

**STATE OF VERMONT
PUBLIC UTILITY COMMISSION**

Investigation pursuant to 30 V.S.A. §§ 30)
and 209 into whether the petitioner-)
initiated site preparation at Apple Hill in)
Bennington, Vermont, for electric)
generation in violation of 30 V.S.A. §)
248(a)(2))

Case No. 20-1611-INV

PREFILED DIRECT TESTIMONY
OF JIM MCCLAMMER
ON BEHALF OF PETITIONER

December 3, 2020

EXHIBITS

Exhibit AH-JM-1

Resume of Jim McClammer

Exhibit AH-JM-2

Petitioner's Responses to Second Set of Information Requests
from ANR dated November 3, 2020 in Case No. 19-0516

Exhibit AH-JM-3

Third Supplemental Prefiled Testimony of Jim McClammer in
Case No. 19-0516, dated October 20, 2020

1 **Q1. Please state your name, occupation, and business address.**

2 A1. My name is Jim McClammer. I am an Environmental Consultant and President of
3 Connecticut Valley Environmental Services, Inc. (“CVES”). My business address is 391 River
4 Road, Charlestown, New Hampshire 03603.

6 **Q2. Please describe your educational background and work experience.**

7 A2. I have an undergraduate degree in biology and advanced degrees in botany, geology,
8 ecology, and evolution. I am certified by the United States Army Corps of Engineers as a Wetland
9 Delineator (ACOE WDCP # 93MD0410014A), and by the state of New Hampshire as a Certified
10 Wetland Scientist (Wetland Scientist #003). I have been employed as a Botanist by the United
11 States Department of Agriculture in Washington D.C., and as the Senior Environmental Scientists
12 by the engineering firm Dufresne-Henry, Inc. in Springfield, Vermont. I have continuously
13 practiced in the State of Vermont since 1989. A copy of my resume is included as ***Exhibit AH-***
14 ***JM-1.***

16 **Q3. Have you previously testified before the Public Utility Commission or in other judicial**
17 **or administrative proceedings?**

18 A3. Yes. I was recently qualified as a natural resource expert and provided expert testimony
19 in cases before the Land Court in Boston, Massachusetts and the General Court and Superior Court
20 in New Hampshire. I have also provided testimony on environmental impacts related to the
21 Champlain Gas Pipeline and Bennington Bypass in Vermont and the W.E. Dailey Rock Quarry in

1 Hoosick, New York. I have provided testimony to the Vermont Public Utility Commission for
2 other solar projects, including the Battle Creek 1 Solar Project (PUC Case No. 17-3727-PET).

3
4 **Q4. What is the purpose of your testimony?**

5 A4. CVES was retained by Otter Creek Solar LLC (the “Petitioner”) to assess potential effects
6 that the planned clearing of the proposed Chelsea and Apple Hill Solar Project Site (the “Site”)
7 would have on the (i) *Symphyotrichum urophyllum* (the “Aster”) and (ii) nimblewill muhly
8 (*Muhlenbergia schreberii*) (the “Nimblewill”) (together, the “Plants”) at the Site.

9 The clearing plan is set forth in the prefiled testimony of Robert Kobelia filed on the date
10 hereof as **Exhibit AH-RK-1** (the “Clearing Plan”). The purpose of this testimony is to address
11 the potential effects implementation of the Clearing Plan will have on the Plants, the status of such
12 Plants in Vermont, and Vermont’s rare plant ranking system.

13 I have reviewed the Clearing Plan in the prefiled testimony of Robert Kobelia converting
14 the existing site to agricultural use. Previously, I performed a desktop review of the Project Site
15 and surrounding area, conducted a site visit of the proposed Project Site on March 22, 2020 and
16 reviewed all of the testimony and reports that Ms. Dori Barton and her associates at Arrowwood
17 Environmental, LLC filed in these proceedings.

18
19 **Q5. If the Clearing Plan is followed, will there be any undue adverse effect on the Plants?**

20 A5. No. It is my understanding the site is being converted to an agricultural use, a sheep farm. I
21 know of no statutory authorities that protect rare and very rare plants for this activity. When a
22 solar array is constructed on the site, this activity falls under the purview of Section 248(b)(5),

1 which the Agency of Natural Resources (“ANR”) interprets to protect rare plants as part of the
2 natural environment.

3 On March 23 2020 in prefiled testimony I wrote “The site is currently being converted to
4 agricultural use, and it is likely logging, stumping, grubbing, grading and revegetating the site will
5 destroy these [rare and very rare] plants.” Then, as I stated “[i]f any RTE plants are found on the
6 Project Site prior to construction of the solar array, direct impact to these plants will be avoided
7 during construction by either covering the plants with matting, or placing flagging or fencing
8 around the plants. Any RTE plant that cannot be avoided during construction will be transplanted
9 to a conservation area.”

10 The Petitioner has agreed to measures to protect the alleged rare and very rare plants when
11 construction of the solar facility begins by entering into a Memorandum of Understanding, dated
12 as of June 29, 2015, with ANR (the “ANR MOU”). The ANR MOU sets forth the steps that need
13 to be taken by the Petitioner so that ANR would endorse the Project as satisfying the conditions
14 under Section 248(b)(5) related to the “natural environment.” Specifically, with respect to the
15 Plants, paragraphs 5 and 6 of the ANR MOU (the “RTE Conditions”) set forth the obligations of
16 the Petitioner to protect the Plants. All of the RTE Conditions have been complied with. As
17 reflected in the annual monitoring reports of Arrowwood (See **Exhibits ANR-11 and ANR-15**),
18 all of the Aster plants within the area of the proposed solar facility were transplanted to
19 Conservation Areas by the end of 2018. The ANR MOU does not require that any Nimblewills
20 be transplanted. However, the ANR MOU does require that Nimblewill individuals in the
21 northeast corner of the property be fenced off and avoided during construction and site preparation
22 activities, which Robert Kobelia explains has occurred. Mr. Kobelia has also explained that the

Petitioner placed a temporary perimeter fence, consisting of an orange snow fence, around the Conservation Areas.

Q6. If the Plants are cleared from the Site, will that have an undue adverse effect on the natural environment?

A6. No. Clearing the Plants from the Site will not have an undue adverse effect on the natural environment within the meaning of section 248(b)(5). One of the findings that is required for a solar energy project to obtain a certificate of public good (“CPG”) under 30 V.S.A. § 248 is that the facility “will not have an undue adverse effect on ... the natural environment ... with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K) ... and greenhouse gas impacts.”

The “due consideration” factors in 10 V.S.A. §§ 1424a(d) (outstanding resource waters) and 10 V.S.A. §§ 6086(a)(1) through (8) and (9)(K) (Act 250 criteria) and greenhouse gas impacts are the only specific criteria that are listed as being related to the natural environment. The only criterion to deal with plant species is 10 V.S.A. §6086(a)(8), which expressly and only addresses *endangered* species. It does not address rare plant species. It is my opinion, based on the statute, that an impact to a plant species does not affect the natural environment under section 248(b)(5) unless that plant species is classified as an endangered species. It appears the Legislature considered rare, threatened and endangered species, but decided to only protect endangered species.

Even if the Plants were listed as endangered species, in order to show that there would be an adverse effect on the natural environment from the destruction of a Plant, a party, here ANR, would need to show the project “will destroy or significantly imperil ... any endangered species”, *see* 10 V.S.A. §6086(a)(8)(A), *and* “(i) the economic, social, cultural, recreational, or other benefit to the public from the [project] will not outweigh the ... environmental ... loss to the public from the destruction or imperilment of the ... species.” *see* 10 V.S.A. §6086(a)(8)(A)(i).

Here, there is no loss to the public from the potential loss of the Plants on the Site. There is no risk that the project “will destroy or significantly imperil” the Plants. The Aster is relatively common in the immediate vicinity, and Nimblewill, based upon a UVM study discussed below, is difficult to eradicate, particularly on land that is farmed.

Even if all of the Aster individuals were cleared from the Site (for whatever reason), such clearing would still not result in an undue adverse effect on the Aster. The Aster is widespread across the eastern half of North America¹ where it is reported to inhabit fields and open spaces on high-pH soils². The number of Aster individuals in the Apple Hill Conservation Area is 156. See Exhibit ANR-14, page 5. The number of Aster individuals in the Chelsea Conservation Area is 97. ANR’s published guidance states that ANR would consider an impact of less than 10% of the “population” for an S1-ranked plant to not result in an undue adverse impact on the population.³ As stated in

¹ <https://plants.usda.gov/core/profile?symbol=SYUR>

² <https://gobotany.nativeplanttrust.org/species/symphyotrichum/urophyllum/>

³ “Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects” dated October 5, 2016.

my response to Q.ANR:OCS.2-12 in *Exhibit AH-JM-2*, “based on recent NatureServe Guidance⁴ for distinguishing element occurrences, it is my opinion that the Warner, Apple Hill and Chelsea Hill occurrences (and the Battle Creek and Stark occurrences) are all part of the same population. The distance from the western edge of the Chelsea Apple Hill white arrow-leaved aster localities to Warner Locality 33 is 2,118 feet (0.65 kilometer) and to Battle Creek Locality BC24 it is 2,230 feet (0.68 kilometer).” I estimated the total number of individuals in the population may range from roughly 5,000 to 9,000. Therefore, even if all of the Apple Hill and Chelsea Aster individuals (253) were destroyed this would not result in a 10% loss of the population.

Q7. Should the Aster be considered “very rare” in Vermont due to its purported limited distribution?

A7. No. I think it is more common on calcareous bedrock throughout the State than documented occurrences indicate. Our study of the Warner Solar Project Asters shows it “tolerates a wide range of soil types, from poorly-drained to well-drained, (*Photographs 5 & 6, Appendix A*) and habitats, from old field to early successional woodland” (see A5 in *Exhibit AH-JM-3*). It is clearly not very rare on and near the Warner project site, where we have identified more than a thousand individuals, nor in the Bennington area where it is now known from three localities.

I think it has been overlooked because it flowers in late Fall. is similar to several other aster species, and is frequently obscured by foliage of other plants; and, when it is found, it is simply

⁴ *NatureServe Biotics5 Habitat-based Plant Element Occurrence Delimitation Guidance*; https://www.natureserve.org/sites/default/files/eo_specs-habitat-based_plant_delimitation_guidance_may2020.pdf

1 misidentified. For example, at one of two known Bennington localities it was previously identified
2 as *S. sagittifolius*, and Arthur Haines⁵ states “[t]he name *Aster sagittifolius* has been misapplied to
3 this plant for some time”. ANR has one person assigned to rare plants—Bob Popp. As Mr. Popp
4 explained in previous testimony, he needs to rely on reports from others.

5
6 Mr. Popp also explained, an ordinary person would not know whether the Aster existed on her
7 property. So, no one knows with any certainty how many exist in Vermont. At the end of the day,
8 the ANR’s basis for determining whether a plant is rare is based upon the absence of evidence (or
9 negative evidence), which in my mind is not evidence (scientific or otherwise). Therefore, the
10 Aster is likely to occur at more than five locations within the State, in which case, it cannot be
11 classified as “very rare” (S1) under Vermont’s current guidelines.

12
13 **Q8. In the answer to the previous question you referred to ANR’s classification that deems**
14 **a species that occurs at 5 or fewer known locations as being ranked S1. Does ANR’s use of**
15 **the benchmark of 5 make any scientific sense?**

16
17 A8. The use of five or fewer locations is arbitrary. And, as explained in A7, the ranking in the
18 case of the Aster (and likely many other taxa) has inherent problems. These include confusion over
19 the taxonomy and nomenclature of the taxon, whether it is truly a distinct species from similar
20 species, whether it can be distinguished in the field as a distinct species, and whether adequate

⁵From Haines, 2011, p. 442. “The name *Aster sagittifolius* has been misapplied to this plant for some time. The type collection of *A. sagittifolius* proved to be *S. cordifolium* therefore, another name needed to be chosen for this species (Semple et al., 2002).”

1 surveys have been conducted to identify the distribution and abundance of the species. Moreover,
2 the interpretation of what constitutes a species is largely dependent on the purpose of the
3 classification system. Is it to: 1) identify actual or potential interbreeding populations of
4 individuals, 2) group morphologically similar individuals, or 3) discern commonality of descent?
5 Plant taxonomists frequently disagree and classification systems evolve due to advances in
6 methodologies and technologies (e.g., DNA analyses).

7
8 **Q9. In previous answers you referred to the term “population”. Does ANR’s use of the**
9 **term population make any scientific sense?**

10
11 A9. ANR defines population as “all of the individuals of a given species that occur within one
12 kilometer unless separated by an isolating barrier”. This definition is arbitrary and ambiguous (see
13 Response to Q.ANR:OCS.2-1 in *Exhibit AH-JM-2*) but apparently intended to provide a
14 consistent and reproducible definition of a population. However, it makes little biological sense
15 (acknowledged by NatureServe⁶) as it ignores habitat requirements and incorrectly assumes all
16 species have similarly effective dispersal mechanisms. Scientific definitions of a population
17 usually consider the morphological similarity of individuals in a specific geographic area (due to
18 a shared gene pool). Consequently, the geographic area in which a population occurs is less
19 important than barriers to gene flow. And a barrier to gene flow for one species (e.g., a roadway)
20 may not be a barrier for another species. One size does not fit all.

⁶ NatureServe Biotics5 Habitat-based Plant Element Occurrence Delimitation Guidance;
https://www.natureserve.org/sites/default/files/eo_specs-habitat-based_plant_delimitation_guidance_may2020.pdf

Q10. If Nimblewill are cleared from the Site, will that result in an undue adverse effect on the species?

A10. No. Based on its known distribution in New England and frequency of occurrence in Vermont surveys, I think it is unlikely the species will be adversely impacted by site work. Although classified as S2 in Vermont, Nimblewill, *Muhlenbergia schreberi*, is classified by the USDA as a “noxious weed.” <https://plants.usda.gov/core/profile?symbol=MUSC>. It is present in all New England States. *See*, <https://gobotany.nativeplanttrust.org/species/muhlenbergia/schreberi/>. In Massachusetts it is classified as S5 - “widespread.”

Moreover, when deliberate surveys are conducted to locate Nimblewill, it is found to be more common and widespread. For example, a study conducted in 2013 by UVM found Nimblewill in dense quantities (10 per square foot) on six (i.e., 40%) of 25 farms⁷, located across the state.⁸ The

⁷ *See*, Weed Seedbank Summary of Vermont Organic Farms, by Sid Bosworth, Extension Agronomist, and Ann Hazelrigg, Extension Plant Pathologist, UVM Extension, as part of Northern New England Collaborative Research Project "Assessing the potential for emergence of new cropland weeds in the Northern New England region as a consequence of climate change", University of Vermont, University of New Hampshire and University of Maine available at https://pss.uvm.edu/vtcrops/research/Weeds_Seedbank_Summary_Vermont_2013.pdf (last visited July 3, 2020.)

⁸ *See id.* “The locations of the farms ranged across the whole state from Brattleboro to Alburgh. A single field was sampled from each farm in early June. All of the fields had been recently tilled and had been in annual crops for at least three years or more.”

1 fate of Nimblewill is normally a dose of Roundup, as it is a noxious aggressive weed. A 2015-
2 Plant health care report from the Morton Arboretum⁹ provides a good summary:

Pest Updates: Weeds

Nimblewill (Aggressive)

Nimblewill (*Muhlenbergia schreberi*) is a grassy weed that has been showing up in a number of lawns this year. The Plant Clinic at The Morton Arboretum has received several samples of this weed. Nimblewill is a warm-season grass so it greens up later than our bluegrass lawns. That makes it easy to spot in spring. Look for the brown patches in your green lawn. In summer, it differs from our bluegrass in that it has smaller leaves giving it a finer texture (fig. 21). It spreads by thin, wiry stolons which give the plant a looser look. Because of the stolons it can spread fairly aggressively. It can also spread by seed. Nimblewill may be misidentified as bentgrass, but bentgrass is a cool season grass and will be green in spring and fall, when nimblewill is brown.



Figure 21 Nimblewill (photo credit: Tim Murphy, Univ. of Georgia, Bugwood.org)

Management: Nimblewill is hard to control because it is a perennial grass just as your lawn is. Most common lawn herbicides cannot select out one perennial grass and not kill the other. There is an herbicide on the market now that is selective for nimblewill. The product is Tenacity and contains the active ingredient mesotrione. Read the label for instructions on proper usage. Small patches of nimblewill can also be killed using glyphosate (RoundUp). Glyphosate is non-selective, so apply it only to the nimblewill.

3
4 These data on Nimblewill suggest that ANR's rare plant classification system, which is based upon
5 the absence of evidence, is fallible and not particularly scientific.

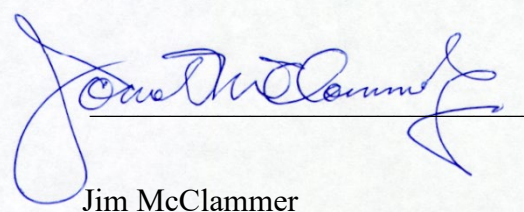
6
7 **Q11. Does this conclude your testimony?**

8 A11. Yes.
9

10 I, Jim McClammer, affirm under penalties of perjury that the foregoing testimony is true and
11 correct to the best of my knowledge and belief.

⁹ See, http://stage.mortonarb.org/files/Plant_Health_Care_Report_2015_5.pdf (last visited July 3, 2020).

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Jim McClammer