MID-STATE CONSULTANTS

# ENGINEERING STATEMENT

**OF**

**BENJAMIN L. PIDEK, P.E.**

**IN SUPPORT OF**

**APPLICATION FOR CONSTRUCTION PERMIT**

**POST-INCENTIVE AUCTION ASSIGNMENT FACILITY**

**WNMU**

**MARQUETTE, MI**

## Background

Board of Control, Northern Michigan University (NMU) is the licensee of WNMU, located at Marquette, MI, which is presently authorized to operate its digital facility on Channel 13 with the following parameters:

Pre-Incentive Auction Facility (Ch. 13)

| | |
|---|---|
| Coordinates: | 46° 21' 10.2" N (NAD27) |
| | 87° 51' 14.5" W |
| ERP: | 15.4 kW (omni) |
| RCAMSL: | 770.1m |

PROVIDING COMMUNICATION
SYSTEMS ENGINEERING

CORPORATE OFFICE
1475 NORTH 200 WEST
NEPHI, UT 84648

TEL: (435) 623-8601
FAX: (435) 623-8610

REGIONAL OFFICE
6197 MILLER RD.
SWARTZ CREEK, MI 48473

TEL: (810)-226-0750

WNMU has been assigned Ch. 8 for its post-incentive auction facility with the following parameters:

Post-Incentive Auction Facility (Ch. 8)

| | |
|---|---|
| Coordinates: | 46° 21' 10.2" N (NAD27) |
| | 87° 51' 14.5" W |
| ERP: | 15.4 kW (omni) |
| RCAMSL: | 770.1m |

## Antenna System and Tower

The existing top-mounted omni-directional WNMU Ch. 13 antenna (ERI ATW9V3-HT0-13) is a slotted array that is only usable on Ch. 13. NMU intends to replace the existing top-mounted antenna with a new omni-directional coaxial slot antenna for Ch. 8 (Dielectric THV-9A8-R).

The replacement of the top-mounted antenna will result in a 12.9m reduction in the overall height of the structure. NMU plans to notify the FAA of the reduction in structure height and update the ASR (#1023010) after construction of the new Ch. 8 facility is complete.

The new Ch. 8 antenna will have a center of radiation of 769.7 m AMSL (with a calculated HAAT of 323m) which is 0.4m lower than the radiation center height of the assigned repack facility (770.1m AMSL). To offset the 0.4m decrease in the height of the antenna radiation center, NMU proposes to increase the WNMU ERP from the assigned 15.4 kW to 15.5 kW. The proposed parameters of the WNMU post-repack facility result in a very minor increase in the noise-limited contour of the proposed station beyond the noise-limited contour of its assigned post-incentive auction facility.

Table 1, attached hereto, compares the calculated distances to the contour in every azimuth for both the assigned (baseline) facility and the proposed facility. The data comes from output files generated by the FCC TVStudy software for the contours of the assigned repack facility parameters and the proposed WNMU facility parameters. As can be seen from the table, the maximum difference between the two calculated contours is a de minimis 0.03 km (0.02%).

## Coverage

The entire principal community of Marquette, MI is well within the predicted F(50,90) 43 dBu contour based on the proposed omni-directional 15.5 kW ERP.

## Interference

An interference check study was run using the FCC TVStudy software (Version 2.2.2) for the proposed WNMU post-repack facility parameters. The results of the study show that the proposed facility is not predicted to cause more than 0.5% new interference to any other surrounding co-channel or adjacent channel post-repack facilities.

## Environmental/RFR

This report addresses only the conditions specified in 47CFR1.1307 that deal with Radio Frequency Radiation. Any other non-RFR conditions that might require the preparation of an EA are beyond the scope of this report; since the structure is existing and registered, such conditions should not be an issue requiring further consideration.

The location of the proposed post-incentive auction facility is assumed to currently be "in compliance" with FCC guidelines for human exposure to RFR (as defined in OET-65). The worst

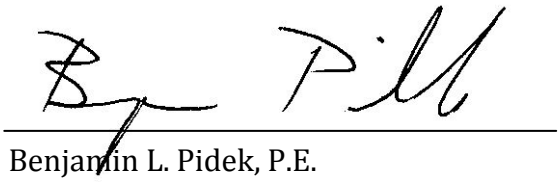
case ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.000215 mW/cm$^2$, which is less than 5% of the MPE for public exposure (0.2 mW/cm$^2$) at Ch. 8 (180-186 MHz). The contribution to the overall RFR from the proposed facility is negligible and, therefore, the site will remain "in compliance" with FCC guidelines.

NMU agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers will be trained on RFR issues and encouraged to wear personal RFR monitors when on the structure. The tower base in enclosed by a locked security fence and appropriate signage warning of potential RFR hazards is posted.

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**Certification**

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.



Benjamin L. Pidek, P.E.
July 5, 2017

PROVIDING COMMUNICATION
SYSTEMS ENGINEERING

CORPORATE OFFICE
1475 NORTH 200 WEST
NEPHI, UT 84648

TEL: (435) 623-8601
FAX: (435) 623-8610

REGIONAL OFFICE
6197 MILLER RD.
SWARTZ CREEK, MI 48473

TEL: (810)-226-0750

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

**Post-Incentive Auction Assigned Facility**
ERP: 15.4 kW
RCAMSL: 770.1 m
HAAT: 323.3 m

**Proposed Facility**
ERP: 15.5 kW
RCAMSL: 769.7 m
HAAT: 323.0 m

**Assigned Repack Baseline .csv File Data** / **Proposed Facility .csv File Data (tvixcontour.csv)**

| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 96.02 | 47.21668 | 87.85416 | 305.34 | 11.88 | 0 | 96.05 | 47.22 | 87.85 | 304.94 | 11.90 | 0.03 |
| 1 | 96.05 | 47.21681 | 87.83196 | 305.77 | 11.88 | 1 | 96.07 | 47.22 | 87.83 | 305.37 | 11.90 | 0.02 |
| 2 | 96.08 | 47.21668 | 87.80975 | 306.20 | 11.88 | 2 | 96.10 | 47.22 | 87.81 | 305.80 | 11.90 | 0.02 |
| 3 | 96.11 | 47.21627 | 87.78754 | 306.63 | 11.88 | 3 | 96.13 | 47.22 | 87.79 | 306.23 | 11.90 | 0.02 |
| 4 | 96.14 | 47.2156 | 87.76534 | 307.06 | 11.88 | 4 | 96.16 | 47.22 | 87.77 | 306.66 | 11.90 | 0.02 |
| 5 | 96.17 | 47.21467 | 87.74315 | 307.49 | 11.88 | 5 | 96.19 | 47.21 | 87.74 | 307.09 | 11.90 | 0.02 |
| 6 | 96.20 | 47.21346 | 87.72098 | 307.92 | 11.88 | 6 | 96.22 | 47.21 | 87.72 | 307.52 | 11.90 | 0.02 |
| 7 | 96.23 | 47.21199 | 87.69884 | 308.35 | 11.88 | 7 | 96.25 | 47.21 | 87.70 | 307.95 | 11.90 | 0.02 |
| 8 | 96.26 | 47.21026 | 87.67674 | 308.78 | 11.88 | 8 | 96.28 | 47.21 | 87.68 | 308.38 | 11.90 | 0.02 |
| 9 | 96.29 | 47.20826 | 87.65468 | 309.21 | 11.88 | 9 | 96.31 | 47.21 | 87.65 | 308.81 | 11.90 | 0.02 |
| 10 | 96.32 | 47.20599 | 87.63267 | 309.64 | 11.88 | 10 | 96.34 | 47.21 | 87.63 | 309.24 | 11.90 | 0.02 |
| 11 | 96.35 | 47.20346 | 87.61071 | 310.07 | 11.88 | 11 | 96.37 | 47.20 | 87.61 | 309.67 | 11.90 | 0.02 |
| 12 | 96.38 | 47.20066 | 87.58882 | 310.50 | 11.88 | 12 | 96.40 | 47.20 | 87.59 | 310.10 | 11.90 | 0.02 |
| 13 | 96.41 | 47.19761 | 87.567 | 310.93 | 11.88 | 13 | 96.43 | 47.20 | 87.57 | 310.53 | 11.90 | 0.02 |
| 14 | 96.44 | 47.19429 | 87.54526 | 311.36 | 11.88 | 14 | 96.47 | 47.19 | 87.55 | 310.96 | 11.90 | 0.03 |
| 15 | 96.48 | 47.1907 | 87.5236 | 311.80 | 11.88 | 15 | 96.50 | 47.19 | 87.52 | 311.40 | 11.90 | 0.02 |
| 16 | 96.51 | 47.18686 | 87.50203 | 312.23 | 11.88 | 16 | 96.53 | 47.19 | 87.50 | 311.83 | 11.90 | 0.02 |
| 17 | 96.54 | 47.18276 | 87.48056 | 312.66 | 11.88 | 17 | 96.56 | 47.18 | 87.48 | 312.26 | 11.90 | 0.02 |
| 18 | 96.57 | 47.17839 | 87.45919 | 313.09 | 11.88 | 18 | 96.59 | 47.18 | 87.46 | 312.69 | 11.90 | 0.02 |
| 19 | 96.60 | 47.17377 | 87.43794 | 313.52 | 11.88 | 19 | 96.62 | 47.17 | 87.44 | 313.12 | 11.90 | 0.02 |
| 20 | 96.63 | 47.1689 | 87.4168 | 313.95 | 11.88 | 20 | 96.65 | 47.17 | 87.42 | 313.55 | 11.90 | 0.02 |
| 21 | 96.66 | 47.16377 | 87.39579 | 314.38 | 11.88 | 21 | 96.68 | 47.16 | 87.40 | 313.98 | 11.90 | 0.02 |
| 22 | 96.69 | 47.15838 | 87.37491 | 314.81 | 11.88 | 22 | 96.72 | 47.16 | 87.37 | 314.41 | 11.90 | 0.03 |
| 23 | 96.73 | 47.15275 | 87.35417 | 315.24 | 11.88 | 23 | 96.75 | 47.15 | 87.35 | 314.84 | 11.90 | 0.02 |
| 24 | 96.76 | 47.14686 | 87.33358 | 315.67 | 11.88 | 24 | 96.78 | 47.15 | 87.33 | 315.27 | 11.90 | 0.02 |
| 25 | 96.79 | 47.14073 | 87.31313 | 316.10 | 11.88 | 25 | 96.81 | 47.14 | 87.31 | 315.70 | 11.90 | 0.02 |
| 26 | 96.82 | 47.13435 | 87.29285 | 316.53 | 11.88 | 26 | 96.84 | 47.13 | 87.29 | 316.13 | 11.90 | 0.02 |
| 27 | 96.85 | 47.12772 | 87.27273 | 316.96 | 11.88 | 27 | 96.87 | 47.13 | 87.27 | 316.56 | 11.90 | 0.02 |
| 28 | 96.89 | 47.12085 | 87.25278 | 317.39 | 11.88 | 28 | 96.91 | 47.12 | 87.25 | 316.99 | 11.90 | 0.02 |
| 29 | 96.92 | 47.11374 | 87.23301 | 317.82 | 11.88 | 29 | 96.94 | 47.11 | 87.23 | 317.42 | 11.90 | 0.02 |
| 30 | 96.95 | 47.10639 | 87.21342 | 318.25 | 11.88 | 30 | 96.97 | 47.11 | 87.21 | 317.85 | 11.90 | 0.02 |
| 31 | 96.98 | 47.0988 | 87.19402 | 318.68 | 11.88 | 31 | 97.00 | 47.10 | 87.19 | 318.28 | 11.90 | 0.02 |
| 32 | 97.01 | 47.09098 | 87.17482 | 319.11 | 11.88 | 32 | 97.03 | 47.09 | 87.17 | 318.71 | 11.90 | 0.02 |
| 33 | 97.05 | 47.08293 | 87.15582 | 319.55 | 11.88 | 33 | 97.07 | 47.08 | 87.16 | 319.15 | 11.90 | 0.02 |
| 34 | 97.08 | 47.07465 | 87.13703 | 319.98 | 11.88 | 34 | 97.10 | 47.07 | 87.14 | 319.58 | 11.90 | 0.02 |
| 35 | 97.11 | 47.06614 | 87.11845 | 320.41 | 11.88 | 35 | 97.13 | 47.07 | 87.12 | 320.01 | 11.90 | 0.02 |
| 36 | 97.15 | 47.05741 | 87.10009 | 320.84 | 11.88 | 36 | 97.17 | 47.06 | 87.10 | 320.44 | 11.90 | 0.02 |
| 37 | 97.18 | 47.04845 | 87.08196 | 321.27 | 11.88 | 37 | 97.20 | 47.05 | 87.08 | 320.87 | 11.90 | 0.02 |
| 38 | 97.21 | 47.03927 | 87.06406 | 321.70 | 11.88 | 38 | 97.23 | 47.04 | 87.06 | 321.30 | 11.90 | 0.02 |
| 39 | 97.25 | 47.02988 | 87.04639 | 322.13 | 11.88 | 39 | 97.27 | 47.03 | 87.05 | 321.73 | 11.90 | 0.02 |
| 40 | 97.28 | 47.02028 | 87.02897 | 322.56 | 11.88 | 40 | 97.30 | 47.02 | 87.03 | 322.16 | 11.90 | 0.02 |
| 41 | 97.31 | 47.01046 | 87.0118 | 322.99 | 11.88 | 41 | 97.33 | 47.01 | 87.01 | 322.59 | 11.90 | 0.02 |
| 42 | 97.35 | 47.00043 | 86.99488 | 323.42 | 11.88 | 42 | 97.36 | 47.00 | 86.99 | 323.02 | 11.90 | 0.01 |
| 43 | 97.38 | 46.9902 | 86.97822 | 323.85 | 11.88 | 43 | 97.40 | 46.99 | 86.98 | 323.45 | 11.90 | 0.02 |
| 44 | 97.41 | 46.97976 | 86.96183 | 324.28 | 11.88 | 44 | 97.43 | 46.98 | 86.96 | 323.88 | 11.90 | 0.02 |
| 45 | 97.45 | 46.96913 | 86.9457 | 324.71 | 11.88 | 45 | 97.47 | 46.97 | 86.95 | 324.31 | 11.90 | 0.02 |
| 46 | 97.46 | 46.95816 | 86.93007 | 324.86 | 11.88 | 46 | 97.48 | 46.96 | 86.93 | 324.46 | 11.90 | 0.02 |
| 47 | 97.47 | 46.94701 | 86.91472 | 325.00 | 11.88 | 47 | 97.49 | 46.95 | 86.91 | 324.60 | 11.90 | 0.02 |
| 48 | 97.48 | 46.93567 | 86.89966 | 325.14 | 11.88 | 48 | 97.50 | 46.94 | 86.90 | 324.74 | 11.90 | 0.02 |
| 49 | 97.49 | 46.92415 | 86.88491 | 325.29 | 11.88 | 49 | 97.51 | 46.92 | 86.88 | 324.89 | 11.90 | 0.02 |
| 50 | 97.50 | 46.91245 | 86.87045 | 325.43 | 11.88 | 50 | 97.52 | 46.91 | 86.87 | 325.03 | 11.90 | 0.02 |
| 51 | 97.51 | 46.90058 | 86.8563 | 325.58 | 11.88 | 51 | 97.53 | 46.90 | 86.86 | 325.18 | 11.90 | 0.02 |
| 52 | 97.52 | 46.88854 | 86.84245 | 325.72 | 11.88 | 52 | 97.54 | 46.89 | 86.84 | 325.32 | 11.90 | 0.02 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| **Assigned Repack Baseline .csv File Data** | | | | | | | **Proposed Facility .csv File Data (tvixcontour.csv)** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 53 | 97.54 | 46.87633 | 86.82893 | 325.87 | 11.88 | | 53 | 97.56 | 46.88 | 86.83 | 325.47 | 11.90 | 0.02 |
| 54 | 97.55 | 46.86396 | 86.81572 | 326.01 | 11.88 | | 54 | 97.57 | 46.86 | 86.82 | 325.61 | 11.90 | 0.02 |
| 55 | 97.56 | 46.85143 | 86.80283 | 326.16 | 11.88 | | 55 | 97.58 | 46.85 | 86.80 | 325.76 | 11.90 | 0.02 |
| 56 | 97.57 | 46.83875 | 86.79027 | 326.30 | 11.88 | | 56 | 97.59 | 46.84 | 86.79 | 325.90 | 11.90 | 0.02 |
| 57 | 97.58 | 46.82591 | 86.77804 | 326.44 | 11.88 | | 57 | 97.60 | 46.83 | 86.78 | 326.04 | 11.90 | 0.02 |
| 58 | 97.59 | 46.81293 | 86.76614 | 326.59 | 11.88 | | 58 | 97.61 | 46.81 | 86.77 | 326.19 | 11.90 | 0.02 |
| 59 | 97.60 | 46.79981 | 86.75458 | 326.73 | 11.88 | | 59 | 97.62 | 46.80 | 86.75 | 326.33 | 11.90 | 0.02 |
| 60 | 97.62 | 46.78654 | 86.74336 | 326.88 | 11.88 | | 60 | 97.63 | 46.79 | 86.74 | 326.48 | 11.90 | 0.01 |
| 61 | 97.63 | 46.77315 | 86.73248 | 327.02 | 11.88 | | 61 | 97.65 | 46.77 | 86.73 | 326.62 | 11.90 | 0.02 |
| 62 | 97.64 | 46.75962 | 86.72195 | 327.17 | 11.88 | | 62 | 97.66 | 46.76 | 86.72 | 326.77 | 11.90 | 0.02 |
| 63 | 97.65 | 46.74596 | 86.71178 | 327.31 | 11.88 | | 63 | 97.67 | 46.75 | 86.71 | 326.91 | 11.90 | 0.02 |
| 64 | 97.66 | 46.73219 | 86.70195 | 327.45 | 11.88 | | 64 | 97.68 | 46.73 | 86.70 | 327.05 | 11.90 | 0.02 |
| 65 | 97.67 | 46.71829 | 86.69248 | 327.60 | 11.88 | | 65 | 97.69 | 46.72 | 86.69 | 327.20 | 11.90 | 0.02 |
| 66 | 97.68 | 46.70429 | 86.68337 | 327.74 | 11.88 | | 66 | 97.70 | 46.70 | 86.68 | 327.34 | 11.90 | 0.02 |
| 67 | 97.69 | 46.69017 | 86.67462 | 327.89 | 11.88 | | 67 | 97.71 | 46.69 | 86.67 | 327.49 | 11.90 | 0.02 |
| 68 | 97.71 | 46.67595 | 86.66623 | 328.03 | 11.88 | | 68 | 97.73 | 46.68 | 86.67 | 327.63 | 11.90 | 0.02 |
| 69 | 97.72 | 46.66163 | 86.65822 | 328.18 | 11.88 | | 69 | 97.74 | 46.66 | 86.66 | 327.78 | 11.90 | 0.02 |
| 70 | 97.73 | 46.64721 | 86.65056 | 328.32 | 11.88 | | 70 | 97.75 | 46.65 | 86.65 | 327.92 | 11.90 | 0.02 |
| 71 | 97.74 | 46.6327 | 86.64329 | 328.46 | 11.88 | | 71 | 97.76 | 46.63 | 86.64 | 328.06 | 11.90 | 0.02 |
| 72 | 97.75 | 46.6181 | 86.63638 | 328.61 | 11.88 | | 72 | 97.77 | 46.62 | 86.64 | 328.21 | 11.90 | 0.02 |
| 73 | 97.76 | 46.60342 | 86.62985 | 328.75 | 11.88 | | 73 | 97.78 | 46.60 | 86.63 | 328.35 | 11.90 | 0.02 |
| 74 | 97.77 | 46.58866 | 86.62369 | 328.90 | 11.88 | | 74 | 97.79 | 46.59 | 86.62 | 328.50 | 11.90 | 0.02 |
| 75 | 97.79 | 46.57383 | 86.61791 | 329.04 | 11.88 | | 75 | 97.81 | 46.57 | 86.62 | 328.64 | 11.90 | 0.02 |
| 76 | 97.80 | 46.55893 | 86.61252 | 329.19 | 11.88 | | 76 | 97.82 | 46.56 | 86.61 | 328.79 | 11.90 | 0.02 |
| 77 | 97.81 | 46.54397 | 86.6075 | 329.33 | 11.88 | | 77 | 97.83 | 46.54 | 86.61 | 328.93 | 11.90 | 0.02 |
| 78 | 97.82 | 46.52894 | 86.60287 | 329.47 | 11.88 | | 78 | 97.84 | 46.53 | 86.60 | 329.07 | 11.90 | 0.02 |
| 79 | 97.83 | 46.51386 | 86.59862 | 329.62 | 11.88 | | 79 | 97.85 | 46.51 | 86.60 | 329.22 | 11.90 | 0.02 |
| 80 | 97.84 | 46.49873 | 86.59475 | 329.76 | 11.88 | | 80 | 97.86 | 46.50 | 86.59 | 329.36 | 11.90 | 0.02 |
| 81 | 97.85 | 46.48356 | 86.59127 | 329.91 | 11.88 | | 81 | 97.87 | 46.48 | 86.59 | 329.51 | 11.90 | 0.02 |
| 82 | 97.87 | 46.46834 | 86.58818 | 330.05 | 11.88 | | 82 | 97.89 | 46.47 | 86.59 | 329.65 | 11.90 | 0.02 |
| 83 | 97.88 | 46.45309 | 86.58547 | 330.20 | 11.88 | | 83 | 97.90 | 46.45 | 86.59 | 329.80 | 11.90 | 0.02 |
| 84 | 97.89 | 46.4378 | 86.58315 | 330.34 | 11.88 | | 84 | 97.91 | 46.44 | 86.58 | 329.94 | 11.90 | 0.02 |
| 85 | 97.90 | 46.42249 | 86.58122 | 330.48 | 11.88 | | 85 | 97.92 | 46.42 | 86.58 | 330.08 | 11.90 | 0.02 |
| 86 | 97.91 | 46.40715 | 86.57968 | 330.63 | 11.88 | | 86 | 97.93 | 46.41 | 86.58 | 330.23 | 11.90 | 0.02 |
| 87 | 97.92 | 46.39179 | 86.57853 | 330.77 | 11.88 | | 87 | 97.94 | 46.39 | 86.58 | 330.37 | 11.90 | 0.02 |
| 88 | 97.94 | 46.37643 | 86.57776 | 330.92 | 11.88 | | 88 | 97.95 | 46.38 | 86.58 | 330.52 | 11.90 | 0.01 |
| 89 | 97.95 | 46.36105 | 86.57739 | 331.06 | 11.88 | | 89 | 97.97 | 46.36 | 86.58 | 330.66 | 11.90 | 0.02 |
| 90 | 97.96 | 46.34567 | 86.5774 | 331.21 | 11.88 | | 90 | 97.98 | 46.35 | 86.58 | 330.81 | 11.90 | 0.02 |
| 91 | 98.00 | 46.33028 | 86.57747 | 331.67 | 11.88 | | 91 | 98.01 | 46.33 | 86.58 | 331.27 | 11.90 | 0.01 |
| 92 | 98.03 | 46.31489 | 86.57793 | 332.13 | 11.88 | | 92 | 98.05 | 46.31 | 86.58 | 331.73 | 11.90 | 0.02 |
| 93 | 98.07 | 46.2995 | 86.57877 | 332.59 | 11.88 | | 93 | 98.09 | 46.30 | 86.58 | 332.19 | 11.90 | 0.02 |
| 94 | 98.11 | 46.28412 | 86.58001 | 333.06 | 11.88 | | 94 | 98.13 | 46.28 | 86.58 | 332.66 | 11.90 | 0.02 |
| 95 | 98.14 | 46.26875 | 86.58163 | 333.52 | 11.88 | | 95 | 98.16 | 46.27 | 86.58 | 333.12 | 11.90 | 0.02 |
| 96 | 98.18 | 46.2534 | 86.58364 | 333.98 | 11.88 | | 96 | 98.20 | 46.25 | 86.58 | 333.58 | 11.90 | 0.02 |
| 97 | 98.22 | 46.23806 | 86.58604 | 334.44 | 11.88 | | 97 | 98.24 | 46.24 | 86.59 | 334.04 | 11.90 | 0.02 |
| 98 | 98.26 | 46.22276 | 86.58882 | 334.91 | 11.88 | | 98 | 98.28 | 46.22 | 86.59 | 334.51 | 11.90 | 0.02 |
| 99 | 98.29 | 46.20748 | 86.59199 | 335.37 | 11.88 | | 99 | 98.31 | 46.21 | 86.59 | 334.97 | 11.90 | 0.02 |
| 100 | 98.33 | 46.19223 | 86.59554 | 335.83 | 11.88 | | 100 | 98.35 | 46.19 | 86.60 | 335.43 | 11.90 | 0.02 |
| 101 | 98.37 | 46.17703 | 86.59948 | 336.30 | 11.88 | | 101 | 98.39 | 46.18 | 86.60 | 335.90 | 11.90 | 0.02 |
| 102 | 98.41 | 46.16187 | 86.60379 | 336.76 | 11.88 | | 102 | 98.43 | 46.16 | 86.60 | 336.36 | 11.90 | 0.02 |
| 103 | 98.44 | 46.14676 | 86.60849 | 337.22 | 11.88 | | 103 | 98.46 | 46.15 | 86.61 | 336.82 | 11.90 | 0.02 |
| 104 | 98.48 | 46.1317 | 86.61357 | 337.68 | 11.88 | | 104 | 98.50 | 46.13 | 86.61 | 337.28 | 11.90 | 0.02 |
| 105 | 98.52 | 46.1167 | 86.61902 | 338.15 | 11.88 | | 105 | 98.54 | 46.12 | 86.62 | 337.75 | 11.90 | 0.02 |
| 106 | 98.56 | 46.10176 | 86.62485 | 338.61 | 11.88 | | 106 | 98.58 | 46.10 | 86.62 | 338.21 | 11.90 | 0.02 |
| 107 | 98.59 | 46.08689 | 86.63106 | 339.07 | 11.88 | | 107 | 98.61 | 46.09 | 86.63 | 338.67 | 11.90 | 0.02 |
| 108 | 98.63 | 46.07209 | 86.63764 | 339.53 | 11.88 | | 108 | 98.65 | 46.07 | 86.64 | 339.13 | 11.90 | 0.02 |
| 109 | 98.67 | 46.05736 | 86.64458 | 340.00 | 11.88 | | 109 | 98.69 | 46.06 | 86.64 | 339.60 | 11.90 | 0.02 |
| 110 | 98.71 | 46.04272 | 86.6519 | 340.46 | 11.88 | | 110 | 98.73 | 46.04 | 86.65 | 340.06 | 11.90 | 0.02 |
| 111 | 98.74 | 46.02816 | 86.65958 | 340.92 | 11.88 | | 111 | 98.76 | 46.03 | 86.66 | 340.52 | 11.90 | 0.02 |
| 112 | 98.78 | 46.01369 | 86.66762 | 341.39 | 11.88 | | 112 | 98.80 | 46.01 | 86.67 | 340.99 | 11.90 | 0.02 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| Assigned Repack Baseline .csv File Data | | | | | | Proposed Facility .csv File Data (tvixcontour.csv) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 113 | 98.82 | 45.99931 | 86.67602 | 341.85 | 11.88 | 113 | 98.84 | 46.00 | 86.68 | 341.45 | 11.90 | 0.02 |
| 114 | 98.86 | 45.98503 | 86.68479 | 342.31 | 11.88 | 114 | 98.88 | 45.98 | 86.68 | 341.91 | 11.90 | 0.02 |
| 115 | 98.90 | 45.97086 | 86.69391 | 342.77 | 11.88 | 115 | 98.91 | 45.97 | 86.69 | 342.37 | 11.90 | 0.01 |
| 116 | 98.93 | 45.95679 | 86.70338 | 343.24 | 11.88 | 116 | 98.95 | 45.96 | 86.70 | 342.84 | 11.90 | 0.02 |
| 117 | 98.97 | 45.94283 | 86.71321 | 343.70 | 11.88 | 117 | 98.99 | 45.94 | 86.71 | 343.30 | 11.90 | 0.02 |
| 118 | 99.01 | 45.92898 | 86.72338 | 344.16 | 11.88 | 118 | 99.03 | 45.93 | 86.72 | 343.76 | 11.90 | 0.02 |
| 119 | 99.05 | 45.91526 | 86.7339 | 344.62 | 11.88 | 119 | 99.07 | 45.92 | 86.73 | 344.22 | 11.90 | 0.02 |
| 120 | 99.08 | 45.90166 | 86.74476 | 345.09 | 11.88 | 120 | 99.10 | 45.90 | 86.74 | 344.69 | 11.90 | 0.02 |
| 121 | 99.12 | 45.88819 | 86.75595 | 345.55 | 11.88 | 121 | 99.14 | 45.89 | 86.76 | 345.15 | 11.90 | 0.02 |
| 122 | 99.16 | 45.87485 | 86.76749 | 346.01 | 11.88 | 122 | 99.18 | 45.87 | 86.77 | 345.61 | 11.90 | 0.02 |
| 123 | 99.20 | 45.86164 | 86.77935 | 346.47 | 11.88 | 123 | 99.22 | 45.86 | 86.78 | 346.07 | 11.90 | 0.02 |
| 124 | 99.23 | 45.84858 | 86.79155 | 346.94 | 11.88 | 124 | 99.25 | 45.85 | 86.79 | 346.54 | 11.90 | 0.02 |
| 125 | 99.27 | 45.83566 | 86.80407 | 347.40 | 11.88 | 125 | 99.29 | 45.84 | 86.80 | 347.00 | 11.90 | 0.02 |
| 126 | 99.31 | 45.82289 | 86.81691 | 347.86 | 11.88 | 126 | 99.33 | 45.82 | 86.82 | 347.46 | 11.90 | 0.02 |
| 127 | 99.35 | 45.81027 | 86.83006 | 348.33 | 11.88 | 127 | 99.37 | 45.81 | 86.83 | 347.93 | 11.90 | 0.02 |
| 128 | 99.38 | 45.7978 | 86.84354 | 348.79 | 11.88 | 128 | 99.40 | 45.80 | 86.84 | 348.39 | 11.90 | 0.02 |
| 129 | 99.42 | 45.7855 | 86.85732 | 349.25 | 11.88 | 129 | 99.44 | 45.79 | 86.86 | 348.85 | 11.90 | 0.02 |
| 130 | 99.46 | 45.77336 | 86.8714 | 349.71 | 11.88 | 130 | 99.48 | 45.77 | 86.87 | 349.31 | 11.90 | 0.02 |
| 131 | 99.50 | 45.76139 | 86.88579 | 350.18 | 11.88 | 131 | 99.52 | 45.76 | 86.89 | 349.78 | 11.90 | 0.02 |
| 132 | 99.53 | 45.74958 | 86.90047 | 350.64 | 11.88 | 132 | 99.55 | 45.75 | 86.90 | 350.24 | 11.90 | 0.02 |
| 133 | 99.57 | 45.73795 | 86.91545 | 351.10 | 11.88 | 133 | 99.59 | 45.74 | 86.92 | 350.70 | 11.90 | 0.02 |
| 134 | 99.61 | 45.7265 | 86.93071 | 351.56 | 11.88 | 134 | 99.63 | 45.73 | 86.93 | 351.16 | 11.90 | 0.02 |
| 135 | 99.65 | 45.71523 | 86.94626 | 352.03 | 11.88 | 135 | 99.67 | 45.72 | 86.95 | 351.63 | 11.90 | 0.02 |
| 136 | 99.64 | 45.70444 | 86.96248 | 351.94 | 11.88 | 136 | 99.66 | 45.70 | 86.96 | 351.54 | 11.90 | 0.02 |
| 137 | 99.63 | 45.69384 | 86.97896 | 351.85 | 11.88 | 137 | 99.65 | 45.69 | 86.98 | 351.45 | 11.90 | 0.02 |
| 138 | 99.62 | 45.68345 | 86.99569 | 351.76 | 11.88 | 138 | 99.64 | 45.68 | 87.00 | 351.36 | 11.90 | 0.02 |
| 139 | 99.62 | 45.67326 | 87.01268 | 351.68 | 11.88 | 139 | 99.64 | 45.67 | 87.01 | 351.28 | 11.90 | 0.02 |
| 140 | 99.61 | 45.66327 | 87.02991 | 351.59 | 11.88 | 140 | 99.63 | 45.66 | 87.03 | 351.19 | 11.90 | 0.02 |
| 141 | 99.60 | 45.6535 | 87.04738 | 351.50 | 11.88 | 141 | 99.62 | 45.65 | 87.05 | 351.10 | 11.90 | 0.02 |
| 142 | 99.60 | 45.64394 | 87.06508 | 351.41 | 11.88 | 142 | 99.62 | 45.64 | 87.06 | 351.01 | 11.90 | 0.02 |
| 143 | 99.59 | 45.63459 | 87.08301 | 351.32 | 11.88 | 143 | 99.61 | 45.63 | 87.08 | 350.92 | 11.90 | 0.02 |
| 144 | 99.58 | 45.62546 | 87.10117 | 351.24 | 11.88 | 144 | 99.60 | 45.63 | 87.10 | 350.84 | 11.90 | 0.02 |
| 145 | 99.57 | 45.61656 | 87.11954 | 351.15 | 11.88 | 145 | 99.59 | 45.62 | 87.12 | 350.75 | 11.90 | 0.02 |
| 146 | 99.57 | 45.60787 | 87.13813 | 351.06 | 11.88 | 146 | 99.59 | 45.61 | 87.14 | 350.66 | 11.90 | 0.02 |
| 147 | 99.56 | 45.59941 | 87.15692 | 350.97 | 11.88 | 147 | 99.58 | 45.60 | 87.16 | 350.57 | 11.90 | 0.02 |
| 148 | 99.55 | 45.59118 | 87.17591 | 350.88 | 11.88 | 148 | 99.57 | 45.59 | 87.18 | 350.48 | 11.90 | 0.02 |
| 149 | 99.55 | 45.58318 | 87.1951 | 350.80 | 11.88 | 149 | 99.57 | 45.58 | 87.19 | 350.40 | 11.90 | 0.02 |
| 150 | 99.54 | 45.57541 | 87.21448 | 350.71 | 11.88 | 150 | 99.56 | 45.58 | 87.21 | 350.31 | 11.90 | 0.02 |
| 151 | 99.53 | 45.56788 | 87.23404 | 350.62 | 11.88 | 151 | 99.55 | 45.57 | 87.23 | 350.22 | 11.90 | 0.02 |
| 152 | 99.53 | 45.56059 | 87.25378 | 350.53 | 11.88 | 152 | 99.54 | 45.56 | 87.25 | 350.13 | 11.90 | 0.01 |
| 153 | 99.52 | 45.55353 | 87.27369 | 350.45 | 11.88 | 153 | 99.54 | 45.55 | 87.27 | 350.05 | 11.90 | 0.02 |
| 154 | 99.51 | 45.54672 | 87.29377 | 350.36 | 11.88 | 154 | 99.53 | 45.55 | 87.29 | 349.96 | 11.90 | 0.02 |
| 155 | 99.50 | 45.54015 | 87.31401 | 350.27 | 11.88 | 155 | 99.52 | 45.54 | 87.31 | 349.87 | 11.90 | 0.02 |
| 156 | 99.50 | 45.53382 | 87.33441 | 350.18 | 11.88 | 156 | 99.52 | 45.53 | 87.33 | 349.78 | 11.90 | 0.02 |
| 157 | 99.49 | 45.52774 | 87.35495 | 350.09 | 11.88 | 157 | 99.51 | 45.53 | 87.35 | 349.69 | 11.90 | 0.02 |
| 158 | 99.48 | 45.52191 | 87.37564 | 350.01 | 11.88 | 158 | 99.50 | 45.52 | 87.38 | 349.61 | 11.90 | 0.02 |
| 159 | 99.48 | 45.51633 | 87.39646 | 349.92 | 11.88 | 159 | 99.49 | 45.52 | 87.40 | 349.52 | 11.90 | 0.01 |
| 160 | 99.47 | 45.511 | 87.41741 | 349.83 | 11.88 | 160 | 99.49 | 45.51 | 87.42 | 349.43 | 11.90 | 0.02 |
| 161 | 99.46 | 45.50593 | 87.43849 | 349.74 | 11.88 | 161 | 99.48 | 45.51 | 87.44 | 349.34 | 11.90 | 0.02 |
| 162 | 99.45 | 45.50111 | 87.45968 | 349.65 | 11.88 | 162 | 99.47 | 45.50 | 87.46 | 349.25 | 11.90 | 0.02 |
| 163 | 99.45 | 45.49655 | 87.48099 | 349.57 | 11.88 | 163 | 99.47 | 45.50 | 87.48 | 349.17 | 11.90 | 0.02 |
| 164 | 99.44 | 45.49224 | 87.5024 | 349.48 | 11.88 | 164 | 99.46 | 45.49 | 87.50 | 349.08 | 11.90 | 0.02 |
| 165 | 99.43 | 45.4882 | 87.52391 | 349.39 | 11.88 | 165 | 99.45 | 45.49 | 87.52 | 348.99 | 11.90 | 0.02 |
| 166 | 99.43 | 45.48441 | 87.54551 | 349.30 | 11.88 | 166 | 99.44 | 45.48 | 87.55 | 348.90 | 11.90 | 0.01 |
| 167 | 99.42 | 45.48088 | 87.5672 | 349.22 | 11.88 | 167 | 99.44 | 45.48 | 87.57 | 348.82 | 11.90 | 0.02 |
| 168 | 99.41 | 45.47762 | 87.58898 | 349.13 | 11.88 | 168 | 99.43 | 45.48 | 87.59 | 348.73 | 11.90 | 0.02 |
| 169 | 99.40 | 45.47462 | 87.61082 | 349.04 | 11.88 | 169 | 99.42 | 45.47 | 87.61 | 348.64 | 11.90 | 0.02 |
| 170 | 99.40 | 45.47188 | 87.63273 | 348.95 | 11.88 | 170 | 99.42 | 45.47 | 87.63 | 348.55 | 11.90 | 0.02 |
| 171 | 99.39 | 45.46941 | 87.65471 | 348.86 | 11.88 | 171 | 99.41 | 45.47 | 87.65 | 348.46 | 11.90 | 0.02 |
| 172 | 99.38 | 45.4672 | 87.67673 | 348.78 | 11.88 | 172 | 99.40 | 45.47 | 87.68 | 348.38 | 11.90 | 0.02 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| Assigned Repack Baseline .csv File Data | | | | | | Proposed Facility .csv File Data (tvixcontour.csv) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 173 | 99.38 | 45.46526 | 87.69881 | 348.69 | 11.88 | 173 | 99.40 | 45.47 | 87.70 | 348.29 | 11.90 | 0.02 |
| 174 | 99.37 | 45.46359 | 87.72093 | 348.60 | 11.88 | 174 | 99.39 | 45.46 | 87.72 | 348.20 | 11.90 | 0.02 |
| 175 | 99.36 | 45.46218 | 87.74308 | 348.51 | 11.88 | 175 | 99.38 | 45.46 | 87.74 | 348.11 | 11.90 | 0.02 |
| 176 | 99.35 | 45.46104 | 87.76527 | 348.42 | 11.88 | 176 | 99.37 | 45.46 | 87.77 | 348.02 | 11.90 | 0.02 |
| 177 | 99.35 | 45.46017 | 87.78747 | 348.34 | 11.88 | 177 | 99.37 | 45.46 | 87.79 | 347.94 | 11.90 | 0.02 |
| 178 | 99.34 | 45.45956 | 87.8097 | 348.25 | 11.88 | 178 | 99.36 | 45.46 | 87.81 | 347.85 | 11.90 | 0.02 |
| 179 | 99.33 | 45.45922 | 87.83193 | 348.16 | 11.88 | 179 | 99.35 | 45.46 | 87.83 | 347.76 | 11.90 | 0.02 |
| 180 | 99.33 | 45.45915 | 87.85416 | 348.07 | 11.88 | 180 | 99.35 | 45.46 | 87.85 | 347.67 | 11.90 | 0.02 |
| 181 | 99.27 | 45.45975 | 87.87639 | 347.44 | 11.88 | 181 | 99.29 | 45.46 | 87.88 | 347.04 | 11.90 | 0.02 |
| 182 | 99.22 | 45.46061 | 87.89858 | 346.80 | 11.88 | 182 | 99.24 | 45.46 | 87.90 | 346.40 | 11.90 | 0.02 |
| 183 | 99.17 | 45.46175 | 87.92074 | 346.17 | 11.88 | 183 | 99.19 | 45.46 | 87.92 | 345.77 | 11.90 | 0.02 |
| 184 | 99.12 | 45.46315 | 87.94285 | 345.53 | 11.88 | 184 | 99.14 | 45.46 | 87.94 | 345.13 | 11.90 | 0.02 |
| 185 | 99.07 | 45.46481 | 87.96492 | 344.90 | 11.88 | 185 | 99.09 | 45.46 | 87.96 | 344.50 | 11.90 | 0.02 |
| 186 | 99.02 | 45.46674 | 87.98693 | 344.26 | 11.88 | 186 | 99.04 | 45.47 | 87.99 | 343.86 | 11.90 | 0.02 |
| 187 | 98.96 | 45.46893 | 88.00888 | 343.63 | 11.88 | 187 | 98.98 | 45.47 | 88.01 | 343.23 | 11.90 | 0.02 |
| 188 | 98.91 | 45.47139 | 88.03077 | 342.99 | 11.88 | 188 | 98.93 | 45.47 | 88.03 | 342.59 | 11.90 | 0.02 |
| 189 | 98.86 | 45.47411 | 88.05258 | 342.36 | 11.88 | 189 | 98.88 | 45.47 | 88.05 | 341.96 | 11.90 | 0.02 |
| 190 | 98.81 | 45.47709 | 88.07431 | 341.72 | 11.88 | 190 | 98.83 | 45.48 | 88.07 | 341.32 | 11.90 | 0.02 |
| 191 | 98.76 | 45.48034 | 88.09595 | 341.09 | 11.88 | 191 | 98.78 | 45.48 | 88.10 | 340.69 | 11.90 | 0.02 |
| 192 | 98.71 | 45.48384 | 88.1175 | 340.45 | 11.88 | 192 | 98.72 | 45.48 | 88.12 | 340.05 | 11.90 | 0.01 |
| 193 | 98.65 | 45.48759 | 88.13895 | 339.81 | 11.88 | 193 | 98.67 | 45.49 | 88.14 | 339.41 | 11.90 | 0.02 |
| 194 | 98.60 | 45.4916 | 88.1603 | 339.18 | 11.88 | 194 | 98.62 | 45.49 | 88.16 | 338.78 | 11.90 | 0.02 |
| 195 | 98.55 | 45.49587 | 88.18153 | 338.54 | 11.88 | 195 | 98.57 | 45.50 | 88.18 | 338.14 | 11.90 | 0.02 |
| 196 | 98.50 | 45.50038 | 88.20265 | 337.91 | 11.88 | 196 | 98.52 | 45.50 | 88.20 | 337.51 | 11.90 | 0.02 |
| 197 | 98.45 | 45.50515 | 88.22365 | 337.27 | 11.88 | 197 | 98.47 | 45.50 | 88.22 | 336.87 | 11.90 | 0.02 |
| 198 | 98.40 | 45.51017 | 88.24452 | 336.64 | 11.88 | 198 | 98.42 | 45.51 | 88.24 | 336.24 | 11.90 | 0.02 |
| 199 | 98.35 | 45.51544 | 88.26525 | 336.00 | 11.88 | 199 | 98.36 | 45.52 | 88.27 | 335.60 | 11.90 | 0.01 |
| 200 | 98.29 | 45.52095 | 88.28584 | 335.37 | 11.88 | 200 | 98.31 | 45.52 | 88.29 | 334.97 | 11.90 | 0.02 |
| 201 | 98.24 | 45.52671 | 88.30628 | 334.73 | 11.88 | 201 | 98.26 | 45.53 | 88.31 | 334.33 | 11.90 | 0.02 |
| 202 | 98.19 | 45.5327 | 88.32657 | 334.10 | 11.88 | 202 | 98.21 | 45.53 | 88.33 | 333.70 | 11.90 | 0.02 |
| 203 | 98.14 | 45.53894 | 88.34671 | 333.46 | 11.88 | 203 | 98.16 | 45.54 | 88.35 | 333.06 | 11.90 | 0.02 |
| 204 | 98.09 | 45.54542 | 88.36667 | 332.83 | 11.88 | 204 | 98.11 | 45.55 | 88.37 | 332.43 | 11.90 | 0.02 |
| 205 | 98.04 | 45.55213 | 88.38647 | 332.19 | 11.88 | 205 | 98.06 | 45.55 | 88.39 | 331.79 | 11.90 | 0.02 |
| 206 | 97.99 | 45.55908 | 88.40609 | 331.56 | 11.88 | 206 | 98.01 | 45.56 | 88.41 | 331.16 | 11.90 | 0.02 |
| 207 | 97.94 | 45.56626 | 88.42554 | 330.92 | 11.88 | 207 | 97.95 | 45.57 | 88.43 | 330.52 | 11.90 | 0.01 |
| 208 | 97.88 | 45.57367 | 88.44479 | 330.29 | 11.88 | 208 | 97.90 | 45.57 | 88.44 | 329.89 | 11.90 | 0.02 |
| 209 | 97.83 | 45.5813 | 88.46386 | 329.65 | 11.88 | 209 | 97.85 | 45.58 | 88.46 | 329.25 | 11.90 | 0.02 |
| 210 | 97.78 | 45.58915 | 88.48272 | 329.02 | 11.88 | 210 | 97.80 | 45.59 | 88.48 | 328.62 | 11.90 | 0.02 |
| 211 | 97.73 | 45.59723 | 88.50139 | 328.38 | 11.88 | 211 | 97.75 | 45.60 | 88.50 | 327.98 | 11.90 | 0.02 |
| 212 | 97.68 | 45.60552 | 88.51985 | 327.74 | 11.88 | 212 | 97.70 | 45.61 | 88.52 | 327.34 | 11.90 | 0.02 |
| 213 | 97.63 | 45.61403 | 88.53809 | 327.11 | 11.88 | 213 | 97.65 | 45.61 | 88.54 | 326.71 | 11.90 | 0.02 |
| 214 | 97.58 | 45.62276 | 88.55612 | 326.47 | 11.88 | 214 | 97.60 | 45.62 | 88.56 | 326.07 | 11.90 | 0.02 |
| 215 | 97.53 | 45.63169 | 88.57393 | 325.84 | 11.88 | 215 | 97.55 | 45.63 | 88.57 | 325.44 | 11.90 | 0.02 |
| 216 | 97.48 | 45.64083 | 88.5915 | 325.20 | 11.88 | 216 | 97.50 | 45.64 | 88.59 | 324.80 | 11.90 | 0.02 |
| 217 | 97.43 | 45.65018 | 88.60884 | 324.57 | 11.88 | 217 | 97.45 | 45.65 | 88.61 | 324.17 | 11.90 | 0.02 |
| 218 | 97.39 | 45.65973 | 88.62595 | 323.93 | 11.88 | 218 | 97.40 | 45.66 | 88.63 | 323.53 | 11.90 | 0.01 |
| 219 | 97.34 | 45.66948 | 88.64281 | 323.30 | 11.88 | 219 | 97.36 | 45.67 | 88.64 | 322.90 | 11.90 | 0.02 |
| 220 | 97.29 | 45.67943 | 88.65942 | 322.66 | 11.88 | 220 | 97.31 | 45.68 | 88.66 | 322.26 | 11.90 | 0.02 |
| 221 | 97.24 | 45.68956 | 88.67578 | 322.03 | 11.88 | 221 | 97.26 | 45.69 | 88.68 | 321.63 | 11.90 | 0.02 |
| 222 | 97.19 | 45.69989 | 88.69189 | 321.39 | 11.88 | 222 | 97.21 | 45.70 | 88.69 | 320.99 | 11.90 | 0.02 |
| 223 | 97.14 | 45.71041 | 88.70773 | 320.76 | 11.88 | 223 | 97.16 | 45.71 | 88.71 | 320.36 | 11.90 | 0.02 |
| 224 | 97.09 | 45.7211 | 88.72331 | 320.12 | 11.88 | 224 | 97.11 | 45.72 | 88.72 | 319.72 | 11.90 | 0.02 |
| 225 | 97.04 | 45.73198 | 88.73861 | 319.49 | 11.88 | 225 | 97.06 | 45.73 | 88.74 | 319.09 | 11.90 | 0.02 |
| 226 | 97.02 | 45.74287 | 88.75388 | 319.19 | 11.88 | 226 | 97.04 | 45.74 | 88.75 | 318.79 | 11.90 | 0.02 |
| 227 | 97.00 | 45.75394 | 88.76888 | 318.89 | 11.88 | 227 | 97.02 | 45.75 | 88.77 | 318.49 | 11.90 | 0.02 |
| 228 | 96.98 | 45.76518 | 88.7836 | 318.59 | 11.88 | 228 | 97.00 | 45.77 | 88.78 | 318.19 | 11.90 | 0.02 |
| 229 | 96.95 | 45.7766 | 88.79804 | 318.29 | 11.88 | 229 | 96.97 | 45.78 | 88.80 | 317.89 | 11.90 | 0.02 |
| 230 | 96.93 | 45.78819 | 88.8122 | 317.99 | 11.88 | 230 | 96.95 | 45.79 | 88.81 | 317.59 | 11.90 | 0.02 |
| 231 | 96.91 | 45.79994 | 88.82606 | 317.69 | 11.88 | 231 | 96.93 | 45.80 | 88.83 | 317.29 | 11.90 | 0.02 |
| 232 | 96.89 | 45.81186 | 88.83964 | 317.40 | 11.88 | 232 | 96.91 | 45.81 | 88.84 | 317.00 | 11.90 | 0.02 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| **Assigned Repack Baseline .csv File Data** | | | | | | **Proposed Facility .csv File Data (tvixcontour.csv)** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 233 | 96.86 | 45.82394 | 88.85291 | 317.10 | 11.88 | 233 | 96.88 | 45.82 | 88.85 | 316.70 | 11.90 | 0.02 |
| 234 | 96.84 | 45.83617 | 88.86589 | 316.80 | 11.88 | 234 | 96.86 | 45.84 | 88.87 | 316.40 | 11.90 | 0.02 |
| 235 | 96.82 | 45.84855 | 88.87856 | 316.50 | 11.88 | 235 | 96.84 | 45.85 | 88.88 | 316.10 | 11.90 | 0.02 |
| 236 | 96.80 | 45.86108 | 88.89092 | 316.20 | 11.88 | 236 | 96.82 | 45.86 | 88.89 | 315.80 | 11.90 | 0.02 |
| 237 | 96.77 | 45.87375 | 88.90296 | 315.90 | 11.88 | 237 | 96.80 | 45.87 | 88.90 | 315.50 | 11.90 | 0.03 |
| 238 | 96.75 | 45.88656 | 88.91469 | 315.60 | 11.88 | 238 | 96.77 | 45.89 | 88.91 | 315.20 | 11.90 | 0.02 |
| 239 | 96.73 | 45.89951 | 88.92611 | 315.31 | 11.88 | 239 | 96.75 | 45.90 | 88.93 | 314.91 | 11.90 | 0.02 |
| 240 | 96.71 | 45.9126 | 88.93719 | 315.01 | 11.88 | 240 | 96.73 | 45.91 | 88.94 | 314.61 | 11.90 | 0.02 |
| 241 | 96.69 | 45.92581 | 88.94796 | 314.71 | 11.88 | 241 | 96.71 | 45.93 | 88.95 | 314.31 | 11.90 | 0.02 |
| 242 | 96.67 | 45.93914 | 88.95839 | 314.41 | 11.88 | 242 | 96.69 | 45.94 | 88.96 | 314.01 | 11.90 | 0.02 |
| 243 | 96.64 | 45.9526 | 88.96849 | 314.11 | 11.88 | 243 | 96.66 | 45.95 | 88.97 | 313.71 | 11.90 | 0.02 |
| 244 | 96.62 | 45.96617 | 88.97825 | 313.81 | 11.88 | 244 | 96.64 | 45.97 | 88.98 | 313.41 | 11.90 | 0.02 |
| 245 | 96.60 | 45.97985 | 88.98767 | 313.51 | 11.88 | 245 | 96.62 | 45.98 | 88.99 | 313.11 | 11.90 | 0.02 |
| 246 | 96.58 | 45.99365 | 88.99675 | 313.21 | 11.88 | 246 | 96.60 | 45.99 | 89.00 | 312.81 | 11.90 | 0.02 |
| 247 | 96.56 | 46.00754 | 89.00549 | 312.92 | 11.88 | 247 | 96.58 | 46.01 | 89.01 | 312.52 | 11.90 | 0.02 |
| 248 | 96.53 | 46.02154 | 89.01388 | 312.62 | 11.88 | 248 | 96.56 | 46.02 | 89.01 | 312.22 | 11.90 | 0.03 |
| 249 | 96.51 | 46.03563 | 89.02192 | 312.32 | 11.88 | 249 | 96.53 | 46.04 | 89.02 | 311.92 | 11.90 | 0.02 |
| 250 | 96.49 | 46.04982 | 89.0296 | 312.02 | 11.88 | 250 | 96.51 | 46.05 | 89.03 | 311.62 | 11.90 | 0.02 |
| 251 | 96.47 | 46.06409 | 89.03693 | 311.72 | 11.88 | 251 | 96.49 | 46.06 | 89.04 | 311.32 | 11.90 | 0.02 |
| 252 | 96.45 | 46.07844 | 89.04391 | 311.42 | 11.88 | 252 | 96.47 | 46.08 | 89.04 | 311.02 | 11.90 | 0.02 |
| 253 | 96.43 | 46.09287 | 89.05052 | 311.12 | 11.88 | 253 | 96.45 | 46.09 | 89.05 | 310.72 | 11.90 | 0.02 |
| 254 | 96.41 | 46.10738 | 89.05677 | 310.83 | 11.88 | 254 | 96.43 | 46.11 | 89.06 | 310.43 | 11.90 | 0.02 |
| 255 | 96.38 | 46.12195 | 89.06266 | 310.53 | 11.88 | 255 | 96.41 | 46.12 | 89.06 | 310.13 | 11.90 | 0.03 |
| 256 | 96.36 | 46.1366 | 89.06818 | 310.23 | 11.88 | 256 | 96.38 | 46.14 | 89.07 | 309.83 | 11.90 | 0.02 |
| 257 | 96.34 | 46.1513 | 89.07334 | 309.93 | 11.88 | 257 | 96.36 | 46.15 | 89.07 | 309.53 | 11.90 | 0.02 |
| 258 | 96.32 | 46.16606 | 89.07812 | 309.63 | 11.88 | 258 | 96.34 | 46.17 | 89.08 | 309.23 | 11.90 | 0.02 |
| 259 | 96.30 | 46.18087 | 89.08254 | 309.33 | 11.88 | 259 | 96.32 | 46.18 | 89.08 | 308.93 | 11.90 | 0.02 |
| 260 | 96.28 | 46.19573 | 89.08659 | 309.03 | 11.88 | 260 | 96.30 | 46.20 | 89.09 | 308.63 | 11.90 | 0.02 |
| 261 | 96.26 | 46.21063 | 89.09026 | 308.73 | 11.88 | 261 | 96.28 | 46.21 | 89.09 | 308.33 | 11.90 | 0.02 |
| 262 | 96.24 | 46.22557 | 89.09355 | 308.44 | 11.88 | 262 | 96.26 | 46.23 | 89.09 | 308.04 | 11.90 | 0.02 |
| 263 | 96.22 | 46.24054 | 89.09648 | 308.14 | 11.88 | 263 | 96.24 | 46.24 | 89.10 | 307.74 | 11.90 | 0.02 |
| 264 | 96.20 | 46.25555 | 89.09902 | 307.84 | 11.88 | 264 | 96.22 | 46.26 | 89.10 | 307.44 | 11.90 | 0.02 |
| 265 | 96.17 | 46.27058 | 89.10119 | 307.54 | 11.88 | 265 | 96.20 | 46.27 | 89.10 | 307.14 | 11.90 | 0.03 |
| 266 | 96.15 | 46.28563 | 89.10298 | 307.24 | 11.88 | 266 | 96.18 | 46.29 | 89.10 | 306.84 | 11.90 | 0.03 |
| 267 | 96.13 | 46.30069 | 89.10439 | 306.94 | 11.88 | 267 | 96.16 | 46.30 | 89.10 | 306.54 | 11.90 | 0.03 |
| 268 | 96.11 | 46.31577 | 89.10542 | 306.64 | 11.88 | 268 | 96.13 | 46.32 | 89.11 | 306.24 | 11.90 | 0.02 |
| 269 | 96.09 | 46.33085 | 89.10607 | 306.35 | 11.88 | 269 | 96.11 | 46.33 | 89.11 | 305.95 | 11.90 | 0.02 |
| 270 | 96.07 | 46.34594 | 89.10634 | 306.05 | 11.88 | 270 | 96.09 | 46.35 | 89.11 | 305.65 | 11.90 | 0.02 |
| 271 | 96.06 | 46.36102 | 89.10637 | 305.91 | 11.88 | 271 | 96.08 | 46.36 | 89.11 | 305.51 | 11.90 | 0.02 |
| 272 | 96.05 | 46.37611 | 89.10602 | 305.77 | 11.88 | 272 | 96.08 | 46.38 | 89.11 | 305.37 | 11.90 | 0.03 |
| 273 | 96.04 | 46.39118 | 89.10529 | 305.64 | 11.88 | 273 | 96.07 | 46.39 | 89.11 | 305.24 | 11.90 | 0.03 |
| 274 | 96.03 | 46.40624 | 89.10418 | 305.50 | 11.88 | 274 | 96.06 | 46.41 | 89.10 | 305.10 | 11.90 | 0.03 |
| 275 | 96.03 | 46.42128 | 89.10269 | 305.36 | 11.88 | 275 | 96.05 | 46.42 | 89.10 | 304.96 | 11.90 | 0.02 |
| 276 | 96.02 | 46.4363 | 89.10082 | 305.23 | 11.88 | 276 | 96.04 | 46.44 | 89.10 | 304.83 | 11.90 | 0.02 |
| 277 | 96.01 | 46.4513 | 89.09856 | 305.09 | 11.88 | 277 | 96.03 | 46.45 | 89.10 | 304.69 | 11.90 | 0.02 |
| 278 | 96.00 | 46.46626 | 89.09593 | 304.95 | 11.88 | 278 | 96.02 | 46.47 | 89.10 | 304.55 | 11.90 | 0.02 |
| 279 | 95.99 | 46.48119 | 89.09291 | 304.82 | 11.88 | 279 | 96.01 | 46.48 | 89.09 | 304.42 | 11.90 | 0.02 |
| 280 | 95.98 | 46.49608 | 89.08952 | 304.68 | 11.88 | 280 | 96.00 | 46.50 | 89.09 | 304.28 | 11.90 | 0.02 |
| 281 | 95.97 | 46.51093 | 89.08574 | 304.54 | 11.88 | 281 | 95.99 | 46.51 | 89.09 | 304.14 | 11.90 | 0.02 |
| 282 | 95.96 | 46.52572 | 89.0816 | 304.41 | 11.88 | 282 | 95.98 | 46.53 | 89.08 | 304.01 | 11.90 | 0.02 |
| 283 | 95.95 | 46.54046 | 89.07707 | 304.27 | 11.88 | 283 | 95.97 | 46.54 | 89.08 | 303.87 | 11.90 | 0.02 |
| 284 | 95.94 | 46.55515 | 89.07217 | 304.13 | 11.88 | 284 | 95.97 | 46.56 | 89.07 | 303.73 | 11.90 | 0.03 |
| 285 | 95.93 | 46.56977 | 89.0669 | 303.99 | 11.88 | 285 | 95.96 | 46.57 | 89.07 | 303.59 | 11.90 | 0.03 |
| 286 | 95.92 | 46.58432 | 89.06125 | 303.86 | 11.88 | 286 | 95.95 | 46.58 | 89.06 | 303.46 | 11.90 | 0.03 |
| 287 | 95.92 | 46.59881 | 89.05523 | 303.72 | 11.88 | 287 | 95.94 | 46.60 | 89.06 | 303.32 | 11.90 | 0.02 |
| 288 | 95.91 | 46.61321 | 89.04885 | 303.58 | 11.88 | 288 | 95.93 | 46.61 | 89.05 | 303.18 | 11.90 | 0.02 |
| 289 | 95.90 | 46.62754 | 89.0421 | 303.45 | 11.88 | 289 | 95.92 | 46.63 | 89.04 | 303.05 | 11.90 | 0.02 |
| 290 | 95.89 | 46.64178 | 89.03498 | 303.31 | 11.88 | 290 | 95.91 | 46.64 | 89.04 | 302.91 | 11.90 | 0.02 |
| 291 | 95.88 | 46.65593 | 89.02749 | 303.17 | 11.88 | 291 | 95.90 | 46.66 | 89.03 | 302.77 | 11.90 | 0.02 |
| 292 | 95.87 | 46.66999 | 89.01965 | 303.04 | 11.88 | 292 | 95.90 | 46.67 | 89.02 | 302.64 | 11.90 | 0.03 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| Assigned Repack Baseline .csv File Data | | | | | | | Proposed Facility .csv File Data (tvixcontour.csv) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 293 | 95.86 | 46.68395 | 89.01145 | 302.90 | 11.88 | | 293 | 95.89 | 46.68 | 89.01 | 302.50 | 11.90 | 0.03 |
| 294 | 95.85 | 46.69781 | 89.00289 | 302.76 | 11.88 | | 294 | 95.88 | 46.70 | 89.00 | 302.36 | 11.90 | 0.03 |
| 295 | 95.85 | 46.71156 | 88.99397 | 302.63 | 11.88 | | 295 | 95.87 | 46.71 | 88.99 | 302.23 | 11.90 | 0.02 |
| 296 | 95.84 | 46.72521 | 88.98471 | 302.49 | 11.88 | | 296 | 95.86 | 46.73 | 88.99 | 302.09 | 11.90 | 0.02 |
| 297 | 95.83 | 46.73873 | 88.97509 | 302.35 | 11.88 | | 297 | 95.85 | 46.74 | 88.98 | 301.95 | 11.90 | 0.02 |
| 298 | 95.82 | 46.75214 | 88.96513 | 302.22 | 11.88 | | 298 | 95.84 | 46.75 | 88.97 | 301.82 | 11.90 | 0.02 |
| 299 | 95.81 | 46.76543 | 88.95482 | 302.08 | 11.88 | | 299 | 95.84 | 46.77 | 88.96 | 301.68 | 11.90 | 0.03 |
| 300 | 95.80 | 46.77859 | 88.94418 | 301.94 | 11.88 | | 300 | 95.83 | 46.78 | 88.94 | 301.54 | 11.90 | 0.03 |
| 301 | 95.79 | 46.79161 | 88.93319 | 301.81 | 11.88 | | 301 | 95.82 | 46.79 | 88.93 | 301.41 | 11.90 | 0.03 |
| 302 | 95.79 | 46.8045 | 88.92187 | 301.67 | 11.88 | | 302 | 95.81 | 46.80 | 88.92 | 301.27 | 11.90 | 0.02 |
| 303 | 95.78 | 46.81726 | 88.91023 | 301.53 | 11.88 | | 303 | 95.80 | 46.82 | 88.91 | 301.13 | 11.90 | 0.02 |
| 304 | 95.77 | 46.82986 | 88.89825 | 301.40 | 11.88 | | 304 | 95.79 | 46.83 | 88.90 | 301.00 | 11.90 | 0.02 |
| 305 | 95.76 | 46.84233 | 88.88595 | 301.26 | 11.88 | | 305 | 95.79 | 46.84 | 88.89 | 300.86 | 11.90 | 0.03 |
| 306 | 95.75 | 46.85464 | 88.87333 | 301.12 | 11.88 | | 306 | 95.78 | 46.85 | 88.87 | 300.72 | 11.90 | 0.03 |
| 307 | 95.74 | 46.86679 | 88.86039 | 300.99 | 11.88 | | 307 | 95.77 | 46.87 | 88.86 | 300.59 | 11.90 | 0.03 |
| 308 | 95.74 | 46.87879 | 88.84714 | 300.85 | 11.88 | | 308 | 95.76 | 46.88 | 88.85 | 300.45 | 11.90 | 0.02 |
| 309 | 95.73 | 46.89063 | 88.83358 | 300.71 | 11.88 | | 309 | 95.75 | 46.89 | 88.83 | 300.31 | 11.90 | 0.02 |
| 310 | 95.72 | 46.9023 | 88.81972 | 300.57 | 11.88 | | 310 | 95.75 | 46.90 | 88.82 | 300.17 | 11.90 | 0.03 |
| 311 | 95.71 | 46.9138 | 88.80555 | 300.44 | 11.88 | | 311 | 95.74 | 46.91 | 88.81 | 300.04 | 11.90 | 0.03 |
| 312 | 95.70 | 46.92512 | 88.79109 | 300.30 | 11.88 | | 312 | 95.73 | 46.93 | 88.79 | 299.90 | 11.90 | 0.03 |
| 313 | 95.70 | 46.93627 | 88.77634 | 300.16 | 11.88 | | 313 | 95.72 | 46.94 | 88.78 | 299.76 | 11.90 | 0.02 |
| 314 | 95.69 | 46.94724 | 88.7613 | 300.03 | 11.88 | | 314 | 95.71 | 46.95 | 88.76 | 299.63 | 11.90 | 0.02 |
| 315 | 95.68 | 46.95803 | 88.74598 | 299.89 | 11.88 | | 315 | 95.71 | 46.96 | 88.75 | 299.49 | 11.90 | 0.03 |
| 316 | 95.69 | 46.96872 | 88.73052 | 300.01 | 11.88 | | 316 | 95.71 | 46.97 | 88.73 | 299.61 | 11.90 | 0.02 |
| 317 | 95.69 | 46.97923 | 88.71478 | 300.13 | 11.88 | | 317 | 95.72 | 46.98 | 88.72 | 299.73 | 11.90 | 0.03 |
| 318 | 95.70 | 46.98955 | 88.69876 | 300.25 | 11.88 | | 318 | 95.73 | 46.99 | 88.70 | 299.85 | 11.90 | 0.03 |
| 319 | 95.71 | 46.99967 | 88.68248 | 300.38 | 11.88 | | 319 | 95.73 | 47.00 | 88.68 | 299.98 | 11.90 | 0.02 |
| 320 | 95.72 | 47.0096 | 88.66593 | 300.50 | 11.88 | | 320 | 95.74 | 47.01 | 88.67 | 300.10 | 11.90 | 0.02 |
| 321 | 95.72 | 47.01932 | 88.64913 | 300.62 | 11.88 | | 321 | 95.75 | 47.02 | 88.65 | 300.22 | 11.90 | 0.03 |
| 322 | 95.73 | 47.02885 | 88.63207 | 300.74 | 11.88 | | 322 | 95.76 | 47.03 | 88.63 | 300.34 | 11.90 | 0.03 |
| 323 | 95.74 | 47.03816 | 88.61476 | 300.86 | 11.88 | | 323 | 95.76 | 47.04 | 88.61 | 300.46 | 11.90 | 0.02 |
| 324 | 95.74 | 47.04727 | 88.59721 | 300.98 | 11.88 | | 324 | 95.77 | 47.05 | 88.60 | 300.58 | 11.90 | 0.03 |
| 325 | 95.75 | 47.05617 | 88.57943 | 301.10 | 11.88 | | 325 | 95.78 | 47.06 | 88.58 | 300.70 | 11.90 | 0.03 |
| 326 | 95.76 | 47.06485 | 88.56141 | 301.22 | 11.88 | | 326 | 95.78 | 47.07 | 88.56 | 300.82 | 11.90 | 0.02 |
| 327 | 95.77 | 47.07332 | 88.54316 | 301.34 | 11.88 | | 327 | 95.79 | 47.07 | 88.54 | 300.94 | 11.90 | 0.02 |
| 328 | 95.77 | 47.08156 | 88.52469 | 301.46 | 11.88 | | 328 | 95.80 | 47.08 | 88.52 | 301.06 | 11.90 | 0.03 |
| 329 | 95.78 | 47.08958 | 88.50601 | 301.59 | 11.88 | | 329 | 95.81 | 47.09 | 88.51 | 301.19 | 11.90 | 0.03 |
| 330 | 95.79 | 47.09738 | 88.48712 | 301.71 | 11.88 | | 330 | 95.81 | 47.10 | 88.49 | 301.31 | 11.90 | 0.02 |
| 331 | 95.80 | 47.10495 | 88.46802 | 301.83 | 11.88 | | 331 | 95.82 | 47.11 | 88.47 | 301.43 | 11.90 | 0.02 |
| 332 | 95.80 | 47.11228 | 88.44873 | 301.95 | 11.88 | | 332 | 95.83 | 47.11 | 88.45 | 301.55 | 11.90 | 0.03 |
| 333 | 95.81 | 47.11939 | 88.42925 | 302.07 | 11.88 | | 333 | 95.84 | 47.12 | 88.43 | 301.67 | 11.90 | 0.03 |
| 334 | 95.82 | 47.12626 | 88.40957 | 302.19 | 11.88 | | 334 | 95.84 | 47.13 | 88.41 | 301.79 | 11.90 | 0.02 |
| 335 | 95.83 | 47.13289 | 88.38972 | 302.31 | 11.88 | | 335 | 95.85 | 47.13 | 88.39 | 301.91 | 11.90 | 0.02 |
| 336 | 95.83 | 47.13928 | 88.3697 | 302.43 | 11.88 | | 336 | 95.86 | 47.14 | 88.37 | 302.03 | 11.90 | 0.03 |
| 337 | 95.84 | 47.14543 | 88.34951 | 302.55 | 11.88 | | 337 | 95.87 | 47.15 | 88.35 | 302.15 | 11.90 | 0.03 |
| 338 | 95.85 | 47.15134 | 88.32916 | 302.67 | 11.88 | | 338 | 95.87 | 47.15 | 88.33 | 302.27 | 11.90 | 0.02 |
| 339 | 95.86 | 47.157 | 88.30865 | 302.80 | 11.88 | | 339 | 95.88 | 47.16 | 88.31 | 302.40 | 11.90 | 0.02 |
| 340 | 95.86 | 47.16242 | 88.288 | 302.92 | 11.88 | | 340 | 95.89 | 47.16 | 88.29 | 302.52 | 11.90 | 0.03 |
| 341 | 95.87 | 47.16759 | 88.2672 | 303.04 | 11.88 | | 341 | 95.90 | 47.17 | 88.27 | 302.64 | 11.90 | 0.03 |
| 342 | 95.88 | 47.1725 | 88.24627 | 303.16 | 11.88 | | 342 | 95.90 | 47.17 | 88.25 | 302.76 | 11.90 | 0.02 |
| 343 | 95.89 | 47.17716 | 88.22521 | 303.28 | 11.88 | | 343 | 95.91 | 47.18 | 88.23 | 302.88 | 11.90 | 0.02 |
| 344 | 95.89 | 47.18157 | 88.20403 | 303.40 | 11.88 | | 344 | 95.92 | 47.18 | 88.20 | 303.00 | 11.90 | 0.03 |
| 345 | 95.90 | 47.18573 | 88.18274 | 303.52 | 11.88 | | 345 | 95.93 | 47.19 | 88.18 | 303.12 | 11.90 | 0.03 |
| 346 | 95.91 | 47.18963 | 88.16133 | 303.64 | 11.88 | | 346 | 95.93 | 47.19 | 88.16 | 303.24 | 11.90 | 0.02 |
| 347 | 95.92 | 47.19327 | 88.13983 | 303.76 | 11.88 | | 347 | 95.94 | 47.19 | 88.14 | 303.36 | 11.90 | 0.02 |
| 348 | 95.93 | 47.19665 | 88.11823 | 303.88 | 11.88 | | 348 | 95.95 | 47.20 | 88.12 | 303.48 | 11.90 | 0.02 |
| 349 | 95.93 | 47.19977 | 88.09654 | 304.01 | 11.88 | | 349 | 95.96 | 47.20 | 88.10 | 303.61 | 11.90 | 0.03 |
| 350 | 95.94 | 47.20263 | 88.07477 | 304.13 | 11.88 | | 350 | 95.97 | 47.20 | 88.07 | 303.73 | 11.90 | 0.03 |
| 351 | 95.95 | 47.20522 | 88.05293 | 304.25 | 11.88 | | 351 | 95.97 | 47.21 | 88.05 | 303.85 | 11.90 | 0.02 |
| 352 | 95.96 | 47.20756 | 88.03102 | 304.37 | 11.88 | | 352 | 95.98 | 47.21 | 88.03 | 303.97 | 11.90 | 0.02 |

**WNMU (Ch. 8 at Marquette, MI)**
**Table 1 - Distance to Noise-Limited Contour (NLC) Comparison**
**Assigned Post-Incentive Auction Facility vs. Proposed Facility**

| **Assigned Repack Baseline .csv File Data** | | | | | | | **Proposed Facility .csv File Data (tvixcontour.csv)** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | | Azimuth (deg) | **Distance to NLC (km)** | Latitude | Longitude | HAAT (m) | ERP (dBk) | Difference (km) |
| 353 | 95.97 | 47.20963 | 88.00905 | 304.49 | 11.88 | | 353 | 95.99 | 47.21 | 88.01 | 304.09 | 11.90 | 0.02 |
| 354 | 95.97 | 47.21143 | 87.98703 | 304.61 | 11.88 | | 354 | 96.00 | 47.21 | 87.99 | 304.21 | 11.90 | 0.03 |
| 355 | 95.98 | 47.21297 | 87.96496 | 304.73 | 11.88 | | 355 | 96.01 | 47.21 | 87.96 | 304.33 | 11.90 | 0.03 |
| 356 | 95.99 | 47.21425 | 87.94285 | 304.85 | 11.88 | | 356 | 96.01 | 47.21 | 87.94 | 304.45 | 11.90 | 0.02 |
| 357 | 96.00 | 47.21526 | 87.92071 | 304.97 | 11.88 | | 357 | 96.02 | 47.22 | 87.92 | 304.57 | 11.90 | 0.02 |
| 358 | 96.01 | 47.216 | 87.89854 | 305.10 | 11.88 | | 358 | 96.03 | 47.22 | 87.90 | 304.70 | 11.90 | 0.02 |
| 359 | 96.02 | 47.21647 | 87.87636 | 305.22 | 11.88 | | 359 | 96.04 | 47.22 | 87.88 | 304.82 | 11.90 | 0.02 |