BARRY NEEDLEMAN
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Email: barry.needleman@mclane.com
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May 18, 2021

Mr. Jonathan A. Evans
Presiding Officer
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

Re: SEC Docket No. 2021-02
Investigation of Complaints
Regarding Antrim Wind Energy Facility
Turbine Lighting

Dear Mr. Evans:

On May 12, 2021, the Subcommittee for this proceeding issued a Notice of Public Meeting and Agenda, which scheduled a Public Meeting for May 21, 2021, and provided for written submissions by May 18, 2021, regarding turbine lighting issues. Enclosed please find Antrim Wind Energy, LLC's submission demonstrating that it is not in violation of its Certificate of Site and Facility and that an investigation of turbine lighting issues is not warranted.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Barry Needleman

BN:sm
Enclosures

STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

Docket No. 2021-02

INVESTIGATION OF COMPLAINTS
REGARDING ANTRIM WIND ENERGY FACILITY

May 21, 2021 Subcommittee Public Meeting
Regarding Turbine Lighting

Antrim Wind Energy, LLC ("Antrim Wind") by and through its attorneys, McLane Middleton, Professional Association, makes this written submission demonstrating that it is not in violation of its Certificate of Site and Facility ("Certificate") and that an investigation of turbine lighting is not warranted.

In summary, the Certificate required that Antrim Wind do two things with respect to turbine lighting, which are set forth in full in Section III below. Antrim Wind has complied with both conditions by (1) filing with the Site Evaluation Committee ("SEC") the Federal Aviation Administration's ("FAA") approval of Antrim Wind's Aircraft Detection Lighting System ("ADLS") and (2) abiding by the FAA's Determinations of No Hazard to Air Navigation. Therefore, Antrim Wind is not in violation of its Certificate.

I. BACKGROUND

On May 6, 2021, Representative Michael Vose, Chairman of the New Hampshire House Science, Technology and Energy Committee, sent an email to SEC Chairwoman Dianne Martin with the subject heading "Presumptive Certificate Compliance Default." On May 7, 2021, Chairwoman Martin, characterizing Rep. Vose's email as a complaint, responded that the issue he raised was squarely within the mandate of the Subcommittee created to investigate complaints in Docket No. 2021-02. On May 12, 2021, the SEC issued a Notice of Public Meeting and

Agenda, scheduling a public meeting for May 21, 2021, with written submissions due by May 18, 2021.

The agenda for the May 21, 2021 Public Meeting states that the Subcommittee will consider:

(1) Whether to accept the May 6 Email as a Complaint warranting investigation.
(2) Whether the upgrade work violates the facility's Certificate or the SEC rules.
(3) What, if any, actions the Subcommittee will recommend that the SEC take in the event that a violation has occurred.

II. TURBINE LIGHTING SUMMARY

The purpose of turbine lighting is aviation safety. During the eighteen months of Antrim Wind's commercial operation, it is important to note as a preliminary matter that there has been no time that aviation safety was at risk.

As for the components of the Antrim Wind facility, it comprises nine turbines, which are 489 feet above ground level (except for Turbine No. 9, which is 447 feet above ground level) and two meteorological evaluation towers ("Met Towers") which are, respectively, 98 and 329 feet above ground level, along with two radar installations. Structures of these heights are subject to the jurisdiction of the FAA. Appendix IV of the Antrim Wind Certificate contains an FAA Determination of No Hazard to Air Navigation for each of the turbines, while the Determinations for the Met Towers were filed with the SEC on October 17, 2019.

In Docket No. 2015-02, Antrim Wind included, as part of its Application for a Certificate, an agreement with the Appalachian Mountain Club that, among other things, Antrim Wind would ask the FAA for permission to install a radar-operated ADLS. See Attachment A. That agreement, which was Appendix 11 to the Antrim Wind Application, ultimately evolved into the ADLS Certificate condition.

On December 14, 2016, Antrim Wind satisfied the ADLS Certificate condition by filing with the SEC the FAA's Marking and Lighting Recommendations, which approved Antrim

Wind's request to utilize an ADLS. See Attachment B. This was the first such system installed on a wind farm in the United States. The FAA determined, for purposes of permanent lighting, that six of the nine turbines must have flashing red lights; the remaining three do not require permanent lighting. The two radar installations cover a detection zone with a minimum radius of three nautical miles. When both radars confirm that the detection zone is clear of aircraft, the turbine lights are turned off, otherwise they begin to flash as prescribed by FAA regulations.

Since commercial operation commenced, Antrim Wind has worked closely with the ADLS manufacturer, Terma North America, Inc. ("Terma") to fine-tune the system. Prior to April 28, 2021, there were, however, only a small number of occasions during which the ADLS was in the manual override mode, such that the turbine lights were operating from sundown to sunrise. Most notably, a motor on one of the radars tripped on February 15, 2020, was reset, tripped again, and had to be replaced, which occurred on March 6, 2020. See Attachment C, Mr. Mollasalehi's status update submitted March 4, 2020.[1]

Since April 28, 2021, the ADLS has been in the manual override mode, which will continue to no later than May 31, 2021, to permit customization of the system radars to local conditions and to install updated software. As Antrim Wind reported to the SEC Administrator on April 17, 2020, the ADLS is conservative in nature to ensure aviation safety and is very sensitive to movement. See Attachment D. As noted there, it is possible that the ADLS may have been triggered on occasion by movement close to the ground, including vehicle traffic, as well as movement in the tree canopy.[2] Among other things, Terma's (the ADLS manufacturer)

[1] In addition, as reported in Attachments G-10 and G-12, the turbine lights were in override on three other occasions, totaling five days.

[2] Correspondingly, FAA regulations require that if an object is lost before it exits the detection zone, or there is some uncertainty about the detection in the first instance, to ensure safety the lights must remain on for a period of 30 minutes.

current work, as described in Mr. Mollasalehi's April 30, 2021 notification to the SEC, will improve system detection capabilities to recognize the hilly terrain in Antrim, which is much different from the terrain for larger wind farms in places such as Iowa and Texas. See Attachment E. Terma's summary of the ongoing work supports Mr. Mollasalehi's notification. See Attachment F.

III. DISCUSSION OF MAY 6, 2021 EMAIL

The impetus for, and intent of, Rep. Vose's email is not clear. Specifically, it is not clear if he is making an inquiry of an agency head in some official capacity or if he is making a complaint in the nature of a citizen directly affected by the operation of a renewable facility. In either case, his email relies on, and proceeds from, unsupported conclusions. Perhaps most noteworthy is what he does not include in his email. There is no citation to the Certificate condition governing lighting nor are there any specific facts that are then tied back to the condition that would demonstrate Antrim Wind is violating its obligations under the Certificate.

Instead, Rep. Vose asks Chairwoman Martin to "help me understand" how Antrim Wind could "arbitrarily decide to violate the terms and conditions of its site certificate." He further opines that Antrim Wind "decided to default on certificate compliance with regard to turbine lighting until the end of May." He also ventures that Antrim Wind "has likely been out of compliance with its certificate since the first of the year" and that "the time would seem to be long past to begin a proceeding to revoke the facility's permission to operate." Finally, he asks Chairwoman Martin to "explain why the SEC has taken no action on this obvious compliance failure."

As explained below, Rep. Vose's underlying presumption that Antrim Wind has violated its Certificate is mistaken. Antrim Wind's Certificate, issued on March 17, 2017, states, in pertinent part:

> Further Ordered that this Certificate is conditioned upon compliance with all conditions of the Determinations of No Hazard to Air Navigation issued by the Federal Aviation Administration which are appended hereto as Appendix IV; and it is,
>
> Further Ordered that, the Applicant shall file, with the Administrator of the Committee, the Federal Aviation Administration's determination of no hazard pertaining to the Aircraft Detection Lighting System that will be installed on the Project upon its receipt;

Antrim Wind has clearly complied with the two conditions imposed by the Subcommittee inasmuch as (1) it has complied with the FAA Determinations of No Hazard appended to its Certificate and (2) it filed the FAA's approval of ADLS with the SEC. Furthermore, it has kept the SEC informed of all lighting developments prior to and subsequent to the commercial operation date of December 24, 2019. In addition to the prior Attachments, included as Attachment G are numerous other communications between Antrim Wind and the SEC Administrator on this topic.

Rep. Vose provided no facts to support his allegations. Accordingly, there is no basis for his assertion that there has been any compliance failure. As for his general reference to Mr. Mollasalehi's April 30, 2021 notification to the SEC, Mr. Mollasalehi explained the improvements that are underway this month to the ADLS to ensure that the turbine lights do not go on when not required, which work requires that the lights operate temporarily in the manual override mode. To be clear, when operating in the override mode Antrim Wind is in compliance with its Certificate and FAA requirements. Of course, the optimal outcome for all parties is that system operations be optimized to ensure aviation safety, while diminishing any time that the lights might be on when the sky is clear of any potential aircraft. That is precisely what Antrim Wind has been working to accomplish.

IV. ENFORCEMENT PROCESS

Despite the considered enforcement process adopted by the New Hampshire Legislature, Rep. Vose rushes to judgment in saying that it is long past time to begin a proceeding to revoke

Antrim Wind's Certificate. In doing so, he ignores the full statutory scheme of RSA 162-H:12, which sets forth specific steps to provide due process for Certificate holders.

In his email, Rep. Vose states: "RSA 162-H:12, I says that when a violation has been *detected*, the SEC can, 'order the person to immediately terminate the violation. If, 15 days after receipt of the order, the person has failed or neglected to terminate the violation, the committee may suspend the person's certificate.'" Rep. Vose's reference to the statute, however, does not fully capture the process. Section I, in its entirety, says:

> *Whenever the committee, or the administrator as designee, determines that any term or condition of any certificate issued under this chapter is being violated, it shall, in writing, notify the person holding the certificate of the specific violation and* order the person to immediately terminate the violation. If, 15 days after receipt of the order, the person has failed or neglected to terminate the violation, the committee may suspend the person's certificate. *Except for emergencies, prior to any suspension, the committee shall give written notice of its consideration of suspension and of its reasons therefor and shall provide opportunity for a prompt hearing.* (Emphasis supplied.)

Rep. Vose neglects to include the opening language to Section I, which requires a "determination" by the SEC or its Administrator that the Certificate is being violated and notification to the Certificate holder of the specific violation. Rep. Vose also fails to include the closing sentence of Section I, which requires that the SEC notify the Certificate holder that suspension is under consideration and provide the opportunity for a hearing. In short, RSA 162-H:12 does not authorize the sort of "Presumptive Certificate Compliance Default" that Rep. Vose contemplates (which would be unlawful since it would deprive Antrim Wind of its property without due process).

V. CONCLUSION

Rep. Vose's email provides no legal or factual basis for concluding there is a violation here, and he misstates the procedure under RSA 162-H for dealing with enforcement matters. In fact, contrary to Rep. Vose's description of events, Antrim Wind has fully complied with its

Certificate. Antrim Wind was required by the SEC to do two things: (1) comply with the conditions of the FAA Determinations of No Hazard to Air Navigation, which it has, and (2) file with the SEC Administrator, on receipt, the FAA's approval of the ADLS, which it did.

While it is the case, as explained above, that there have been periods when the lights remained on longer than may have been required for aviation safety, the ADLS has gone through an extensive fine-tuning process during the past eighteen months to address that concern. During that time, Antrim Wind has taken all reasonable steps to assure public health and safety, and has kept the SEC informed of its actions on a timely basis. Finally, it is not unusual when implementing such cutting-edge technology that routine inspection, maintenance and fine-tuning efforts would be required, and it certainly does not amount to a violation of the Certificate.

WHEREFORE, Antrim Wind respectfully requests that the New Hampshire Site Evaluation Committee:

A. Find that Rep. Vose's email does not constitute a complaint warranting investigation;

B. Determine that Antrim Wind has not violated its Certificate; and

C. Grant such other and further relief as is deemed just and appropriate.

Respectfully Submitted,

ANTRIM WIND ENERGY, LLC

By its attorneys,

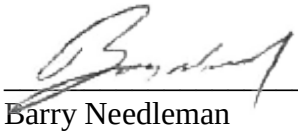
McLANE MIDDLETON,
PROFESSIONAL ASSOCIATION

Dated: May 18, 2021

Barry Needleman, Esq. Bar No. 9446
barry.needleman@mclane.com
11 South Main Street, Suite 500
Concord, NH 03301
(603) 226-0400

Certificate of Service

I hereby certify that on the 18th day of May, 2021, a copy of the foregoing was submitted electronically to the New Hampshire Site Evaluation Committee.



Barry Needleman

Terms of Agreement

These Terms of Agreement (the "Agreement") are agreed to this 31st day of July 2012 by and between Antrim Wind Energy LLC ("AWE"), a Delaware limited liability company having its principal office at 155 Fleet Street, Portsmouth, NH, 03801, and Appalachian Mountain Club ("AMC"), a 501c3 not-for-profit corporation having its headquarters at 5 Joy Street, Boston, MA 02108. AWE and AMC are sometimes referred to herein as a "Party" or collectively as the "Parties".

Whereas, AWE is the Applicant in NH Site Evaluation Committee ("SEC") Docket #2012-1 and is seeking a Certificate of Site and Facility for a 30 MW wind energy facility in Antrim, New Hampshire (the "Project"); and

Whereas, AMC has petitioned to intervene as a Party in Docket # 2012-1 and has been granted full party status pursuant to an SEC Order dated May 18, 2012; and

Whereas, as an intervener in Docket 2012-1, AMC has raised certain concerns related to viewshed impacts related to the Project and has submitted various data requests and an ensuing motion to compel dated June 28th, 2012; and

Whereas, AMC and AWE desire to reach terms of agreement acceptable to both Parties that will satisfy AMC's specific concerns related to the Project.

Now Therefore, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree on the following terms addressing next steps of the Parties regarding SEC Docket 2012-1:

I – Obligations of Antrim Wind Energy LLC

A. Viewshed Impact Assessment: AWE has agreed to extend the viewshed analysis of the Project from a five-mile radius from any proposed turbine location to a ten-mile radius from any turbine location. This work has been completed and provided to AMC as well as other parties in the proceeding. In addition, AWE agrees that it shall perform at least two (2) and up to four (4) additional visual simulations from locations selected by AWE and agreed to by AMC, such agreement not to be unreasonably withheld or delayed, in the 5-10 mile range and that one of the locations shall be from Pitcher Mountain.

B. Radar Activated Obstruction Lights: AWE hereby agrees that it shall seek, as part of its application filed with the SEC in Docket 2012-1, approval from the SEC of facilities needed to install a radar activated lighting control system such as the Harrier Radar system designed by DeTect, Inc. (the "Radar System"). Furthermore, AWE agrees that depending on the status of the issuance of a revised FAA Advisory Circular detailing the requirements of the Radar System (the "Advisory Circular"), it shall take the following steps:
   i. If the FAA has issued the Advisory Circular 60 days or more before the commencement of construction of the Project that allows for the Radar

JK

System to be operated, then AWE shall install and operate the Radar System simultaneously with the commissioning of the Project.

ii. If the FAA has not issued the Advisory Circular at least sixty (60) days before the commencement of construction, but issues the Advisory Circular at any time during the commercial operation of the Project, then AWE shall be required to implement and operate the Radar System within one year of the issuance of the Advisory Circular.

iii. At its sole option, as an alternative to (b) above, AWE may install the Radar System simultaneously with the remainder of the construction of the facilities in the Project. In this scenario, in the event that the Advisory Circular is issued later than 60 days prior to the commencement of construction, then AWE will commence with operation of the Radar System as soon as commercially reasonable but no longer than one year of the issuance of the Advisory Circular.

II – Obligations of Appalachian Mountain Club

A. Non-opposition: AMC agrees that it shall not, directly or indirectly, oppose AWE in its efforts to obtain a Certificate of Site and Facility from the SEC in Docket 2012-1 or act in any capacity that would harm AWE's ability to obtain all necessary permits to construct and operate the Project. AMC further agrees that it shall abstain from further data requests or cross-examination of witnesses during the remainder of the SEC proceedings involving the AWE Project, provided that there are no changes to the Application that would substantively and substantially increase the visual impact of the project. This Agreement does not imply that AMC now supports the AWE Project, or that other issues raised by other interveners are without merit or in any way resolved by the terms of this agreement.

B. Non-collusion: AMC agrees that it shall not assist or support, directly or indirectly, other interveners in the Docket who take positions opposing AWE.

III – Filings with the SEC

A. AWE's application shall be amended to include the updated information relating to the Radar System on or before the deadline for final supplemental filings, currently established as September 5th, 2012.

B. AWE and AMC shall submit a joint filing with the SEC, in a form mutually acceptable to the Parties, stating that the Parties have agreed that installation and operation of the Radar System consistent with the terms and conditions of this agreement should be a condition of any Certificate of Site and Facility issued by the SEC.

C. AMC shall file a letter with the SEC stating that AMC's objective to have reasonable best available technology to diminish the viewshed impacts of the AWE Project have been satisfied in Docket 2012-1 and further that AWE has agreed to implement such technology by virtue of making a commitment to the Radar System as soon as reasonably feasible. The letter will clarify that while these terms satisfy AMC's

SK

specific objective that wind projects should include in their Application reasonable best available technologies to mitigate viewshed impacts, AMC's agreement to these terms does not imply AMC support for the Project, nor that this Agreement resolves other concerns raised by other interveners in Docket 2012-1.

IV - General Terms

A. Entire Agreement: This Agreement contains the entire and integrated agreement between the Parties relating to the subject matter contained herein. Each Party acknowledges that no representations, inducements, promises, or agreements, oral or written, with reference to the subject matter herein have been made other than those expressly set forth herein.

B. Waiver: No waiver by any Party of a breach hereof or a default hereunder shall be deemed a wavier by such Party of any other breach or default.

C. Binding Agreement: This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

D. Choice of Law: This Agreement shall be construed and interpreted in accordance with the laws of the State of New Hampshire, without regard to any choice or conflict of law provision or rule (whether of the State of New Hampshire or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than the State of New Hampshire.

E. Authority: The Parties to this Agreement represent and warrant that they are authorized to enter into this Agreement in their individual or representative capacities. The Parties further represent that the execution and delivery of this Agreement and the performance of the Parties' obligations hereunder have been duly authorized by all necessary action.

F. Signatures: This Agreement may be signed in multiple identical counterparts, each of which shall be deemed an original, but all of which together shall constitute the Agreement. Signatures delivered by facsimile or other electronic means shall have the some effect as delivery of an original signature.

G. Severability: If any clause or provision of this Agreement or the application thereof shall be held unlawful or invalid, no other clause or provision of this Agreement or its application shall be affected, and this Terms of Agreement shall be construed and enforced as if such unlawful or invalid clause or provision had not been contained herein.

H. No Third Party Beneficiaries: This Agreement shall not confer any rights or remedies upon any Person other than the Parties and their respective successors and permitted assigns.

I. Amendments and Waiver: The terms of this Agreement may not be amended, waived or terminated orally, but only by an instrument in writing signed by the Parties. No waiver by any Party of any provision of this Agreement or any default, misrepresentation or breach of warranty or covenant hereunder, whether intentional or not, shall be valid unless the same shall be in writing and signed by the Party making such waiver, nor shall such waiver by deemed to extend to any prior or subsequent default, misrepresentation or breach of warranty or covenant hereunder or affect in any way rights arising by virtue of any prior or subsequent such occurrence.

J. No Joint Venture: Nothing in this Agreement is intended to create an association, trust, partnership or joint venture between AMC, on the one hand, and AWE, on the other hand, or impose a trust, partnership, fiduciary duty, obligation, or liability on or with respect to any Party.

JK

WITNESS:

Appalachian Mountain Club

_____

By: _____

Print Name: _____

WITNESS:

Antrim Wind Energy, LLC

By: _____

Print Name: John B. Kenworthy

WITNESS:

Appalachian Mountain Club

By: _____

Print Name: JOHN D. JUDGE, AMC PRESIDENT

WITNESS:

Antrim Wind Energy, LLC

By: _____

Print Name: John B. Kenworthy

REBECCA S. WALKLEY
Direct Dial: 603.628.1250
Email: rebecca.walkley@mclane.com
Admitted in NH
900 Elm Street, P.O. Box 326
Manchester, NH 03105-0326
T 603.625.6464
F 603.625.5650

MCLANE MIDDLETON

December 14, 2016

VIA ELECTRONIC MAIL

New Hampshire Site Evaluation Committee
Pamela G. Monroe, Administrator
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: NH Site Evaluation Committee Docket No. 2015-02:
Application of Antrim Wind Energy, LLC – FAA Approval of Night Time Lighting

Dear Ms. Monroe:

Please find enclosed the Federal Aviation Administration's approval of Antrim Wind Energy, LLC's request to utilize an Aircraft Detection Lighting System to operate the recommended lighting for all nine of the proposed turbines and the MET tower.

Please contact me directly should you have any questions regarding this documentation.

Very truly yours,

Rebecca S. Walkley

Rebecca S. Walkley

RS3:

Enclosures

Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6204-OE
Prior Study No.
2014-WTE-5439-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 1
Location:	Antrim, NH
Latitude:	43-04-03.41N NAD 83
Longitude:	72-00-28.14W
Heights:	1431 feet site elevation (SE) 489 feet above ground level (AGL) 1920 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6204-OE.

Signature Control No: 303082966-312545130 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6204-OE

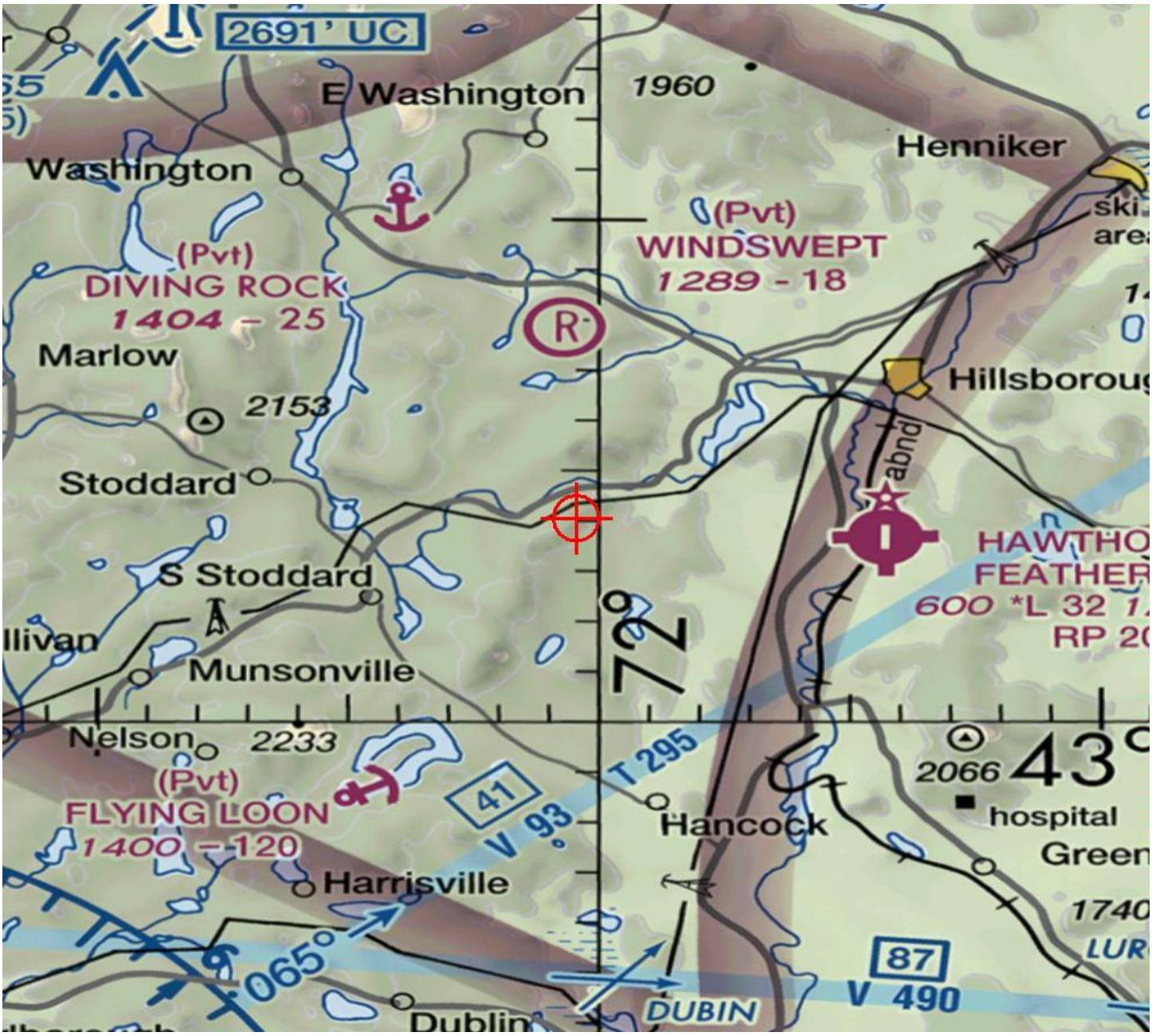


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6205-OE
Prior Study No.
2014-WTE-5440-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 2
Location:	Antrim, NH
Latitude:	43-03-51.34N NAD 83
Longitude:	72-00-22.29W
Heights:	1743 feet site elevation (SE) 489 feet above ground level (AGL) 2232 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6205-OE.

Signature Control No: 303082969-312545125 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6205-OE

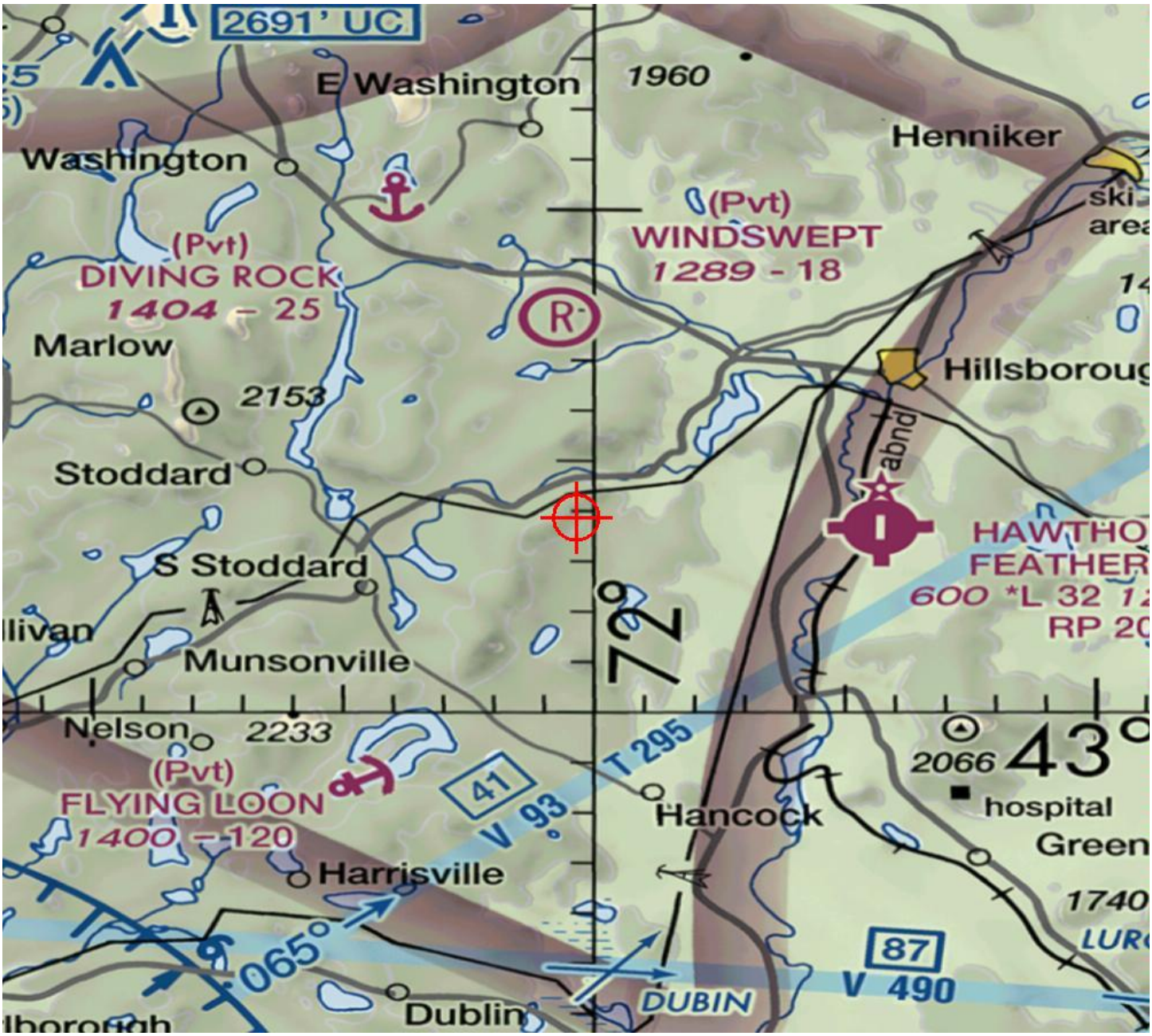


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6206-OE
Prior Study No.
2014-WTE-5441-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 3
Location:	Antrim, NH
Latitude:	43-03-41.26N NAD 83
Longitude:	72-00-32.62W
Heights:	1758 feet site elevation (SE) 489 feet above ground level (AGL) 2247 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6206-OE.

Signature Control No: 303082972-312545124 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6206-OE

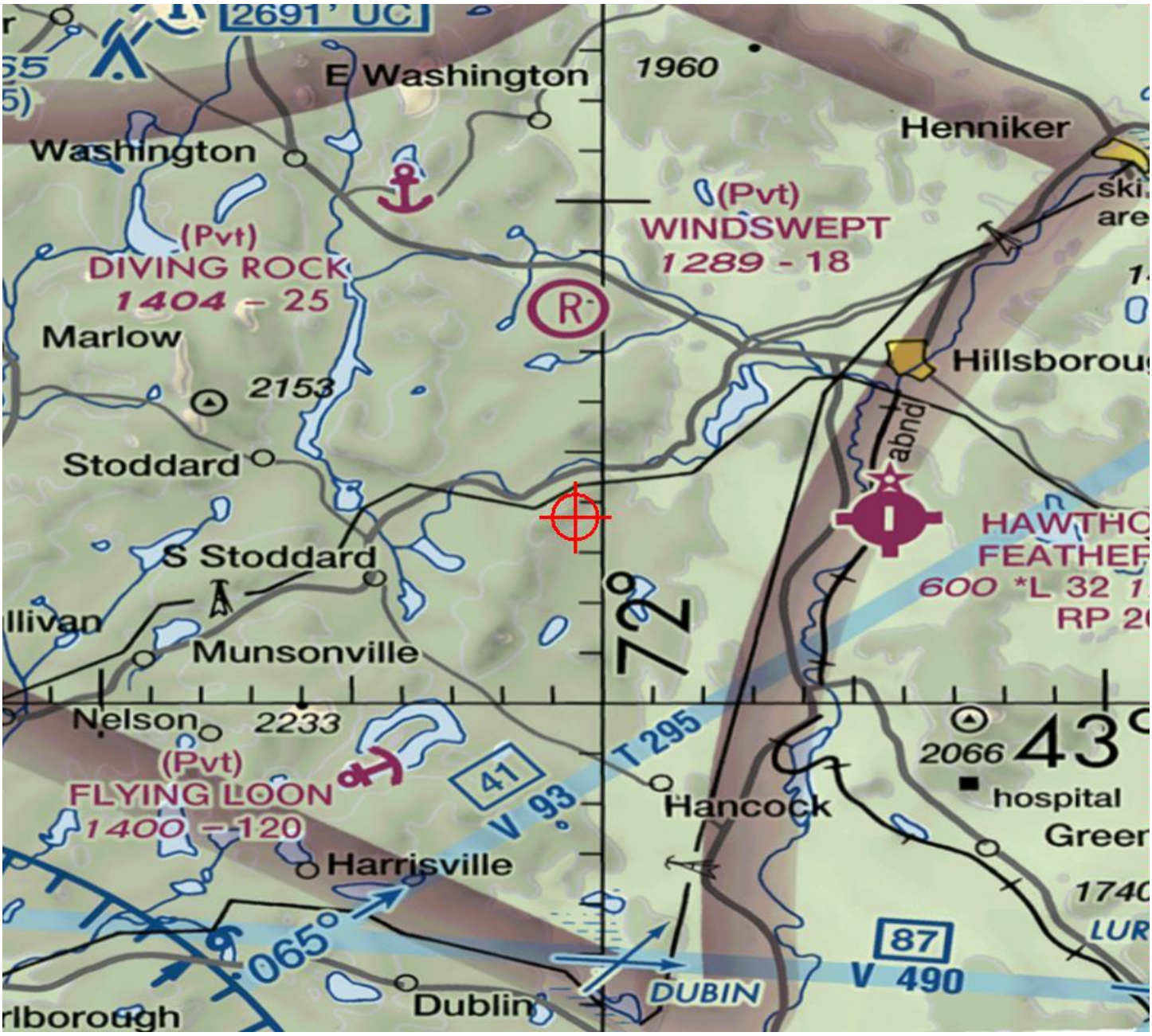


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6208-OE
Prior Study No.
2014-WTE-5442-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 4
Location:	Antrim, NH
Latitude:	43-03-31.43N NAD 83
Longitude:	72-00-59.25W
Heights:	1682 feet site elevation (SE) 489 feet above ground level (AGL) 2171 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6208-OE.

Signature Control No: 303082978-312545131 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6208-OE

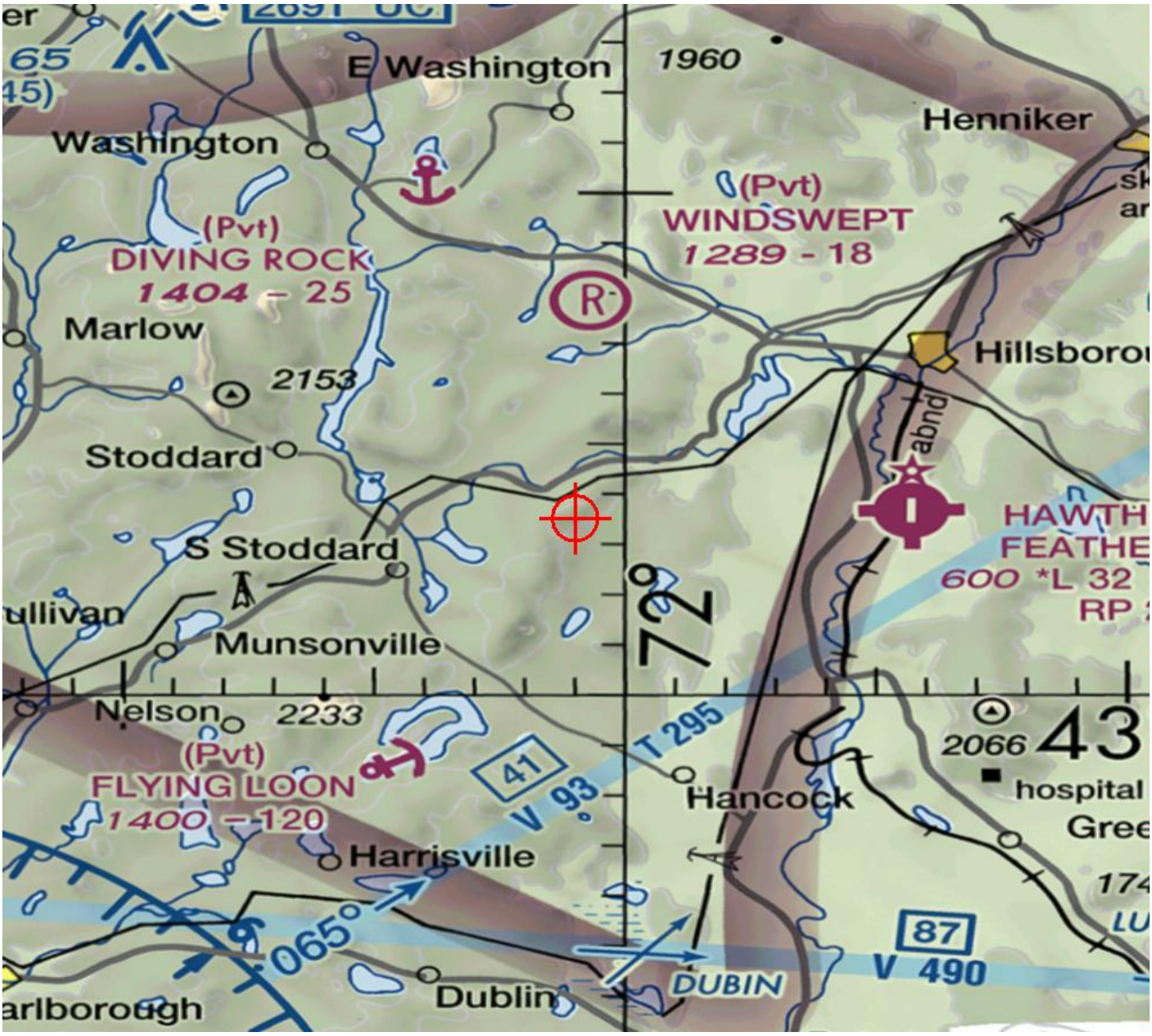


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6209-OE
Prior Study No.
2014-WTE-5443-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 5
Location:	Antrim, NH
Latitude:	43-03-23.84N NAD 83
Longitude:	72-01-10.20W
Heights:	1726 feet site elevation (SE) 489 feet above ground level (AGL) 2215 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6209-OE.

Signature Control No: 303082981-312545129 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6209-OE

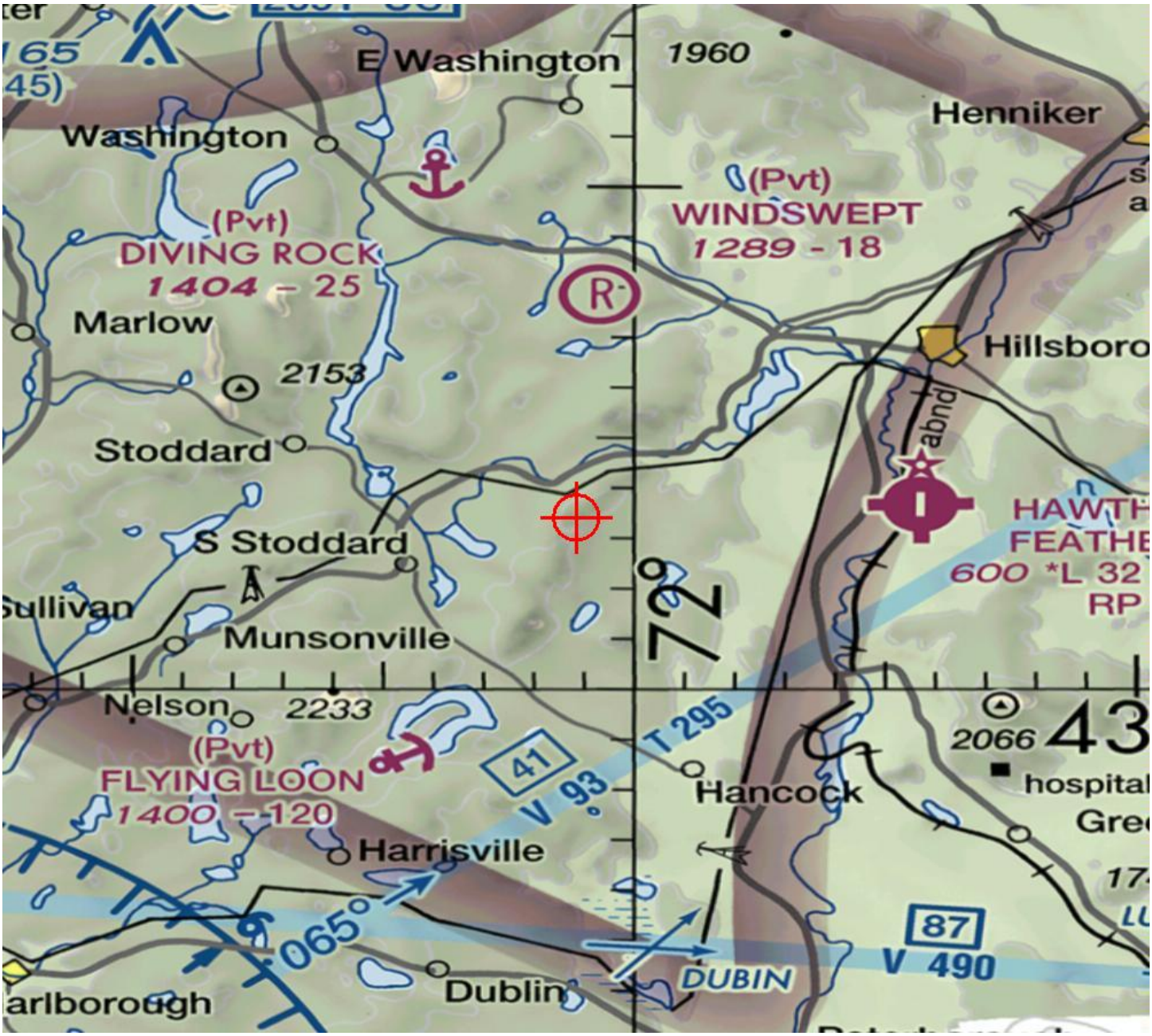


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6210-OE
Prior Study No.
2014-WTE-5444-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 6
Location:	Antrim, NH
Latitude:	43-03-09.66N NAD 83
Longitude:	72-01-11.94W
Heights:	1504 feet site elevation (SE) 489 feet above ground level (AGL) 1993 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6210-OE.

Signature Control No: 303082984-312545127 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6210-OE

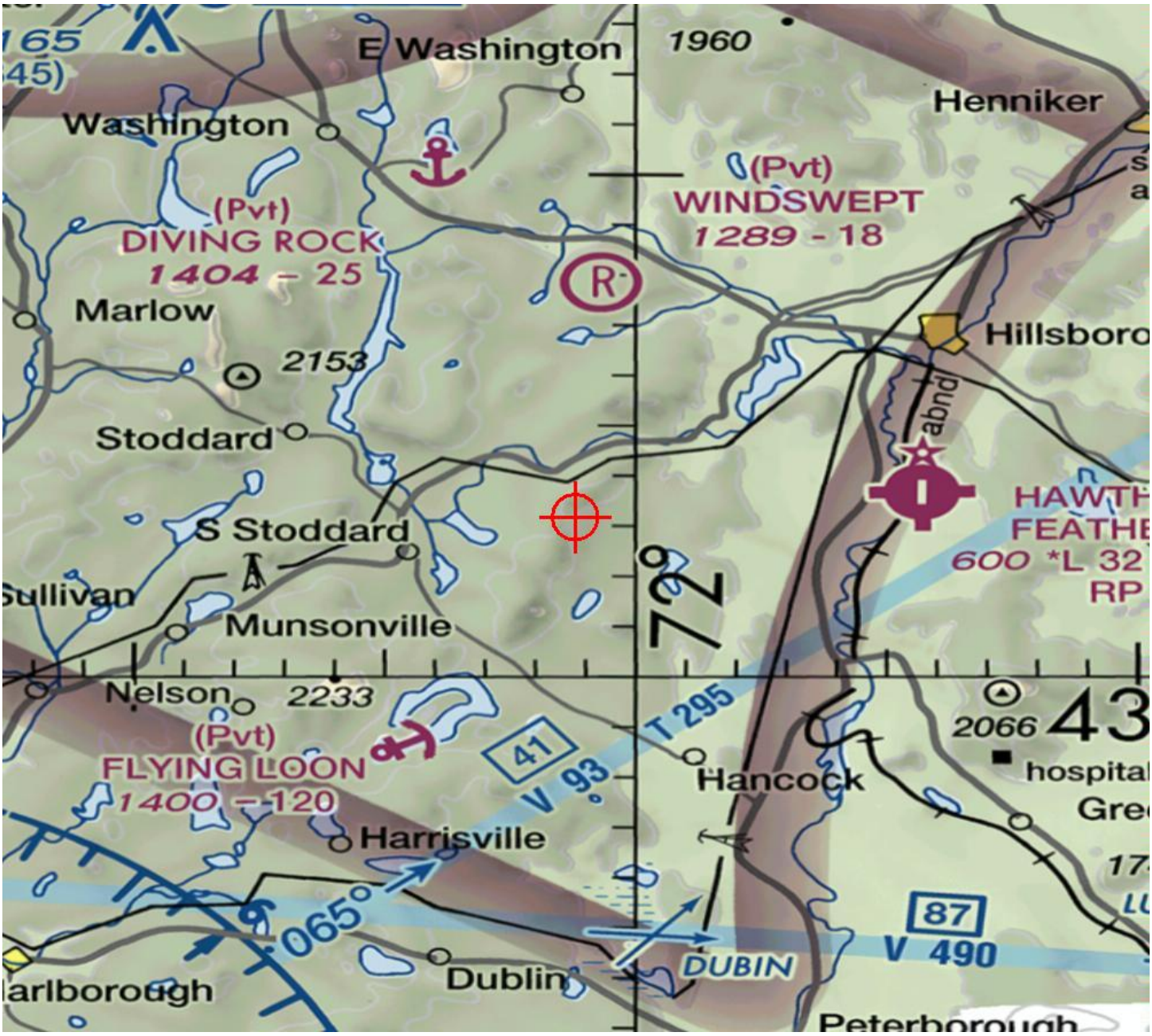


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6211-OE
Prior Study No.
2014-WTE-5445-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 7
Location:	Antrim, NH
Latitude:	43-02-54.23N NAD 83
Longitude:	72-01-17.79W
Heights:	1676 feet site elevation (SE) 489 feet above ground level (AGL) 2165 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

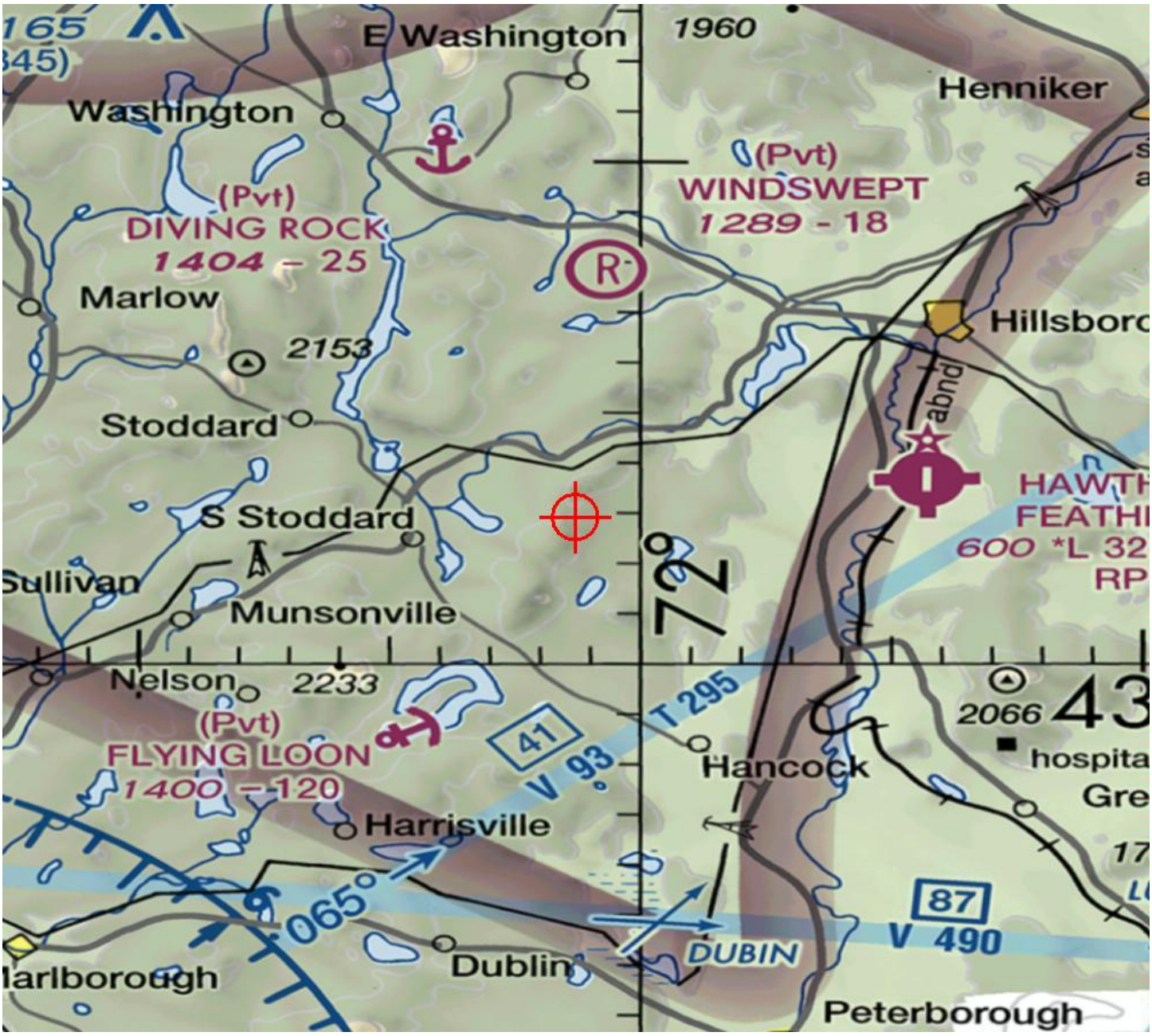
If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6211-OE.

Signature Control No: 303082987-312545126 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6211-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6212-OE
Prior Study No.
2014-WTE-5446-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 8
Location:	Antrim, NH
Latitude:	43-02-43.77N NAD 83
Longitude:	72-01-16.79W
Heights:	1700 feet site elevation (SE) 489 feet above ground level (AGL) 2189 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6212-OE.

Signature Control No: 303082990-312545132 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6212-OE

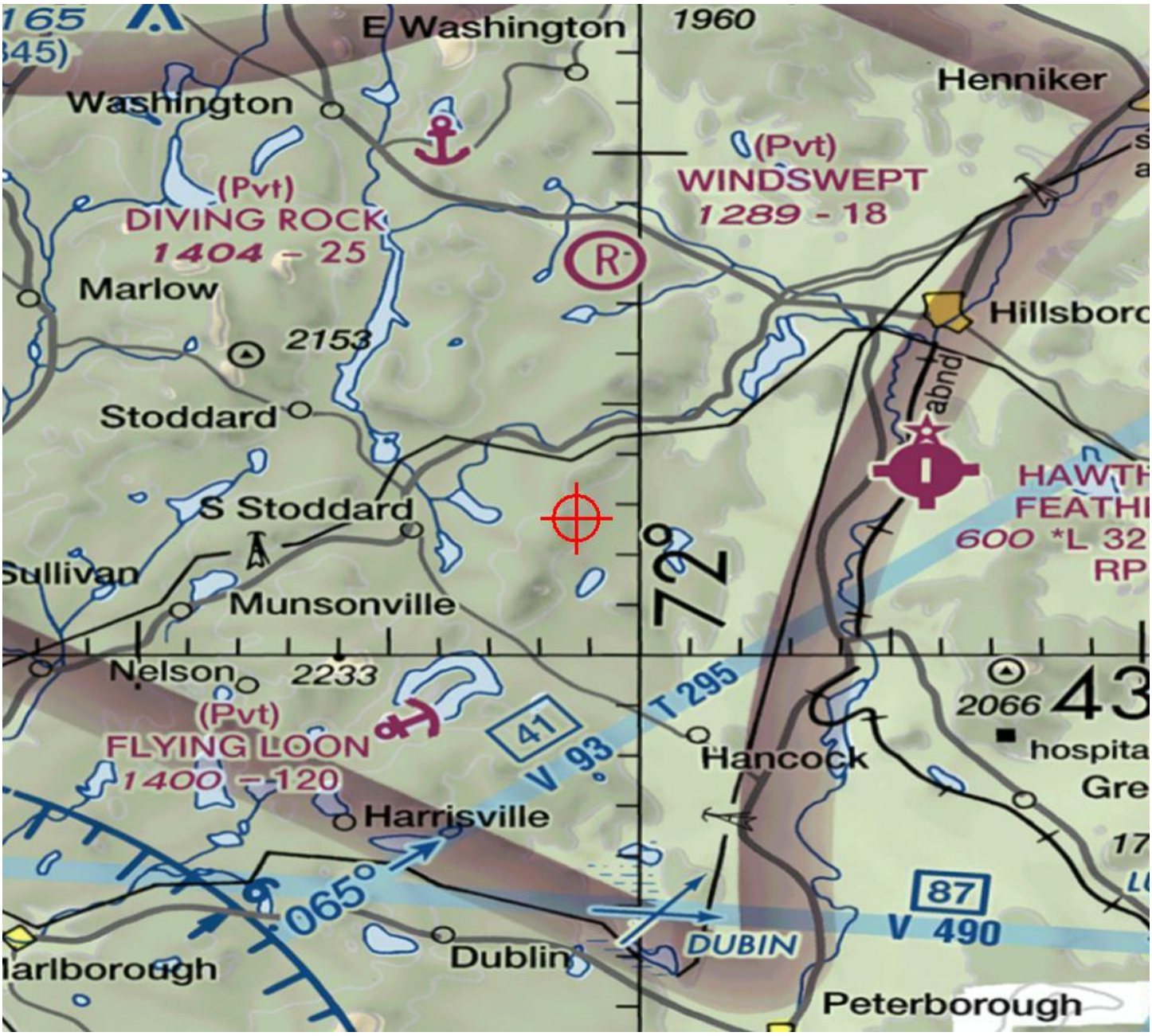

Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6213-OE
Prior Study No.
2014-WTE-5447-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Wind Turbine Wind Turbine AWE 9
Location:	Antrim, NH
Latitude:	43-02-35.31N NAD 83
Longitude:	72-01-26.37W
Heights:	1667 feet site elevation (SE) 447 feet above ground level (AGL) 2114 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6213-OE.

Signature Control No: 303082993-312545128 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Map(s)

cc: FCC

Sectional Map for ASN 2016-WTE-6213-OE

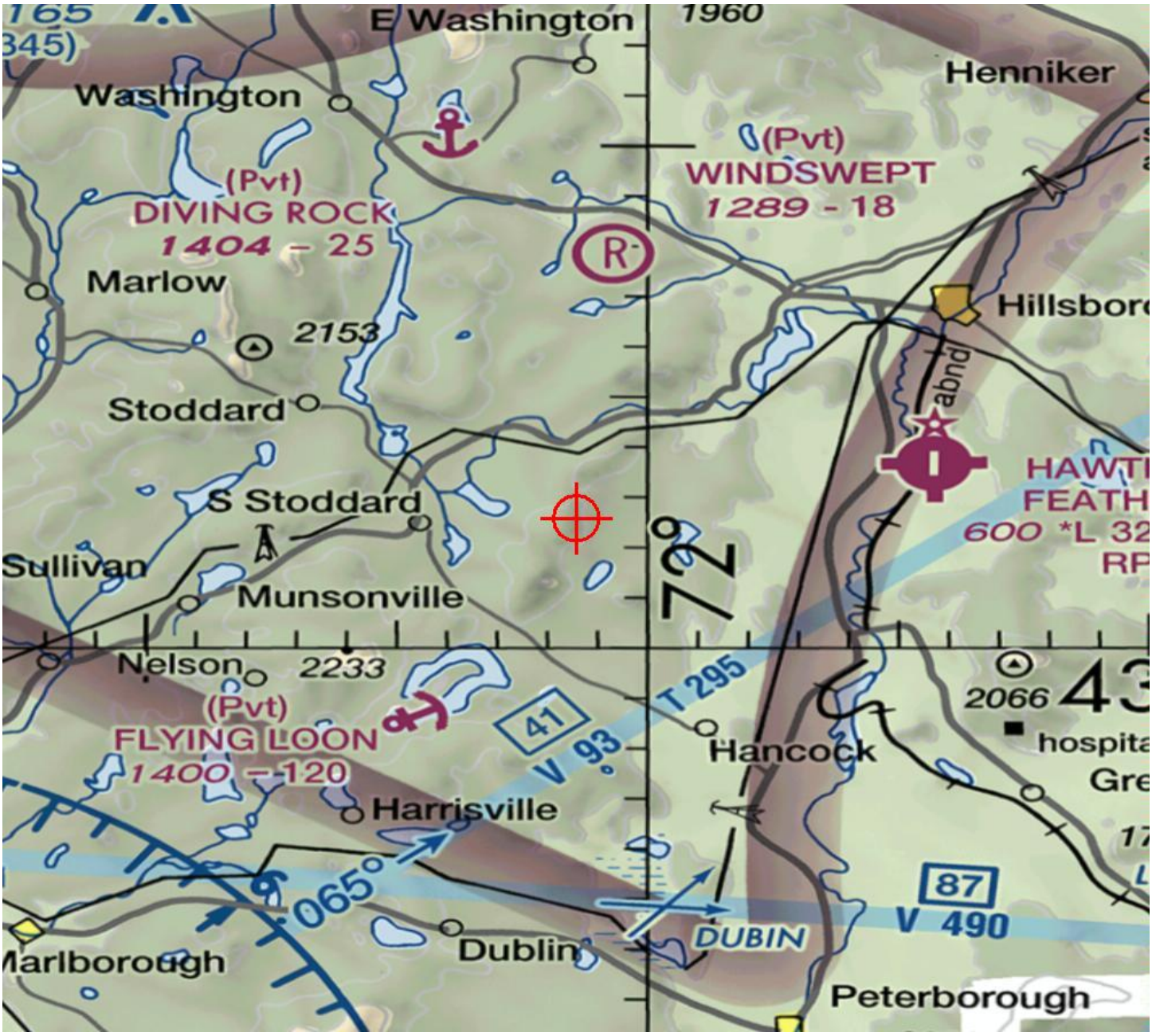


Exhibit B

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-WTE-6207-OE
Prior Study No.
2016-WTE-2717-OE

Issued Date: 12/14/2016

Jack Kenworthy
Antrim Wind LLC
155 Fleet Street
Portsmouth, NH 03801

**** MARKING & LIGHTING RECOMMENDATION ****

The Federal Aviation Administration has completed an evaluation of your request concerning:

Structure:	Lighting Study for Met Tower Met Tower Antrim MET Tower
Location:	Antrim, NH
Latitude:	43-03-39.63N NAD 83
Longitude:	72-00-43.18W
Heights:	1721 feet site elevation (SE) 329 feet above ground level (AGL) 2050 feet above mean sea level (AMSL)

Based on this evaluation, we have no objection to the change provided the structure is marked/lighted in accordance with FAA Advisory Circular 70/7460-1, L Change 1 , Obstruction Marking and Lighting, paint/red lights - Chapters 3(Marked),4,5(Red),&12.

So that aeronautical charts and records can be updated, it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed when the new system is installed and operational.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is approved provided that the equipment meets established technical standards.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-

contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This evaluation concerns the effect of the marking/lighting changes on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2526. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-6207-OE.

Signature Control No: 303082975-312546019 (MAL -WT)
Bill Kieffer
Specialist

Attachment(s)
Additional Information
Map(s)

cc: FCC

Additional information for ASN 2016-WTE-6207-OE

Note:
As a condition to this Determination, the structure should be obstruction marked as noted below.

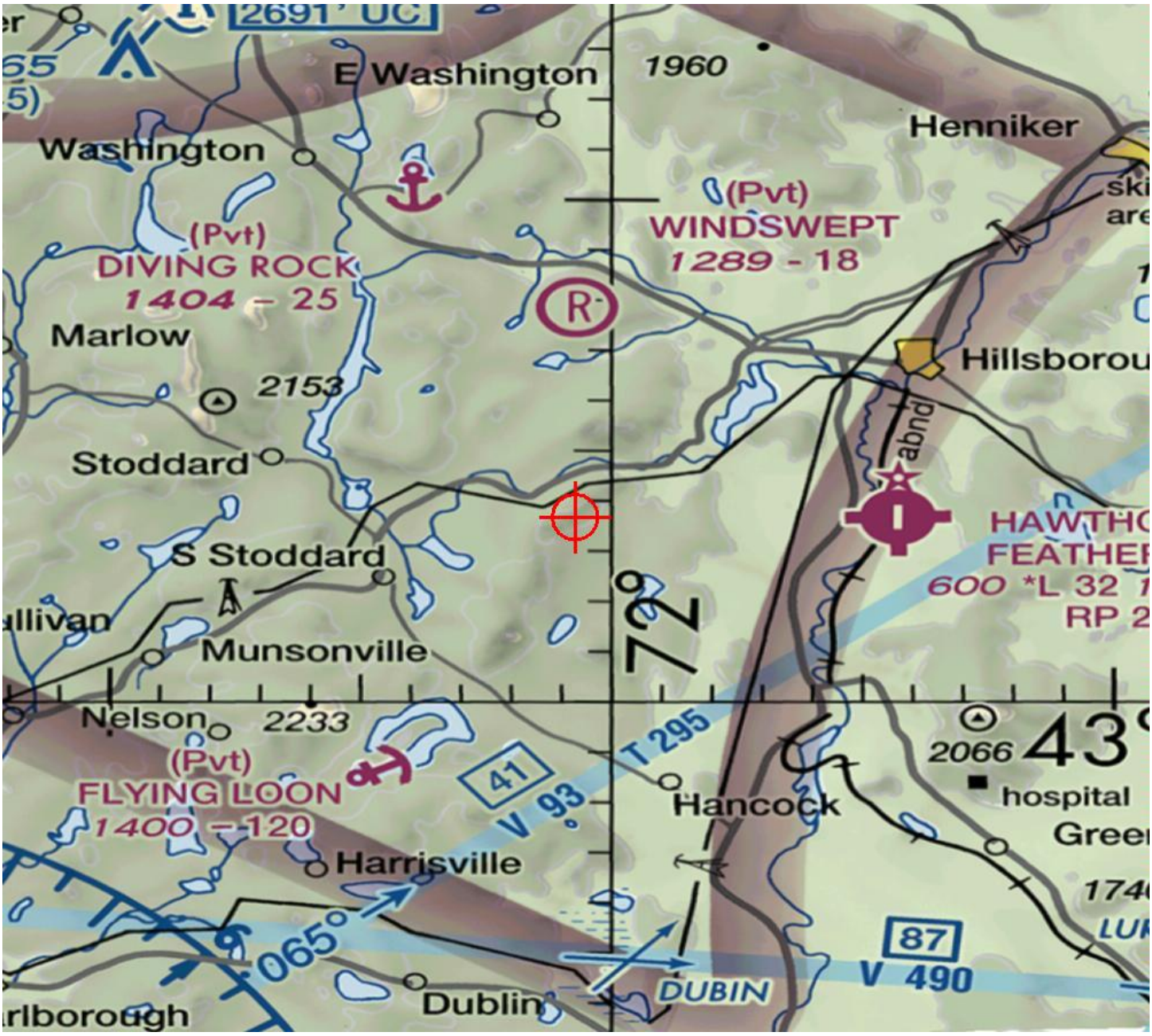
Painting.
The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in FAA Advisory Circular 70/7460-1L, Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

High-Visibility Sleeves.
It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

Spherical Markers.
It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

Sectional Map for ASN 2016-WTE-6207-OE



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March 4, 2020

By email: Pamela.Monroe@sec.nh.gov

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429

Re: Antrim Wind Energy – Status update on the Aircraft Detection Lightning System

Dear Ms. Pamela G. Monroe,

This letter provides a status update on the Aircraft Detection Lightning System (ADLS) at the Antrim Wind Energy facility (AWE). First, we want to clarify that the ADLS was commissioned prior to the Commercial Operation Date (COD) of December 24, 2019. Moreover, each of the two radars composing the system were verified by the manufacturer and obtained their acceptance test report on December 21st, 2019 (as the report contains confidential commercially sensitive information, we have enclosed an excerpt from the report cover letters for each radars).

Under normal operation, the ADLS shuts off the aerial obstruction lights when the system can confirm that the sky is clear of any aircraft vehicle within the vicinity of AWE. If one of the radars cannot confirm a clear sky during dark hours, the aerial obstruction lights will be turned on by the ADLS. Typical causes are anecdotic icing event[1], temporary loss of permanent echo[2], radar fault (e.g. motor tripping), etc. Causes such as these may lead to the aerial obstruction lights being on for 24-72 hours. This is standard operation of the ADLS and complies with Federal Aviation Administration (FAA) requirements. The ADLS communication and operational status are also checked at least once every 24 hours by TransAlta's Wind Control Center (WCC).

Between COD and early February, the ADLS was under normal operation as described above (which included from time to time periods when the lights were on during dark hours). On Saturday February 15, 2020, the motor of the 30m radar tripped. As the ADLS needs both radars in operation to confirm clear sky, the ADLS turned on the lights as required. The manufacturer investigated the situation and reset the motor on February 18. Unfortunately, on February 20, the 30m radar motor tripped again. After a second review by the manufacturer, a new motor was ordered. The motor has been received today (March 4) and a crew is planned to be mobilized at the site on March 6. We expect the system to resume its normal operation during the week of March 9.

[1] Ice that builds-up on the radar itself temporary preventing its proper operation.
[2] The system performs continuous checks on the persistence of distinguishable permanent/fix echo.

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In addition to the examples that require aerial obstruction lights to be turned on as explained above, maintenance and/or repairs, such as the current events related to replacing the motor, that are not completed during a single work day could likely lead to the lights being turned on during the night. Although we are able to respond quite quickly to operational matters because of the WCC, and AWE works closely with the system manufacturer to plan normal course maintenance and repair, certain events will require longer than desired periods of time to ensure proper parts and components can be procured for the safe and proper operation of AWE and its ADLS.

As requested, AWE will notify you of any future unforeseen outages of the ADLS. AWE suggests that as a threshold, and to avoid notifying you for typical causes (e.g. icing events), AWE will provide notice by email where AWE reasonably believes that an ADLS outage will last longer than 48 hours.

We wish to reiterate that TransAlta is committed to the safe operation of all of its facilities including AWE.

Regards,

TRANSALTA CORPORATION

Ethan Mollasalehi, P. Eng.
Antrim Wind Energy Lead Technician & Mechanical Engineer

Encl

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Site Acceptance report excerpt for the radar on the 100 m tower

COMPANY UNCLASSIFIED

SCANTER 5000 Series Site Acceptance Test For OLC/ADLS application

Doc. no: 905302-TG, Rev: A

Annex A Report

Project name	Antrim 2		Site / Other information:
Customer	TransAlta		Antrim 2 100m tower
Project no	4069301		
Project manager	Christian Heidemann Ladefoged		
GPS:	Lat: 43.061003		
	Long: -72.011981		
Transceiver configuration	SCANTER 5202	☒ OLC/ADLS	
Transceiver Power	☒200 W		

	Name	Signature	Date
Performed by	Michael Rahbek	TERMA	21 dec. 2019
Customer accept by	Jeff Nelson		Jan 24, 2020
Witnessed by			
Witnessed by			
Witnessed by			
Witnessed by			

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Site Acceptance report excerpt for the radar on the 30 m tower

Annex A Report

Project name	Antrim ADLS		Site / Other information:
Customer	TransAlta		Antrim 1 30m tower
Project no	4069301		
Project manager	CHHL		
GPS:	Lat: 43.058775		
	Long -72.017136		
Transceiver configuration	SCANTER 5202	☒ OLC/ADLS	
Transceiver Power	☒ 200 W		

	Name	Signature	Date
Performed by	Michael Rahbek	TERMA	21 dec 2019
Customer accept by	Jeff Nelson	Jeff Nelson	Jan 24, 2020
Witnessed by			
Witnessed by			
Witnessed by			
Witnessed by			

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April 17, 2020

By email: Pamela.Monroe@sec.nh.gov

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429

Re: Antrim Wind Energy – Inspection, Maintenance and Optimization of the Aircraft Detection Lightning System

Dear Ms. Pamela G. Monroe,

This letter summarizes the inspection, maintenance and optimization of the Aircraft Detection Lightning System (ADLS) at the Antrim Wind Energy facility (AWE).

Inspection and Maintenance of the ADLS

First, it is important to mention that for the time being, and since the commissioning, the ADLS manufacturer is committed to provide support and maintenance services to AWE's ADLS. In addition, AWE is in the process of getting an agreement to extend this commitment for the next 20 years.

As mentioned previously, the ADLS communication and operational status are checked at least once every 24 hours by TransAlta's Wind Control Center (WCC). WCC and site team involve the ADLS manufacturer support team as required.

In terms of maintenance, TransAlta performs inspections of the system and scheduled maintenance (changing air filters, desiccator, etc.) as recommended by the ADLS manufacturer. The manufacturer also performs preventive and corrective maintenance on the ADLS components as required.

Optimization of the ADLS

Since the commissioning of the ADLS, TransAlta has been working with the ADLS manufacturer in order to optimize the system. Recall that the primary function of the ADLS is to make sure that the aerial obstruction lights are properly turned on when there is an aircraft in the project's vicinity (inside a volume having a minimum radius of 3 nautical miles, the "Detection Zone"). This means that the system uses a conservative approach to assure that any aircraft is properly detected throughout their passage in the Detection Zone (turning on the aerial obstruction lights once it enters the zone and turning it off once it exits). To do so, the system is very sensitive and due to the hilly surrounding it may detect moving objects very close to the ground including car traffic

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and movement in tree canopy. Any moving object detected within the Detection Zone that satisfies specific thresholds (such as radar cross-section, velocity, etc.) will trigger the illumination of the aerial obstruction lights. Additionally, should the detected object tracking be lost or uncertain before exiting the Detection Zone, the system will keep the lights on for a period of 30 minutes (this is per FAA requirements).

During the commissioning, Non-Tracking Zones were defined to reduce the detection by the ADLS of moving objects unrelated to air traffic, such as car traffic on some of the main roads. Currently, the system undergoes optimization using the operational data in order to adjust the Non-Tracking Zones. Those adjusted Non-Tracking Zones would mask the varying ground levels in order to further reduce the detection of moving objects close to the ground and unrelated to air traffic. This is a long and continuing process as more operational data comes in. It is also done in a way to assure that the adjustments still allow for the proper detection of any and all aircrafts inside the Detection Zone.

In addition, optimization is also undergoing to enhance the permanent echo[1] detection which will reduce the occurrence of uncertainty due to temporary loss of permanent echo as explained in our March 4, 2020 letter to your attention.

For both of those optimization processes, it is not possible to define a timeline for completion as they are continuous. Also, due to the current COVID-19 situation, the optimization processes are progressing a little bit slower than usual, but the ADLS still operates as intended and benefit from the inspections and support as required. Nevertheless, we are committed that optimization continues now and, in the future, as necessary.

We wish to reiterate that TransAlta is committed to the safe operation of all its facilities including AWE.

Regards,

TRANSALTA CORPORATION

Ethan Mollasalehi, P. Eng.
Antrim Wind Energy Lead Technician & Mechanical Engineer

[1] The system performs continuous checks on the persistence of distinguishable permanent/fix echo.

From: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Sent: Friday, April 30, 2021 4:27 PM
To: Martin, Dianne <Dianne.H.Martin@puc.nh.gov>
Cc: SEC: Admin <admin@sec.nh.gov>; Scott, Robert <Robert.scott@des.nh.gov>; Lavallee, Jon <jon.lavallee@doj.nh.gov>; Vincent Light <Vincent_Light@transalta.com>
Subject: Antrim Wind Energy AWE- ADLS Upgrade

Dear Chairwoman Martin, .
As part of our efforts to continuously find new opportunities to enhance the performance of our Aircraft Detection Lighting System (ADLS), we hosted the ADLS equipment manufacturer crew since April 7th, 2021 to complete the following main tasks including but not limited to:

- Completing health checks and preventative maintenance on both systems (including filter, dehydrator, review of motor wiring, checking oil level, tightening connections as needed, etc).
- Installing and programming power recorders on both systems to monitor system power stability.
- Installing longer UPS power cables in both systems and UPS network management cards in both systems, which will allow mains power event logging for better troubleshooting in the future if needed, as well as allow us to remotely cycle power of the entire ADLS.
- Installing temperature sensor in both systems to monitor cabinet environment for improved analysis of system performance.
- Loading new software upgrade on the both systems.

Over the next four weeks, the two ADLS radars at Antrim are in "override mode", until the end May. This means that the lights will be forced ON throughout the next four weeks. During this period, the equipment manufacturer will customize the radars for local conditions, and conduct efficiency testing with the newly installed software.
The specific tasks to be undertaken during the customization period include:

- Full setting to work process with new radar software
- Full programming of lighting control servers
- Integration of radar customization and lighting control servers
- Full integration of the two ADLS systems
- Efficiency testing and monitoring period
- Parameter adjustments based on efficiency period data analyzation

We would like to re-iterate that the ADLS installed at Antrim Wind Energy (AWE) facility was commissioned prior to the Commercial Operation Date (COD). The system is, and remains, compliant with all Federal Aviation Administration (FAA) requirements.
The current target date is end of May for full completion, although equipment manufacturer will aim to finish early if practical. We believe the completion of the above tasks are needed in order to enhance the efficiency of the system while stay complaint with FAA requirements. We will notify the SEC once tasks are completed and the ADLS returns to normal operation.
Sincerely,

Ethan Mollasalehi, P.Eng., PhD
Supervisor- US Wind and Solar Operations
TRANSALTA CORPORATION
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Attachment F

17 May 2021

TERMA

Ethan Mollasalehi, P.Eng., PhD
Supervisor- US Wind and Solar Operations
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Cc Mr. Vincent Light, Legal Counsel, Regulatory, TransAlta

ANTRIM Wind Farm ADLS System

Dear Ethan,

As discussed, we are pleased to provide you with a summary of our agreement to proceed with the ADLS upgrade, beginning this past April. Although the existing ADLS solution installed at Antrim was fully operational, as installed in many areas around the globe, together in our weekly TransAlta/Terma meetings, we agreed we should proceed with our latest version of Radar and Lighting Control Server SW. We made this agreement based on the fact that our latest version includes additional features that would further optimize the performance of your system, customized for your latitude and longitude, and surroundings (forest and trees, terrain, wildlife, etc.), at Antrim.

As discussed, any time the radar SW is changed, we must go through an entirely new "Setting to Work" process and commissioning, to include the following, as previously communicated (typically, a four-week process):

1. Full setting to work process with new radar software, fine tuning for local area
2. Full programming of lighting control servers
3. Integration of radar customization and lighting control servers
4. Full integration of the two ADLS systems
5. Efficiency testing and monitoring period (currently in process)
6. Parameter adjustments based on efficiency period data analyzation (currently in process)
7. New Site Acceptance Test for entire ADLS system

During this period, mentioned above, we communicated that the lights would not be suppressed, but rather activated (forced on), as per the FAA regulations, and the system would be in "override" mode. This commenced on April 28, 2021.

Upon completion, you can expect to have a fully optimized, finely tuned solution. As we have also discussed, finely tuned radars and LCS integration aside, the overall system performance

relies heavily on "targets of opportunity", as well as platform and tower stability. On moving platforms, where we also have installed hundreds of radars, we include an inertial navigation system with a ring laser gyrocompass input, to measure heave, pitch and roll, hence keeping the radar antenna stable. As this is not common on a land based installation, the radar depends heavily on a stable tower, whereby the radar pulse that is transmitted ,and "paints" a target, the return echo is expected to be returned to that radar in the same location (not swaying when and where it is not meant to).

We would also like to discuss with you a Flight test at some point in June, flying specific patterns in your entire detection zone, to further optimize/verify the system.

As always, we greatly appreciate the opportunity to serve you.

Kind Regards,

George Toma
Director, Surveillance & Mission Systems

G.1

Monroe, Pamela

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Wednesday, September 11, 2019 3:05 PM
To: Monroe, Pamela
Cc: Jack Kenworthy; Jeff Nelson
Subject: Antrim Wind – 09-09-19 Selectmen meeting summary

Dear Ms. Pamela Monroe,

Apologies for the delayed response as I was travelling and just got back in the office.

TransAlta attended the Antrim Selectman meeting as well Monday night, including the construction manager Jeff Nelson and myself representing the operations. Ms. Shelley Nelkens raised a concern that she believed some of the aviation lights appeared to not be working. TransAlta committed to check the lights Monday evening and did so. It came to our attention that four (4) of the nine (9) temporary lights were not working. The construction team filed a NOTAM's (Notice to Airman) with the Federal Aviation Authority to notify them of an "outage of 30 minutes or greater." We will have this NOTAM in place until the issue is fixed with the four (4) temporary lights. The actions that have been undertaken are in compliance with the FAA requirements and industry practices as recommended by an aerial obstruction consultant.

I want to emphasize that TransAlta is committed to the safe operation of all of its facilities and, in parallel with our internal Environment, Health & Safety audits, welcomes any concerns submitted by local residents to ensure our sites are operating safely everyday.

Our contractor has planned to be on site Monday, September 16, to inspect and replace these (4) lights as needed to ensure proper functioning going forward. The temporary construction lights will remain in place until the commissioning of the permanent lights and associated Aircraft Detection Lightning System later this year. TransAlta plans to advise the Antrim township when the complete and permanent lightning system, including the ADLS, will be installed and fully commissioned. We want to make sure that the local residents are aware once we reach that milestone that the ADLS lights would only be turned on when there is an aircraft in the vicinity.

During the Monday meeting, we also provided an update to the Selectman that we are delaying our COD until the ADLS can be installed and commissioned to be in compliance with our certificate. As well, we provided them a heads up of the NHSEC's request for Antrim Wind to file a motion with respect to our tax equity structure.

Please do not hesitate to contact us if you have any additional questions.

Jeff L.

Jean-François Latour, B. Sc., ASA | Specialist, environment | Wind & Solar Operations
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Direct Line: (403) 267-7451
Email: Jeff_Nelson@transalta.com

September 24, 2019

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 South Fruit St., Suite #10
Concord, NH 03301

Re: Antrim Wind Energy LLC (AWE) – Status update on the aerial obstruction lightning

Dear Ms. Monroe:

This status update follows up on our September 11, 2019 letter. As you know, on Monday, September 9, 2019, AWE completed a site inspection and reported four (4) non-operational aerial obstruction lights to the FAA under a Notices to Airmen (NOTAM[1]) for turbines 3, 4, 5 and 6. Following this inspection, a plan was put in place to have the lights inspected/repaired/replaced as appropriate.

On Monday, September 16th AWE's contractor was on site to inspect the temporary lights that were not functioning, and which had been previously reported to the FAA under a NOTAM. The contractor inspected and tested the lights, which were working at the time of the inspection. However, on the evening of Monday, September 16th AWE inspected the lights again after dusk and the four lights, which were originally in question, were not working as well as one additional light (turbines 3, 4, 5, 6 and 8). AWE promptly contacted the FAA to file the appropriate NOTAM.

On Thursday, September 19th the temporary light for turbine 4 was replaced with a new temporary light, which is currently operational. On Friday, September 20th the permanent light for turbine 6 was commissioned, which will be part of the Aircraft Detection Lighting System ("ADSL"). The permanent light for turbine 3 will be commissioned by Friday, September 27th. The temporary lights for turbines 5 and 8, however, are not operating properly, although NOTAMs have been

[1] A NOTAM is a FAA approved method to communicate a lighting outage of more than 30 minutes. AWE recognizes and is aware that a NOTAM cannot be used instead of temporary lightning. At no time was a NOTAM requested by AWE or issued by the FAA to avoid utilizing temporary lighting during the construction period; temporary lights were installed as described above. However, in the case of outages of the temporary or permanent lights, the FAA Marking & Lighting Conditions for AWE clearly requires that any light outages shall be reported to the FAA: "*Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.*" Therefore, the use of the NOTAM for the current situation is not in violation of any requirements of the Certificate and is a requirement of the FAA to ensure public safety.

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filed with the FAA as required. To resolve this issue, AWE has addressed permanent lighting as discussed below.

The permanent lights for turbines 6 and 7 are currently operating and the permanent lights for turbines 1, 3, 4 and 9 will be commissioned by Friday, September 27th. Once the permanent lights for turbines 1, 3, 4 and 9 are confirmed to be operating, all remaining temporary lighting will be removed from the respective turbine. Pursuant to the Determinations of No Hazard issued to AWE turbines 2, 5 and 8 are not required by the FAA to have permanent lighting.

To the extent necessary, AWE will diligently notify the FAA, as required, for any applicable NOTAM. In addition, AWE will continue completing nightly inspections of the aerial obstruction lighting until the time when the ADLS is installed and commissioned later this year (before COD) and the Town of Antrim will be notified once we reach that milestone. At that time, the permanent lights will operate when aircraft are detected, and the system will be monitored 24/7 by TransAlta's Wind Control Center. In the meantime, the aerial obstruction lights will remain on all night independently of the presence or absence of nearby aerial traffic and will operate in a synchronized manner as required by the FAA Determination of No Hazard.

If you wish to proceed with a visit to assess the situation at the site, our team remains available to coordinate such visit at your convenience.

We wish to reiterate that TransAlta is committed to the safe operation of all of its facilities including AWE.

I would be happy to discuss further or answer any other questions you have.

Yours truly,

TRANSALTA CORPORATION

Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering

G.3

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Jeff Nelson, P. Eng. (Alberta)
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Email: Jeff_Nelson@transalta.com

October 2, 2019

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 South Fruit St., Suite #10
Concord, NH 03301

Re: Antrim Wind Energy LLC (AWE) – Status update on the aerial obstruction lightning

Dear Ms. Monroe:

All permanent lights at AWE are now operational and the temporary lights are no longer required. As committed to in our September 24, 2019 update, turbines 6 and 7 now have permanent lights installed and are operational. On September 24th, the permanent lights on turbines 4 and 9 were placed into service. During the next nightly inspection, it was confirmed that the lights on turbines 4 and 9 were operating. On September 25th, the permanent lights on turbines 1 and 3 were placed into service and their operation was confirmed during the next nightly inspection.

During the inspection on the night of the 25th, it was determined, however, that the light on turbine 9 was not working properly. A NOTAM was promptly filed with the FAA for turbine 9. Upon further investigation, it was determined that the light on turbine 9 was defective. The delivery of a replacement light was expedited and installed on October 1st. The permanent light on turbine 9 is now fully operational. Pursuant to the Determinations of No Hazard issued to AWE, turbines 2, 5 and 8 are not required by the FAA to have permanent lighting.

AWE will continue nightly inspections of the aerial obstruction lighting until the time when the Aircraft Detection Lighting System (ADLS) is installed and commissioned later this year (before commercial operation). The Town of Antrim will be notified when the ADLS is commissioned and operating. At that time, the permanent lights will operate only when aircraft are detected by the ADLS, and this system will be monitored 24/7 by TransAlta's Wind Control Center. In the meantime, the aerial obstruction lights currently on the turbines will remain on all night independently of the presence or absence of nearby aerial traffic and will operate in a synchronized manner as required by the FAA Determination of No Hazard.

We wish to reiterate that TransAlta is committed to the safe operation of all of its facilities including AWE. If you wish to visit the site to assess the situation, our team remains available to coordinate such visit at your convenience. I would be happy to discuss further or answer any other questions you have.

Yours truly,

TRANSALTA CORPORATION

Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering

G.4

Attachment G

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Site Evaluation Committee
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Robert R. Scott
Vice-Chair

October 4, 2019

VIA E-MAIL AND FIRST-CLASS MAIL
Richard Block
63 Loveren Mill Rd.
Antrim, NH 03440

Janice D. Longgood
156 Salmon Brook Road
Antrim, NH 03440

Annie Law and Robert Cleland
43 Farmstead Road
Antrim, NH 03440

Shelley Nelkens

Re: Site Evaluation Committee Docket No. 2015-02 – Antrim Wind Energy, LLC
Response to Request for Enforcement and Penalties

Dear Mses. Nelkens, Longgood, and Law; and Messrs. Block and Cleland:

On March 17, 2017, the Site Evaluation Committee (Committee) issued an Order and Certificate of Site and Facility with Conditions (Certificate) to Antrim Wind Energy, LLC (AWE) to site, construct and operate 9 Siemens direct drive wind turbines. On September 17, 2019, the Committee received the subject correspondence signed by Richard Block, Shelley Nelkens, Janice D. Longgood, Annie Law, and Robert Cleland (Intervenors). The Intervenors state that AWE violated the Certificate by failing to ensure operation of temporary lights and that the filing of a Notice to Airmen (NOTAM) did not cure the violation. The Intervenors rely on a condition in the Certificate requiring AWE to comply with all conditions of Determinations of No Hazard to Air Navigation (Determinations) issued by the Federal Aviation Administration (FAA) and incoporated as Appendix IV to the Certificate. The Intervenors assert that the Determinations prohibit the use of a NOTAM in place of the temporary lighting "until the entire project has been completed," and request that the Committee enforce the Certificate and "appropriately penalize" AWE for failing to comply with the Certificate.

Background

On September 10, 2019, the Administrator received a call from a member of the public stating that the previous evening she raised a concern at a Town of Antrim Selectboard meeting that the temporary lighting installed on the Antrim Wind Energy Project (AWE) was not operating. Shortly after receiving the complaint, the Administrator sent an e-mail to representatives of AWE requesting information on the status of the temporary lighting. On September 11, 2019, the Committee received an e-mail from TransAlta Corporation, parent company of AWE, advising the Committee of the steps that AWE was undertaking to investigate and respond to the complaint. Specifically, AWE confirmed that as of September 9, 2019, four of the nine temporary lights were not working and that NOTAMs were filed with the FAA notifying of an "outage of 30 minutes or greater," and that a contractor would be on-site to inspect and assess the temporary lighting on September 16. On September 17, the Committee received the Intervenors correspondence referenced above.

On September 24, 2019, AWE filed a response to the Intervenors submittal, asserting that the temporary lighting was installed, but was not operational, when the site inspection was conducted on September 9; that NOTAMs were filed with the FAA; and that a plan was put in place to have the lights inspected/repaired/replaced as appropriate. *See* Attachment A. The correspondence outlined a series of steps that AWE was taking to replace the malfunctioning temporary lights with new temporary lights and a plan to install and commission permanent lights that will be part of the Aircraft Detection Lighting System (ADLS). AWE noted that turbines 2, 5, and 8, are not required to have permanent lighting pursuant to the Determinations. AWE stated that it recognizes and is aware that a NOTAM cannot be used in place of temporary lighting during the construction period. AWE also represented that it will conduct nightly inspections and will continue this practice until the ADLS is installed and commissioned.

On October 2, AWE sent a status update to the Committee outlining the steps that it had taken since September 24, and among other things, noted that permanent lights have been installed and are all now operational on turbines 1, 3, 4, 6, 7, and 9. *See* Attachment B. AWE also reiterated that it will continue nightly inspections of the aerial obstruction lighting until such time as the ADLS is installed and commissioned.

Analysis

On September 25, the Administrator spoke with Bill Kieffer of the FAA to discuss the complaint, AWE's response, and the federal requirements. The Certificate, at page 4 and Appendix IV, requires AWE to comply with the Determinations issued by the FAA. The Determinations state:

> In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. . . The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited. ...

> Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

AWE filed the NOTAMs as required by the Determinations and did not rely on NOTAMs instead of installing the required temporary lighting during construction of the Project. Pursuant to the terms and conditions of the Certificate, AWE installed the required temporary lights, promptly contacted the FAA, and filed NOTAMs once it discovered that some of the temporary lights were not functioning properly. The temporary lights have been replaced with permanent lights on turbines 1, 3, 4, 6, 7, and 9. In accordance with Appendix IV, turbines 2, 5, and 8, are not required to have permanent lighting. AWE acted appropriately and in accordance with the terms and conditions of the Certificate in responding to the complaint regarding the temporary lighting malfunction. Accordingly, no enforcement action is recommended or required.

AWE shall continue nightly inspections of the aerial obstruction lighting until such time as the ADLS is installed, commissioned, and operational.

Sincerely,

Pamela G. Monroe
Administrator

Ec: Donna Hanson, Antrim Town Administrator
Justin Richardson, Upton & Hatfield
Jeff Nelson, TransAlta
Jean-Francois Latour, TransAlta

ATTACHMENT A

TransAlta

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Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering | Construction & Development Engineering
Direct Line: (403) 267-7451
Email: Jeff_Nelson@transalta.com

September 24, 2019

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 South Fruit St., Suite #10
Concord, NH 03301

Re: Antrim Wind Energy LLC (AWE) – Status update on the aerial obstruction lightning

Dear Ms. Monroe:

This status update follows up on our September 11, 2019 letter. As you know, on Monday, September 9, 2019, AWE completed a site inspection and reported four (4) non-operational aerial obstruction lights to the FAA under a Notices to Airmen (NOTAM[1]) for turbines 3, 4, 5 and 6. Following this inspection, a plan was put in place to have the lights inspected/repaired/replaced as appropriate.

On Monday, September 16th AWE's contractor was on site to inspect the temporary lights that were not functioning, and which had been previously reported to the FAA under a NOTAM. The contractor inspected and tested the lights, which were working at the time of the inspection. However, on the evening of Monday, September 16th AWE inspected the lights again after dusk and the four lights, which were originally in question, were not working as well as one additional light (turbines 3, 4, 5, 6 and 8). AWE promptly contacted the FAA to file the appropriate NOTAM.

On Thursday, September 19th the temporary light for turbine 4 was replaced with a new temporary light, which is currently operational. On Friday, September 20th the permanent light for turbine 6 was commissioned, which will be part of the Aircraft Detection Lighting System ("ADSL"). The permanent light for turbine 3 will be commissioned by Friday, September 27th. The temporary lights for turbines 5 and 8, however, are not operating properly, although NOTAMs have been

[1] A NOTAM is a FAA approved method to communicate a lighting outage of more than 30 minutes. AWE recognizes and is aware that a NOTAM cannot be used instead of temporary lightning. At no time was a NOTAM requested by AWE or issued by the FAA to avoid utilizing temporary lighting during the construction period; temporary lights were installed as described above. However, in the case of outages of the temporary or permanent lights, the FAA Marking & Lighting Conditions for AWE clearly requires that any light outages shall be reported to the FAA: "*Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.*" Therefore, the use of the NOTAM for the current situation is not in violation of any requirements of the Certificate and is a requirement of the FAA to ensure public safety.

ATTACHMENT A

TransAlta

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filed with the FAA as required. To resolve this issue, AWE has addressed permanent lighting as discussed below.

The permanent lights for turbines 6 and 7 are currently operating and the permanent lights for turbines 1, 3, 4 and 9 will be commissioned by Friday, September 27th. Once the permanent lights for turbines 1, 3, 4 and 9 are confirmed to be operating, all remaining temporary lighting will be removed from the respective turbine. Pursuant to the Determinations of No Hazard issued to AWE turbines 2, 5 and 8 are not required by the FAA to have permanent lighting.

To the extent necessary, AWE will diligently notify the FAA, as required, for any applicable NOTAM. In addition, AWE will continue completing nightly inspections of the aerial obstruction lighting until the time when the ADLS is installed and commissioned later this year (before COD) and the Town of Antrim will be notified once we reach that milestone. At that time, the permanent lights will operate when aircraft are detected, and the system will be monitored 24/7 by TransAlta's Wind Control Center. In the meantime, the aerial obstruction lights will remain on all night independently of the presence or absence of nearby aerial traffic and will operate in a synchronized manner as required by the FAA Determination of No Hazard.

If you wish to proceed with a visit to assess the situation at the site, our team remains available to coordinate such visit at your convenience.

We wish to reiterate that TransAlta is committed to the safe operation of all of its facilities including AWE.

I would be happy to discuss further or answer any other questions you have.

Yours truly,

TRANSALTA CORPORATION

jeff_nelson@transalta.com

Digitally signed by jeff_nelson@transalta.com
DN cn=jeff_nelson@transalta.com
Date: 2019.09.24 15:49:55 -06'00'

Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering

ATTACHMENT 13

TransAlta

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Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering | Construction & Development Engineering
Direct Line: (403) 267-7451
Email: Jeff_Nelson@transalta.com

October 2, 2019

New Hampshire Site Evaluation Committee
Attention: Pamela G. Monroe, Administrator
21 South Fruit St., Suite #10
Concord, NH 03301

Re: Antrim Wind Energy LLC (AWE) – Status update on the aerial obstruction lightning

Dear Ms. Monroe:

All permanent lights at AWE are now operational and the temporary lights are no longer required. As committed to in our September 24, 2019 update, turbines 6 and 7 now have permanent lights installed and are operational. On September 24th, the permanent lights on turbines 4 and 9 were placed into service. During the next nightly inspection, it was confirmed that the lights on turbines 4 and 9 were operating. On September 25th, the permanent lights on turbines 1 and 3 were placed into service and their operation was confirmed during the next nightly inspection.

During the inspection on the night of the 25th, it was determined, however, that the light on turbine 9 was not working properly. A NOTAM was promptly filed with the FAA for turbine 9. Upon further investigation, it was determined that the light on turbine 9 was defective. The delivery of a replacement light was expedited and installed on October 1st. The permanent light on turbine 9 is now fully operational. Pursuant to the Determinations of No Hazard issued to AWE, turbines 2, 5 and 8 are not required by the FAA to have permanent lighting.

AWE will continue nightly inspections of the aerial obstruction lighting until the time when the Aircraft Detection Lighting System (ADLS) is installed and commissioned later this year (before commercial operation). The Town of Antrim will be notified when the ADLS is commissioned and operating. At that time, the permanent lights will operate only when aircraft are detected by the ADLS, and this system will be monitored 24/7 by TransAlta's Wind Control Center. In the meantime, the aerial obstruction lights currently on the turbines will remain on all night independently of the presence or absence of nearby aerial traffic and will operate in a synchronized manner as required by the FAA Determination of No Hazard.

We wish to reiterate that TransAlta is committed to the safe operation of all of its facilities including AWE. If you wish to visit the site to assess the situation, our team remains available to coordinate such visit at your convenience. I would be happy to discuss further or answer any other questions you have.

Yours truly,

TRANSALTA CORPORATION

jeff_nelson@transalta.com Digitally signed by jeff_nelson@transalta.com DN: cn=jeff_nelson@transalta.com Date: 2019.10.02 07:34:20 -06'00'

Jeff Nelson, P. Eng. (Alberta)
Manager, Project Engineering

G.5

Attachment G

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Antrim Wind Energy LLC
c/o TransAlta Holdings U.S. Inc.
110-12th Avenue SW
PO Box 1900, Station "M"
Calgary, AB T2P 2M1 Canada

December 29, 2019

Chairman, Antrim Board of Selectman
66 Main Street
PO Box 517
Antrim, NH 03440

Re: Written Notice under Section 2 of the Payment in Lieu of Taxes Agreement dated June 27, 2013, and as amended thereafter (collectively, the "PILOT Agreement")

Dear Chairman,

All defined terms in this letter not defined in this letter shall have the meaning ascribed to them in the PILOT Agreement.

In accordance with Section 2 of the PILOT, AWE hereby provides written notice that the Commercial Operation Date occurred on December 24, 2019 at 12:00am Eastern Standard Time.

The Facility's actual Nameplate Capacity is 28.8MW.

The tax lot information for the Switchyard Lot is Tax Map 212, Lot 27-001.

If the preceding is acceptable, AWE proposes to provide the Town with a proposed letter amendment to incorporate the foregoing by January 15, 2020. Please do not hesitate to reach out to TransAlta's Operations Supervisor for AWE Julie Turgeon at julie_turgeon@transalta.com or at +1(514) 587-2994 in the interim should you have any questions or concerns.

Thank you for your continued support.

Antrim Wind Energy LLC

jeff_nelson@transalta.com
Digitally signed by jeff_nelson@transalta.com
DN: cn=jeff_nelson@transalta.com
Date: 2019.12.29 15:23:49 -07'00'

Name

MANAGER, PROJECT ENGINEERING

G.6

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Thursday, April 23, 2020 4:43 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Subject: Antrim Wind - ADLS update

Dear Ms. Pamela Monroe,

This email is to inform you that on April 23 4:08 am local time, the Aircraft Detection Lightning System (ADLS) experienced radar faults/errors. The aerial obstruction lights were turned on as required. The situation was assessed and the main fault/error was resolved on April 22 in the afternoon. However, while actively monitoring the system on the same evening (April 22), we notice intermittent occurrences of punctual communication faults/errors that each lasted couple seconds. Those occurred each couple minutes or hours, interval not consistent, and the system activated each time the fail-safe mode which turns on the lights for the duration of the error/fault (couple seconds). We are currently working with the ADLS manufacturer to resolve these communication faults/errors, but don't have an expected timeline for resolution at this point. In the meantime, as indicated in our March 4th letter, any period during dark hours that the ADLS is unable to confirm the sky is clear, the aerial obstruction lights are turned on as required.

The current email will also be forwarded to the Antrim Town administrator for information purposes.

If you have any further questions, please let me know.
Thanks and best regards,

Jeff L.

Jean-François Latour, B. Sc., ASA | Specialist, environment | Wind & Solar Operations
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From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Thursday, April 30, 2020 4:37 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>; Iacopino, Michael J <miacopino@brennanlenehan.com>
Subject: RE: Antrim Wind - ADLS update

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Ms. Pamela Monroe,

Revisiting this email, please note that I made a typo on the initial date which should been the 21 instead of the 23: "*This email is to inform you that on April 21 4:08 am local time* […]". Apologies for the confusion.

If you have any further questions, please let me know.
Thanks and best regards

Jeff L.

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From: Jean-Francois Latour
Sent: April 23, 2020 4:43 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Subject: Antrim Wind - ADLS update

Dear Ms. Pamela Monroe,

This email is to inform you that on April 23 4:08 am local time, the Aircraft Detection Lightning System (ADLS) experienced radar faults/errors. The aerial obstruction lights were turned on as required. The situation was assessed and the main fault/error was resolved on April 22 in the afternoon. However, while actively monitoring the system on the same evening (April 22), we notice intermittent occurrences of punctual communication faults/errors that each lasted couple seconds. Those occurred each couple minutes or hours, interval not consistent, and the system activated each time the fail-safe mode which turns on the lights for the duration of the error/fault (couple seconds). We are currently working with the ADLS manufacturer to resolve these communication faults/errors, but don't have an expected timeline for resolution at this point. In the meantime, as indicated in our March 4th letter, any period during dark hours that the ADLS is unable to confirm the sky is clear, the aerial obstruction lights are turned on as required.

The current email will also be forwarded to the Antrim Town administrator for information purposes.

If you have any further questions, please let me know.
Thanks and best regards,

Jeff L.

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G.7

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Anik Whittom
Manager, Wind & Solar Operations
Direct Line: 418-562-4070
Email: Anik_Whittom@transalta.com

May 1, 2020

By email: Pamela.Monroe@sec.nh.gov

New Hampshire Site Evaluation Committee (NHSEC)
Attention: Pamela G. Monroe, Administrator
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429

Re: Antrim Wind Energy – Letter from the Aircraft Detection Lighting System manufacturer/provider

Dear Ms. Pamela G. Monroe,

Please find attached a letter from the manufacturer and provider of the Aircraft Detection Lighting System (ADLS) at the Antrim Wind Energy facility (AWE). We believe this letter should bring some comfort to NHSEC as it confirms that the ADLS is in compliance with FAA requirements.

We wish to reiterate that TransAlta is committed to the safe operation of all its facilities including AWE.

Regards,

TRANSALTA CORPORATION

Anik Whittom
Manager, Wind & Solar Operations

Attachment G

1 May 2020

TERMA

TransAlta Corporation
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Attn: Ms. Anik Whittom, Manager, Wind & Solar Operations.
Your ref TransAlta PO 4500429655 for Antrim Wind Farm, NH
Our ref 40693 (ADLS for Antrim Wind Farm)

Dear Ms. Whittom,

I'm writing on the behalf of Terma North America, a subsidiary of Terma A/S and the manufacturer and provider of the Aircraft Detection Lighting System (ADLS) at the Antrim Wind Energy facility (AWE). First, I want to reiterate that Terma North America remains committed to ensuring continuous optimal performance of the ADLS system at the AWE.

To that end it is important to understand that AWE's ADLS systems, comprising of two radars are performing correctly and as designed in accordance with the aircraft detection lighting system (ADLS) requirements specified in Federal Aviation Administration (FAA) Advisory Circular (AC) 70/7460-1L, "Obstruction Marking and Lighting," Chapter 14 – Aircraft Lighting Detection Systems; in that the lights are turned on when appropriate. The Terma ADLS Radar system is also a type that is approved by the Federal Communication Commission (FCC).

Furthermore, we want to emphasize that the primary function of the Terma ADLS is to ensure the safety of any aircraft prior to the aircraft penetrating the perimeter of the volume around the Wind Farm. Per FAA requirements, this Detection Zone is a minimum of 3 NM (5.5 km) away from the obstruction or the perimeter of a group of obstructions, as well as a vertical detection which extends from the ground up to 1000 ft (304 m) above the highest part of the obstruction or group of obstructions, for all areas within the 3-NM (5.5-km) perimeter defined above. Any moving object detected within the Detection Zone that satisfies specific thresholds (such as radar cross-section, velocity, etc.) will trigger the illumination of the aerial obstruction lights.

Additionally, per FAA requirements, should the detected object tracking be lost or uncertain before exiting the Detection Zone, the ADLS will initiate a 30-minute timer and keep the obstruction lights on until the timer expires. As such the aerial obstruction lighting may preemptively be turned on at times, as the system is designed to only allow the obstruction lighting to be turned off when there is absolute certainty of no movement within the FAA determined Detection Zone.

In the event of an ADLS is unable to confirm that the sky is clear, the ADLS must automatically turn on all the obstruction lighting and operate in accordance with AC 70/7460-1L as if it was not controlled by an ADLS. The obstruction lighting must remain in this state until the ADLS is able to confirm again that the sky is clear within the FAA determined Detection Zone.

In closing, assuring the best possible performance of the ADLS system installed at the Antrim Wind Farm, has the highest priority of Terma North America, as well as our Danish parent company Terma A/S.

Yours sincerely,

Frank Christophersen

Frank Christophersen
Director, SMS
Terma North America Inc.
Frank.christophersen@termana.com
+1 571 480 1878

G.8

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Memorandum

Date: May 5, 2020

To: NHSEC – Pamela G. Monroe, Brennan Lenehan - Michael J. Iacopino

From: TransAlta - Jean-François Latour

Re: Antrim Wind Energy (AWE) – Information request on the Aircraft Detection Lighting System (ADLS)

Please find our responses to the Information Request received from Mr. Michael J. Iacopino on April 30, 2020.

Item	Questions	Response
1	Can we confirm that the February 15 – 18 problem was not the result of ice?	The ADLS outage causing the aerial obstruction light to be turned on between February 15 and 18 was caused by the motor of the 30m radar that tripped.
2	Was the radar motor that tripped in February ever replaced?	After inspection by the ADLS manufacturer, the 30m radar motor drive was replaced on March 6.
3	What is the FAA support for the proposition that the 24-72 hours is standard for the lights to remain on? See March 4, 2020 correspondence from Transalta.	Per Federal Aviation Administration (FAA) requirements, Advisory Circular (AC) 70/7460-1L, section 14.2.5.1: *In the event of an ADLS component or system failure, the ADLS should automatically turn on all the obstruction lighting and operate in accordance with this AC as if it was not controlled by an ADLS. The obstruction lighting must remain in this state until the ADLS and its components are restored.* The March 4, 2020 letter provided an expected timeline of 24-72 for system restoration following typical causes of *component or system failure*, such as icing event[1], temporary loss of Permanent Echo[2], radar fault (e.g. motor tripping), etc. These causes render the ADLS unable to confirm that the sky is clear and turns on the lights as required by FAA established standards.

[1] Ice that builds-up on the radar itself temporary preventing its proper operation.
[2] The system performs continuous checks on the persistence of distinguishable permanent/fix echo.

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Item	Questions	Response
4	Were there new Determinations after the certificate issued? Were they filed with the Committee?	One FAA's Determination of No Hazard (DNH) has been issued post-certificate and has been provided to NHSEC (https://www.nhsec.nh.gov/projects/2015-02/post-certificate-filings/2015-02_2019-10-17_faa_determ_met_tower.pdf). Latest FAA Marking & Lightning Recommendation (MLR) for the met towers at Antrim, respectively 2019-WTE-5540-OE and 2019-WTE-5541-OE were also provided recently to NHSEC (April 29, 2020). At the same time, the turbines MLR were also resubmitted for NHSEC's convenience (2016-WTE-6204-OE, 2016-WTE-6205-OE, 2016-WTE-6206-OE, 2016-WTE-6208-OE, 2016-WTE-6209-OE, 2016-WTE-6210-OE, 2016-WTE-6211-OE, 2016-WTE-6212-OE, 2016-WTE-6213-OE).
5	Need explanation of the communication fault/issue described in the April 23, 2020 email.	On April 21 4:08 am the ADLS experienced a continuous communication/control error between system components. The aerial obstruction lights were turned on as required by FAA section AC 70/7460-1L, section 14.2.5.1. The continuous communication error was investigated by the ADLS manufacturer and resolved in the afternoon of April 22. As described in the April 23 email, following the resolution of the continuous communication/control error, it was found that intermittent occurrences of punctual communication faults/errors remained after April 22 (few seconds each minutes or hours, not consistent). During those occurrences, the aerial obstruction lights were/are turned on as required for few seconds at a time. See below for more details.

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Item	Questions	Response
6	Status of repairs to the communications error?	The continuous communication/control error between system components noticed on April 21 4:08 am was investigated by the ADLS manufacturer and resolved in the afternoon of April 22. Since April 22, the ADLS manufacturer investigated the intermittent occurrences of punctual communication faults/errors. After analysis, the ADLS manufacturer found the following and executed the actions as indicated: - 2s communication faults/errors: These communication faults/errors are causing the aerial obstruction lights to be turned on during 2s. After investigation and corrective actions, these were resolved on April 24 (per confirmation by ADLS manufacturer on April 29); - 10s communication faults/errors: These communication faults/errors are causing the aerial obstruction lights to be turned on during 10s. A first fix was rolled out on April 23. However, the fix seems to have corrected the situation only in part. The analysis continues and preparation of a second fix is currently ongoing by the ADLS manufacturer (Estimated Time of Delivery: unknown).
7	Have the lights been operational since the 4/22 problem? If so in what mode?	Since the afternoon of April 22, the ADLS is back to its normal operation mode in the sense that it was and is turning on the lights as required (moving object detected within the Detection Zone, lost/uncertainty 30 mins timer, fault/error). The occurrence of illumination due to punctual communication faults/errors were reduced following the deployment of the fixes described above, but an additional fix is pending to resolve it completely.
8.a	In the April 17 correspondence you state: "*In addition, optimization is also undergoing to enhance the permanent echo detection which will reduce the occurrence of uncertainty due to temporary loss of permanent echo as explained in our March 4, 2020 letter to your attention.*" Was a loss of permanent echo detection a contributor to the February situation where the lights were observed to be on for an extended period of time?	The loss of Permanent Echo detection was not a contributor to the February 15-18 situation.

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Item	Questions	Response
8.b	What is the current status of the optimization efforts?	The two main optimizations are the adjustment of the Non-Tracking Zones and the enhancement of the detection of the Permanent Echo. - The adjustment of the Non-Tracking Zones aims at reducing the detection by the ADLS of moving objects unrelated to air traffic, such as car traffic and movement in tree canopy. Before any adjustment can be made, careful review and analysis are required to assure that the adjustments still allow for the proper detection of any and all aircrafts inside the Detection Zone. The operational data is under review at this moment by the ADLS manufacturer and further data acquisition may be required to assure the safety of any aircraft inside the Detection Zone. - The operational data for the Permanent Echo has been reviewed by the ADLS manufacturer. Various strategies for Permanent Echo detection enhancement are currently explored as existing tall objects in the vicinity of AWE provide limited stable/persistent echo for the radars. The analysis of these strategies is currently ongoing.

We believe the responses provided herein should address all items raised in the Information Request received by email from Mr. Michael J. Iacopino on April 30, 2020.

Regards,

TRANSALTA CORPORATION

Jean-François Latour, B. Sc., ASA
Specialist, environment | Wind & Solar Operations

G.9

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Friday, June 5, 2020 5:19 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Subject: Antrim Wind - ADLS light on statistics

Dear Ms. Pamela Monroe,

Per your request regarding the Aircraft Detection Lighting System (ADLS), you'll find below a summary of the aerial obstruction light on time during the period between May 26 and June 3.

Those stats are extrapolated from the ADLS log comprise of hundreds, if not thousands, of lines; it is therefore an lengthy process to analyze the data, hence why only 8 days are presented here. Currently the system complies with the log of activity data requirement as per FAA Advisory Circular 70/7460-1L section 14.2.8 ("*Each ADLS installation should maintain a log of activity data for a period of no less than the previous 15 days.*"), but it doesn't have the ability to export the light on time stats automatically (which is not a FAA requirement).

The data is presented on a per night basis representing the total duration of aerial obstruction light illumination (e.g. on the night of 26-27 May, lights were on for a total time of 0.31 hour between twilight on the evening of May 26 till sunrise on the morning of May 27). The table also presents the number of uncertainty events. These events refer to a 30-mins timer that keeps the lights on when an object tracking is lost or uncertain before exiting the Detection Zone (this is required per FAA AC 70/7460-1L section 14.2.2.1: "[…] *In the event detection of the aircraft is lost while being continuously monitored within the 3 NM/1,000 foot (5.5 km/304 m) volume, the ADLS should initiate a 30-minute timer and keep the obstruction lights on until the timer expires.* […]").

Night of	Lights on (hours)	Uncertainty event
26-27 May	0.31	0
27-28 May	0.62	1
28-29 May	0.00	0
29-30 May	2.12	4
30-31 May	0.03	0
31 May - 1 June	0.54	0
1-2 June	0.57	1
2-3 June	0.54	1

As confirmed by the ADLS manufacturer in a letter (May 1, 2020) we transmitted to your attention, the " […] *ADLS systems, comprising of two radars are performing correctly and as designed in accordance with the aircraft detection lighting system (ADLS) requirements specified in Federal Aviation Administration (FAA) Advisory Circular (AC) 70/7460-1L* […]" and as such, " […] *the system is designed to only allow the obstruction lighting to be turned off when there is absolute certainty of no movement within the FAA determined Detection Zone*."

I hope this could put in perspective the performance of the AWE's ADLS.
Thanks and have a great weekend!

Jeff L.

Jean-François Latour, B. Sc., ASA | Specialist, environment | Wind & Solar Operations
TRANSALTA CORPORATION
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Email | Web | Facebook | twitter

G.10

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Tuesday, June 30, 2020 5:56 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>; antrimbiz@tds.net
Subject: Antrim Wind - ADLS update

Dear Ms. Pamela Monroe,

This email is to inform you that due to a radar fault/error, as required by the FAA, the aerial obstruction lights were turned on as required during the night between June 29 and 30, 2020. The situation was assessed with the ADLS manufacturer and after review the system was reset this afternoon. At this time, we believe that this has resolved the issue and we will keep monitoring closely the system operational status.

For information purposes, Antrim Town administrator is cc on this email.

If you have any questions, please let me know.
Thanks and best regards,

PS Please note that tomorrow July 1 is a Canadian holyday so I will have limited access to my emails.

Jeff L.

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G.11

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Tuesday, July 28, 2020 5:49 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Subject: Antrim Wind - ADLS optimization update

Dear Ms. Pamela Monroe,

Per your request, here is an update regarding the Aircraft Detection Lighting System (ADLS) optimization at Antrim Wind Energy facility (AWE).

Couple months ago, AWE and the ADLS' manufacturer has assembled a dedicated task group to help the execution and coordination of the ADLS' optimization. The task group meets once a week to assure continuous process in the optimization.

Regarding the adjustment of the non-tracking zones (and other settings) in order to reduce the number of uncertainty events, several adjustments were done at different time between the commissioning of the ADLS and now. At this point, further data acquisition is necessary before any additional changes can be made in order to assure the detection of any and all aircraft inside the Detection Zone. Nevertheless, the number of uncertainty events has been reduced to less than one per night on average according to the last statistical analysis (ref: June 5 email to your attention) and up to 4 per night. Recall that these uncertainty events refer to the FAA AC 70/7460-1L section 14.2.2.1 requirement: "[…] *In the event detection of the aircraft is lost while being continuously monitored within the 3 NM/1,000 foot (5.5 km/304 m) volume, the ADLS should initiate a 30-minute timer and keep the obstruction lights on until the timer expires.* […]"

Regarding the Permanent Echo optimization, all existing potential echo/target within the required radar range have been reexplored. While the task group is continuing to look for ways to optimize Permanent Echo, it is possible that we already reached a point where this cannot be reasonably further optimized. Note that the aerial light "on time" due to temporary loss of Permanent Echo, in the absence of heavy precipitation, has been reduced to something quite minimal (on average less than one minute per night according to data provided by the ADLS manufacturer since the beginning of July).

In conclusion, we want to reiterate that the ADLS currently operates as per FAA requirements and as mentioned by the ADLS manufacturer in his May 1, 2020 letter, " […] *the system is designed to only allow the obstruction lighting to be turned off when there is absolute certainty of no movement within the FAA determined Detection Zone.*"

I hope this could put in perspective the performance of the AWE's ADLS.
Thanks and best regards,

Jeff L.

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G.12

From: Jean-Francois Latour <JeanFrancois_Latour@transalta.com>
Sent: Tuesday, August 25, 2020 6:06 PM
To: Monroe, Pamela <Pamela.Monroe@sec.nh.gov>
Cc: Ethan Mollasalehi <Ethan_Mollasalehi@transalta.com>
Subject: Antrim Wind - ADLS update, clarifications and performance statistics

Dear Ms. Pamela Monroe,

Per your request, here is an update regarding the Aircraft Detection Lighting System (ADLS) at Antrim Wind Energy facility (AWE) and some clarifications regarding the system requirements and current performance.

Clarification on the ADLS requirements
Per Federal Aviation Administration (FAA), the main purpose of the ADLS is as follows (ref: FAA AC 70/7460-1L section 14.1):

> *Aircraft Detection Lighting Systems (ADLS) are sensor-based systems designed to detect aircraft as they approach an obstruction or group of obstructions; these systems automatically activate the appropriate obstruction lights until they are no longer needed by the aircraft. […]*

Per the NHSEC Decision and Order Granting Application for Certificate of Site and Facility (March 17, 2017), more specifically the Subcommittee Deliberation for the lightning, AWE's ADLS must be approved by the FAA (see our underlying in the excerpt below):

> *The Subcommittee finds that the light associated with operation of the Project will not have an unreasonable adverse effect on health and safety if the Project will be equipped with the ADLS. In reaching this conclusion, the Subcommittee considered that the Project's lights will be radar operated, to secure their safe operation, and* ***the Applicant will have to receive prior approval from the FAA for the installation of the ADLS****. The Subcommittee also considered that it did not receive any reports, or scientific evidence that would verify that the Project's lighting will have an unreasonable adverse effect on human health.[…]*

To be approved by the FAA, the AWE's ADLS complies with all requirements of FAA AC 70/7460-1L. Above the main purpose reproduced above, AWE's ADLS must also comply with several other technical requirements, including but not limited to :

- Section 14.2.2.1: […] *In the event detection of the aircraft is lost while being continuously monitored within the 3 NM/1,000 foot (5.5 km/304 m) volume, the ADLS should initiate a 30-minute timer and keep the obstruction lights on until the timer expires.* […]
- Section 14.2.5.1: *In the event of an ADLS component or system failure, the ADLS should automatically turn on all the obstruction lighting and operate in accordance with this AC as if it was not controlled by an ADLS. The obstruction lighting must remain in this state until the ADLS and its components are restored.*

As there are specific safeguards to assure the safety of the public and the air traffic, in order words and as mentioned by the ADLS manufacturer in his May 1, 2020 letter, " […] *the system is designed to only allow the obstruction lighting to be turned off when there is absolute certainty of no movement within the FAA determined Detection Zone*."

Uncertainty events ergo Target lost & FAA required 30 mins timer event

We now realize that the terminology used previously may have cause some confusions. The so call "Uncertainty events" refers to the requirement for FAA AC 70/7460-1L section 14.2.2.1 reproduced above. These events refer to a 30-mins timer that keeps the lights on when an object tracking is lost before exiting the Detection Zone. The initial terminology is the technical one used by the ADLS manufacturer. However, we will now refer to these instances as "Target lost & FAA required 30 mins timer event" as this (longer) term reflects more adequately what it is.

ADLS performance statistics

Per your request, another 14 days of ADLS performance statistics has been assembled. The data is presented on a per night basis representing the total duration of aerial obstruction light illumination (e.g. on the night of August 9, lights were on for a total time of 1.6 hours between twilight on the evening of August 9 till sunrise on the morning of August 10). The table also presents the number of Target lost & FAA required 30 mins timer event (see clarification above).

Night of	Lights on (hours)	Target lost & FAA required 30 mins timer event
2020-08-09	1.6	3
2020-08-10	1.3	2
2020-08-11	0.6	1
2020-08-12	2.1	4
2020-08-13	1.0	1
2020-08-14	1.6	3
2020-08-15	2.1	3
2020-08-16	0.6	1
2020-08-17	0.1	0
2020-08-18	0.2	0
2020-08-19	2.0	1
2020-08-20	2.4	3
2020-08-21	0.4	0
2020-08-22	10.4*	0

*see paragraph below regarding an ADLS outage that occurred that night

ADLS protection during post-tropical storm

As previously mentioned and per your request, this section is to confirm that during the nights of Aug 4-5 and 5-6 the ADLS operated a protection mode to safely shut the radar systems down due to high winds; during this period, the aerial obstruction lights were turned on as required by the FAA. We suspect that this distinctive high winds event was caused by the post-tropical storm of tropical cyclone Isaias which was moving north along the U.S. East Coast during that period (https://blogs.nasa.gov/hurricanes/2020/08/05/isaias-was-ptc-9-atlantic-ocean-7/). On August 6, the necessary verification by the ADLS manufacturer were completed and the system normal operation mode was restored. Therefore, the situation is resolved.

ADLS outage during the nights of the 22-23 and 23-24
Our team also noticed an ADLS outage during the nights of August 22-23 and 23-24, as required by the FAA, the aerial obstruction lights were turned on as required. The ADLS manufacturer has been tasked to investigate the cause of the outage, but while writing these lines it is still unknown. However, we believe that the cause has been mitigated after different inspection and actions undertaken by the ADLS manufacturer team on August 24. Nevertheless, we will keep monitoring closely the system operational status and the ADLS manufacturer is continuing his investigation.

In conclusion, we want to reiterate that as confirmed by the ADLS manufacturer in a letter (May 1, 2020) we transmitted to your attention, the " […] *ADLS systems, comprising of two radars are performing correctly and as designed in accordance with the aircraft detection lighting system (ADLS) requirements specified in Federal Aviation Administration (FAA) Advisory Circular (AC) 70/7460-1L* […]" and as such, " […] *the system is designed to only allow the obstruction lighting to be turned off when there is absolute certainty of no movement within the FAA determined Detection Zone.*" Also as mentioned previously, we will keep monitoring closely the system operational status.

I hope this could bring some clarity on the ADLS requirements per FAA and also put in perspective the performance of AWE's ADLS.
Thanks and best regards,

Jeff L.

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