
25	WAWW-LP	LIC	TX	20	25.8	43.135278	-77.585278	69.63
26	WHSB-LP	LIC	TX	36	16.0	43.135278	-77.585278	69.63
27	WHEC-TV	LIC	DT	10	18.1	43.135556	-77.583889	69.66
28	WROC-TV	LIC	DT	45	1000.0	43.135556	-77.583889	69.66
29	W59DG	CP	LD	32	15.0	42.074722	-76.779722	73.56
30	W59DG	LIC	TX	59	7.7	42.074722	-76.779722	73.56
31	WBGT-CD	LIC	DC	46	15.0	43.170222	-77.673167	74.12
32	W28DO-D	LIC	LD	28	0.76	42.031944	-76.783889	75.70
33	W20AB	LIC	TX	20	12.5	42.080556	-78.430556	76.21
34	WGCE-CD	LIC	DC	25	4.0	43.187222	-77.702500	76.34

² Definitions of service and status codes:
DT – Digital television broadcast station
LD – Low-power digital television broadcast station
TX – Translator station
DC – Class A digital television broadcast station
LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational

³ ERP = Transmit Effective Radiated Power



ID	Call Sign	Status	Service ²	Channel	Transmit ERP ³ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
35	W30BW	LIC	TX	30	5.9	42.051111	-78.419722	76.89
36	W30BW	CP	LD	30	1.0	42.051111	-78.419722	76.89
37	W20AB	LIC	TX	20	0.1	42.051047	-78.419703	76.89
38	WVTT-CD	CP	DC	25	3.0	42.051111	-78.420278	76.93
39	WVTT-CD	LIC	DC	34	15.0	42.443611	-78.553056	78.06
40	WNYO-TV	LIC	DT	49	198.0	42.782778	-78.457778	80.24
41	W16AX-D	LIC	DC	16	1.7	42.429694	-76.496917	82.67
42	WGRZ	LIC	DT	33	480.0	42.718611	-78.563056	84.98
43	WKBW-TV	LIC	DT	38	358.0	42.637444	-78.619972	86.55
44	W20CP-D	LIC	LD	20	1.15	41.759444	-76.925278	87.58
45	W26CV-D	LIC	LD	26	0.098	41.759444	-76.925278	87.58
46	WIVB-TV	LIC	DT	39	790.0	42.659167	-78.625833	87.67
47	WIVB-TV	CP	DX	39	112.0	42.659167	-78.625833	87.67
48	W07BJ	LIC	TX	7	0.016	42.420833	-76.429444	88.27
49	WNDR-LP	LIC	TX	6	1.45	42.951944	-76.586667	91.26
50	WNDR-LD	CP	LD	31	15.0	42.951389	-76.584722	91.37
51	WBBZ-TV	LIC	DT	7	26.9	42.567778	-78.723333	93.23

Table 1: Off-Air TV Stations within 100 Kilometers of Project Area

3. Impact Assessment

Based on a contour analysis of the licensed stations within 100 kilometers of the Baron Wind Farm project, it was determined that thirteen of the full-power digital stations, identified below in Table 2, along with low-power digital stations W16BE-D, W20BL-D, and WPBY-LD, may have their reception disrupted in and around the project. The areas primarily affected would include TV service locations within 10 kilometers of the wind energy project that have clear line-of-sight (LOS) to a proposed wind turbine but not to the respective station. After the wind turbines are installed, communities and homes in these locations may have degraded reception of these stations. This is due to multipath interference caused by signal scattering as TV signals are reflected by the rotating wind turbine blades and mast.

ID	Call Sign	Status	Service ⁴	Channel	Transmit ERP ⁵ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	W16BE-D	LIC	LD	16	0.277	42.292222	-77.674167	11.14
2	W20BL-D	LIC	LD	20	0.593	42.309167	-77.221389	28.74
5	WENY-TV	LIC	DT	36	75.0	42.141944	-77.077778	48.69
12	WPBY-LD	LIC	LD	22	15.0	42.141861	-77.077808	48.69
13	WYDC	LIC	DT	48	7.6	42.141667	-77.077500	48.72
14	WSKA	LIC	DT	30	25.0	42.141592	-77.077531	48.73
17	WPXJ-TV	LIC	DT	23	455.0	42.895000	-78.015556	57.27
19	WETM-TV	LIC	DT	18	45.0	42.106111	-76.871389	65.26
22	WUHF	LIC	DT	28	320.0	43.134722	-77.585278	69.57
23	WHAM-TV	LIC	DT	13	18.0	43.135278	-77.584167	69.63
27	WHEC-TV	LIC	DT	10	18.1	43.135556	-77.583889	69.66
28	WROC-TV	LIC	DT	45	1000.0	43.135556	-77.583889	69.66
40	WNYO-TV	LIC	DT	49	198.0	42.782778	-78.457778	80.24
42	WGRZ	LIC	DT	33	480.0	42.718611	-78.563056	84.98
43	WKBW-TV	LIC	DT	38	358.0	42.637444	-78.619972	86.55
46	WIVB-TV	LIC	DT	39	790.0	42.659167	-78.625833	87.67

Table 2: Licensed Off-Air TV Stations Subject to Degradation

⁴ Definitions of service and status codes:
DT – Digital television broadcast station
LD – Low-power digital television broadcast station
LIC – Licensed and operational station

⁵ ERP = Transmit Effective Radiated Power

4. Recommendations

While TV signals are reflected by wind turbines, which can cause multipath interference to the TV receiver, modern digital TV receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that signal scattering from wind farms will cause interference to digital TV reception.

Nevertheless, signal scattering could still impact certain areas currently served by the TV station mentioned above, especially those that would have line-of-sight to at least one wind turbine but not to the station antenna. In the unlikely event that interference is observed in any of the TV service areas, it is recommended that a high-gain directional antenna be used, preferably outdoors, and oriented towards the signal origin in order to mitigate the interference.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the wind turbine facility and may be offered to those residents who can show that their off-air TV reception has been disrupted by the presence of the wind turbines after they are installed.

5. Contact

For questions or information regarding the Off-Air TV Analysis, please contact:

Contact person:	Denise Finney
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Company:	Comsearch
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Fax:	703-726-5595
Email:	dfinney@comsearch.com
Web site:	www.comsearch.com

Appendix A

ID	Call Sign	Status	Service ⁶	Channel	Transmit ERP ⁷ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
1	W16BE-D	LIC	LD	16	0.277	42.292222	-77.674167	11.14
2	W20BL-D	LIC	LD	20	0.593	42.309167	-77.221389	28.74
3	W16DR-D	CP	LD	16	10.0	42.141944	-77.077778	48.69
4	WPBY-LD	CP	LD	22	15.0	42.141944	-77.077778	48.69
5	WENY-TV	LIC	DT	36	75.0	42.141944	-77.077778	48.69
6	WJKP-LD	LIC	LD	39	0.314	42.141944	-77.077778	48.69
7	W41DB	LIC	TX	41	7.0	42.141944	-77.077778	48.69
8	W45DZ-D	CP	LD	45	5.0	42.141944	-77.077778	48.69
9	W46EZ-D	CP	LD	46	15.0	42.141944	-77.077778	48.69
10	W50ES-D	CP	LD	50	15.0	42.141944	-77.077778	48.69
11	NEW	APP	LD	51	15.0	42.141944	-77.077778	48.69
12	WPBY-LD	LIC	LD	22	15.0	42.141861	-77.077808	48.69
13	WYDC	LIC	DT	48	7.6	42.141667	-77.077500	48.72
14	WSKA	LIC	DT	30	25.0	42.141592	-77.077531	48.73
15	-	CP	LD	40	0.1	42.336861	-76.927806	49.27
16	W38FM-D	CP	LD	38	2.0	42.026250	-77.117361	54.71
17	WPXJ-TV	LIC	DT	23	455.0	42.895000	-78.015556	57.27
18	W30BW	CP MOD	LD	30	3.5	42.461603	-78.307486	57.94
19	WETM-TV	LIC	DT	18	45.0	42.106111	-76.871389	65.26
20	W26BF	LIC	TX	26	1.09	42.130833	-76.789167	69.41
21	W26BF	APP	LD	26	15.0	42.130833	-76.788889	69.43
22	WUHF	LIC	DT	28	320.0	43.134722	-77.585278	69.57
23	WHAM-TV	LIC	DT	13	18.0	43.135278	-77.584167	69.63
24	WXXI-TV	LIC	DT	16	236.6	43.135278	-77.584167	69.63
25	WAWW-LP	LIC	TX	20	25.8	43.135278	-77.585278	69.63
26	WHSB-LP	LIC	TX	36	16.0	43.135278	-77.585278	69.63

⁶ Definitions of service and status codes:

- TV – Analog television broadcast station
- DT – Digital television broadcast station
- DS – Digital special temporary authority (STA)
- LP – Low power analog television broadcast station
- LD – Low power digital television broadcast station
- CA – Class A analog television broadcast station
- DC – Class A digital television broadcast station
- DX – Digital auxiliary (backup) facility
- TX – Translator station
- DD – Distributed digital television system
- LIC – Licensed and operational station
- CP – Construction permit granted
- CP MOD – Modification of construction permit
- APP – Application for construction permit, not yet operational
- STA – Special transmit authorization, usually granted by FCC for temporary operation

⁷ ERP = Transmit Effective Radiated Power



ID	Call Sign	Status	Service ⁶	Channel	Transmit ERP ⁷ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
27	WHEC-TV	LIC	DT	10	18.1	43.135556	-77.583889	69.66
28	WROC-TV	LIC	DT	45	1000.0	43.135556	-77.583889	69.66
29	W59DG	CP	LD	32	15.0	42.074722	-76.779722	73.56
30	W59DG	LIC	TX	59	7.7	42.074722	-76.779722	73.56
31	WBGT-CD	LIC	DC	46	15.0	43.170222	-77.673167	74.12
32	W28DO-D	LIC	LD	28	0.76	42.031944	-76.783889	75.70
33	W20AB	LIC	TX	20	12.5	42.080556	-78.430556	76.21
34	WGCE-CD	LIC	DC	25	4.0	43.187222	-77.702500	76.34
35	W30BW	LIC	TX	30	5.9	42.051111	-78.419722	76.89
36	W30BW	CP	LD	30	1.0	42.051111	-78.419722	76.89
37	W20AB	LIC	TX	20	0.1	42.051047	-78.419703	76.89
38	WVTT-CD	CP	DC	25	3.0	42.051111	-78.420278	76.93
39	WVTT-CD	LIC	DC	34	15.0	42.443611	-78.553056	78.06
40	WNYO-TV	LIC	DT	49	198.0	42.782778	-78.457778	80.24
41	W16AX-D	LIC	DC	16	1.7	42.429694	-76.496917	82.67
42	WGRZ	LIC	DT	33	480.0	42.718611	-78.563056	84.98
43	WKBW-TV	LIC	DT	38	358.0	42.637444	-78.619972	86.55
44	W20CP-D	LIC	LD	20	1.15	41.759444	-76.925278	87.58
45	W26CV-D	LIC	LD	26	0.098	41.759444	-76.925278	87.58
46	WIVB-TV	LIC	DT	39	790.0	42.659167	-78.625833	87.67
47	WIVB-TV	CP	DX	39	112.0	42.659167	-78.625833	87.67
48	W07BJ	LIC	TX	7	0.016	42.420833	-76.429444	88.27
49	WNDR-LP	LIC	TX	6	1.45	42.951944	-76.586667	91.26
50	WNDR-LD	CP	LD	31	15.0	42.951389	-76.584722	91.37
51	WBBZ-TV	LIC	DT	7	26.9	42.567778	-78.723333	93.23
52	WDTB-LD	LIC	TX	39	16.9	42.830556	-78.798333	107.57
53	WBXZ-LP	LIC	LD	17	15.0	42.880000	-78.876667	115.67
54	WDTB-LD	CP	LD	29	15.0	42.880000	-78.876667	115.67
55	WDTB-LD	LIC	LD	29	15.0	42.880056	-78.876639	115.67
56	WSYT	LIC	DT	19	621.0	42.880556	-76.200000	116.05
57	WNYS-TV	LIC	DT	44	680.0	42.880556	-76.200000	116.05
58	W59DG	CP	LD	38	3.0	42.029167	-76.209444	117.06
59	W25AQ-D	LIC	LD	25	3.6	41.683056	-76.483056	119.14
60	W10CP-D	LIC	LD	10	0.066	41.681111	-76.481944	119.35
61	W15CO-D	LIC	LD	15	0.034	41.681111	-76.481944	119.35
62	WNYI	LIC	DT	20	110.0	42.758333	-76.046389	123.66
63	WNYI	CP	DT	13	2.73	42.758944	-76.046472	123.67
64	WSTQ-LP	CP	LD	14	15.0	42.944889	-76.118750	124.86
65	WSTM-TV	LIC	DT	24	210.0	42.944944	-76.118778	124.86
66	WCNY-TV	LIC	DT	25	97.0	42.945000	-76.118611	124.87
67	WDSS-LD	LIC	LD	38	15.0	42.945833	-76.104722	125.96
68	WTVH	LIC	DT	47	500.0	42.955222	-76.109528	126.00

ID	Call Sign	Status	Service ⁶	Channel	Transmit ERP ⁷ (kW)	Latitude (NAD 27)	Longitude (NAD 27)	Distance to Nearest Turbine (km)
69	WNLO	LIC	DT	32	1000.0	43.030000	-78.920833	126.09
70	WNED-TV	LIC	DT	43	156.0	43.030000	-78.920833	126.09
71	WUTV	LIC	DT	14	1000.0	43.025556	-78.928611	126.43
72	WBNF-CD	LIC	DC	15	15.0	43.025556	-78.928611	126.43
73	WBLZ-LP	LIC	TX	49	13.4	43.005278	-76.130000	126.76
74	WBLZ-LP	CP	LD	49	13.4	43.005278	-76.130000	126.76
75	WWLF-LP	CP	LD	32	2.5	43.058250	-76.166722	126.77
76	WONO-CD	LIC	DC	34	2.8	43.058250	-76.166722	126.77
77	WBLZ-LP	APP	LD	49	7.0	43.058250	-76.166722	126.77
78	WHSU-CD	LIC	DC	51	6.7	43.058250	-76.166722	126.77
79	WVOA-LP	LIC	TX	6	0.3	43.058333	-76.166667	126.78
80	WVOA-LP	CP	TX	6	3.0	43.058333	-76.166667	126.78
81	WNNY-LP	LIC	TX	13	3.0	43.058333	-76.166667	126.78
82	WSTQ-LP	LIC	TX	14	9.8	43.058333	-76.166667	126.78
83	WTVU-CD	LIC	DC	22	15.0	43.058333	-76.166667	126.78
84	WWLF-LP	LIC	TX	35	4.92	43.058333	-76.166667	126.78
85	W42EB-D	LIC	LD	42	12.3	43.050000	-76.151111	127.46
86	WIXT-CD	LIC	DC	40	1.0	43.006944	-76.093889	129.50
87	WSYR-TV	LIC	DT	17	105.0	42.945000	-76.024444	132.00
88	W20AD-D	LIC	LD	20	0.056	41.248056	-77.032778	133.55
89	WNYB	LIC	DT	26	243.0	42.393333	-79.228889	133.77
90	WBPN-LD	CP MOD	LD	23	0.08	42.093889	-75.957500	133.82
91	W17DU-D	CP	LD	17	1.0	41.482222	-78.683889	133.99
92	W19EI-D	CP	LD	19	1.0	41.482222	-78.683889	133.99
93	W21DO-D	CP	LD	21	1.0	41.482222	-78.683889	133.99
94	W28EO-D	CP	LD	28	1.0	41.482222	-78.683889	133.99
95	WBNG-TV	LIC	DT	7	34.0	42.058611	-75.951667	135.56
96	WSKG-TV	LIC	DT	42	50.0	42.061111	-75.945833	135.92
97	WBGH-CD	LIC	DC	20	0.04	42.060750	-75.943389	136.13
98	WIVT	LIC	DT	34	345.0	42.060833	-75.943333	136.13
99	WICZ-TV	LIC	DT	8	7.9	42.056111	-75.944167	136.24
100	WBPN-LP	LIC	TX	10	0.004	42.056111	-75.943889	136.26
101	WQMY	LIC	DT	29	50.0	41.200278	-77.120278	136.25
102	WXXW-LP	LIC	TX	6	0.016	42.100000	-75.908889	137.43
103	W09DB-D	LIC	DC	9	0.75	41.218806	-76.957528	138.87
104	WVIA-TV	LIC	LD	51	0.121	41.208806	-76.958639	139.86
105	W33DZ-D	CP	LD	33	15.0	41.191389	-76.976944	141.09
106	WNNY-LD	CP	LD	39	3.5	43.476667	-76.278889	148.09
107	WSPX-TV	LIC	DT	15	49.0	43.305000	-76.050000	149.48

Table A: Off-Air TV Stations within 150 Kilometers of Project Area