



May 26, 2021

Ryan Bares and Liam Thrailkill
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Re: Northern Wasatch Front Ozone International Transport Demonstration 179B(b)

Dear Ryan Bares and Liam Thrailkill,

Please accept and consider the following comments on the Northern Wasatch Front Ozone International Transport Demonstration 179B(b) posted to the public by the Division of Air Quality for the first time on May 5, 2021. I make these comments on behalf of HEAL Utah, the Utah Chapter of the Sierra Club, Utah Physicians for a Healthy Environment and Western Resource Advocates.

I. Background

Ground-level ozone, the primary component of urban smog, is a corrosive pollutant formed by the reaction of volatile organic compounds (“VOCs”) and oxides of nitrogen (“NOx”) in the atmosphere in the presence of sunlight. 80 Fed. Reg. at 65,302-04. Power plants, industrial sources, and motor vehicles are among the largest sources of those precursor pollutants. Exposure to ozone, for even short time periods, is linked to significant human health impacts, including the aggravation of asthma attacks, cardiovascular and respiratory failure, and even premature death. Children, the elderly, and adults with asthma are particularly at risk. *Id.* at 65,304.

To protect against these significant public health threats, Congress directed EPA to adopt National Ambient Air Quality Standards (“NAAQS”) for ozone, “the attainment and maintenance of which . . . are requisite to protect the public health” with an adequate margin of safety. 42 U.S.C. § 7409(b)(1). In 2015, EPA issued a new eight-hour ozone standard that is more protective of human health than the old standard. 80 Fed. Reg. at 65,453 (codified at 40 C.F.R. § 50.19). The revised 2015 NAAQS will deliver substantial health benefits. EPA estimates that implementation of the standard would, every year, prevent up to 878 premature

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deaths, thousands of asthma attacks, and tens of thousands of lost school and work days, resulting in \$5.8 billion dollars in avoided public health costs and lost productivity.¹

In August 2018, the Northern Wasatch Front (NWF) was designated as a “marginal” nonattainment area (NAA) for the 2015 8-hour ozone NAAQS. DAQ Demo at 4. Under federal law, the NWF has until August 2021 to attain the 2015 8-hour ozone standard. *Id.* If monitoring data from 2018 to 2020 shows that the NWF NAA has not met the health-based ozone standard by August 2021, the NWF NAA would be designated as a “moderate” NAA. The attainment date for a moderate NAA is August 2024.²

A moderate NAA must meet significant requirements designed to protect public health and the environment and to bring a NAA into compliance with the NAAQS as expeditiously as possible. These requirements include an attainment demonstration, a 15% reduction of precursor emissions over 6 years, contingency measures in case the area fails to attain the standard, and the application of reasonably available control technology (RACT) to major sources of volatile organic compounds (VOCs) and nitrogen oxides (NO_x).³

Data from the last three years – 2018 to 2020 – show that the design values (the average of the 4th highest 8-hour ozone concentration recorded for each of the three years) are quite high when compared to the ozone standard of 70 parts per billion (ppb).⁴ For example, the design values for the Bountiful and Rose Park monitoring stations are 77 ppb and for both of these stations, the 4th highest ozone concentrations in 2018 and 2020 were 80 ppb. DAQ Demo at 5. Moreover, monitoring data submitted by Utah to EPA shows that the 8-hour ozone standard was exceeded 13 times in Rose Park in 2020 and 19 times in 2018.⁵

The 2018-2020 design values indicate that the NWF NAA has failed to attain the 2015 ozone standard and will be designated as a moderate NAA. DAQ Demo at 4. This designation acknowledges that high concentrations of ozone along the NWF pose a significant threat to the health and welfare of its millions of residents, especially the young and elderly, and directs the State of Utah to come up with emission reduction strategies that will improve air quality sufficiently to bring the NAA into compliance with the ozone standard as soon as possible.

¹ EPA, Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone, at tables ES-5 through ES-10, <https://www.epa.gov/sites/production/files/2016-02/documents/20151001ria.pdf>.

² <https://www.epa.gov/ground-level-ozone-pollution/required-sip-elements-nonattainment-classification>

³ *Id.*

⁴ See 80 Fed. Reg. 65292 (Oct. 26, 2015).

⁵ <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>

II. The DAQ 179B(b) Demonstration

Rather than focusing on reducing emissions of ozone precursors in the NWF NAA, the Division of Air Quality (DAQ) has prepared a 179B(b) Demonstration⁶ that purports to show “but for” anthropogenic international emissions – anthropogenic emissions emanating from outside the U.S. – the NWF NAA would have attained the 2015 ozone standard as of August 2021. *See* Clean Air Act, section 179B(b), 42 U.S.C. § 7509a(b).⁷ Were the 179B(b) Demonstration successful, the consequences to the people living and working along the NWF would be severe.

DAQ claims and appears to adopt the results of modeling conducted at the behest of the Utah Mining Association and Utah Petroleum Association. DAQ Demo at 11-13. According to DAQ, this modeling shows that international emissions contribute between 8.7 and 12.7 ppb to ozone concentrations at monitoring stations in the NWF NAA. DAQ Demo at 11 (“According to the DV scaling technique, modeled international contributions range between 8.7 to 12.7 ppb at the most limiting monitoring site.”). DAQ then asserts that due to this contribution, the design values at various NWF monitoring stations may simply be reduced by a “relative response factor” or RRF, which varies from 0.8432 to 0.8224. DAQ Demo at 13. The monitored design value is then multiplied by the respective RRF to arrive at a new design value that DAQ claims “will bring down the NWF area to attainment.” DAQ Demo at 12.

Taking Bountiful as an example, the application of the RRF would mean that monitored concentrations of ozone in that city could reach as high as or higher than **85 ppb**⁸ and still the State of Utah would be excused from taking the steps needed to bring the NWF NAA into compliance with the ozone standard as expeditiously as practicable.⁹ Although its citizens would be suffering the significant health impacts and rates of death and disease that occur when individuals are exposed to concentrations of ozone 15 ppb above the ozone standard, the State of

⁶ Importantly, Congress designed 179B for use in “very limited circumstances” where an area was failing to attain “because of emissions from **immediately adjacent areas in a foreign country.**” S. REP. NO. 98-436, at 38 (1984) (emphasis added). The legislative history mentions four U.S. cities that could benefit from the provision: El Paso, Texas, Nogales and Douglas, Arizona, and San Diego, California. 136 CONG. REC. 5061 (1990). All of these communities lie north of a Mexican metropolitan area.

⁷ As discussed below, DAQ does not actually claim that “but for” anthropogenic international emissions, the NWF NAA would have attained the 2015 ozone standard in August 2021. Rather, DAQ concludes that “this demonstration provide[s] evidence that internationally transported ozone contributes to the ozone concentrations on exceedance and non-exceedance days in the NWF NAA.” DAQ Demo at 14. Showing a contribution on exceedance and non-exceedance days is a far cry from a “but for” showing.

⁸ Recall that the design value represents the annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.

⁹ *See* DAQ Demo at 13. The Utah Mining Association/Utah Petroleum Association model ascribes a RRF of 0.8346 to the Bountiful design value. 85 ppb multiplied by 0.8346 equals 70.9 ppb, the lowest design value that is considered to violate the 2015 8-hour ozone standard.

Utah would **not** have to complete an attainment demonstration, would **not** have to show a 15% reduction in precursor emissions over six years, would **not** have to develop contingency measures in case the NWF NAA fails to meet the attainment deadline, and would **not** have to apply RACT to major sources of VOCs and NO_x. Essentially, as concentrations of ozone continued to climb, as long as the 4th highest annual concentration averaged over three years remained below **85 ppb**, the people of the NWF would be entitled to **no** Clean Air Act protections and **no** relief from the dangerous levels of air pollution they are being forced to breathe.

Given the harsh consequences that would result should the 179B(b) Demonstration be successful, it is critical that DAQ's submission constitute a convincing, rigorous, unbiased and well-substantiated effort that meets the "but for" requirements of 179B(b) and the weight of the evidence test imposed by EPA guidance. Because, as explained in detail below, the DAQ demonstration does not fulfill these criteria, it should be dismissed and DAQ should begin the critical job of reducing emissions of ozone precursors in the NWF NAA.

III. The 179B(b) Demonstration Falls Well Short of the 179B(b) "But For" and "Weight of the Evidence" Tests.

As DAQ acknowledges:

Section 179B(b) of the CAA allows a NAA to retrospectively avoid reclassification to a higher nonattainment status **if** the air agency with jurisdiction over the NAA can demonstrate that the area would have met the NAAQS **but for** the influence of pollution emanating from an international source.

DAQ Demo at 6 (emphasis added). Moreover, by its title, Utah's 179B(b) Demonstration claims to be just that – a demonstration that meets the legal requirements of section 179B(b) of the Clean Air Act, which provides:

any State that establishes to the satisfaction of the Administrator that, with respect to an ozone nonattainment area in such State, such State would have attained the national ambient air quality standard for ozone by the applicable attainment date, **but for** emissions emanating from outside of the United States, shall not be subject to the provisions of section 7511(a)(2) or (5) of this title or section 7511d of this title.

42 U.S.C. § 7509a(b) (emphasis added).

Yet, DAQ admits that, at best, its analysis shows only that there is "evidence that internationally transported ozone contributes to the ozone concentrations on exceedance and non-exceedance days in the NWF NAA." DAQ Demo at 14. Therefore, even when DAQ is stating its best case for the NWF NAA being excused from reclassification to a moderate NAA, the agency can only assert that its "demonstration" provides evidence that international emissions contribute to ozone concentrations, both on exceedance and non-exceedance days. Because, as DAQ admits, such a

showing is not adequate to make a 179B(b) demonstration, DAQ's efforts to claim "relief" from reclassification necessarily fail.

A. DAQ's Synoptic Pattern Analysis

There are plenty of reasons that DAQ is unwilling to claim more than there is evidence of a contribution by international emissions – particularly emissions from Asia.¹⁰ DAQ's first effort to meet the "but for" test employs a qualitative synoptic analysis of the meteorological conditions during the 2017 summer ozone season. DAQ Demo at 6. The goal of this analysis is to "identify potential days in the NWF NAA impacted by internationally transported ozone[.]" *Id.* In part, DAQ is trying to determine if international emissions might increase when there were subsidence events during the summer months. DAQ Demo at 7. Presumably, DAQ is suggesting that subsidence episodes could function to bring international emissions into the NWF NAA such that the area would experience the ozone concentrations that lead to exceedance days.

However, no such connection was found. Rather, DAQ found that "while international emissions are likely to have an impact on Utah ozone measurements, differences between ozone exceedance and non-exceedance days do not appear to be correlated with changes in international emissions." DAQ Demo at 8. This means that DAQ has not been able to "identify potential days in the NWF NAA impacted by internationally transported ozone", DAQ Demo at 5, and therefore has failed to establish a key element of an adequate 179B(b) demonstration. For example, EPA 179B Guidance¹¹ explains that a valid 179B(b) demonstration will include, in part:

A summary of the meteorological and atmospheric conditions that lead to high concentrations at the monitor on days influenced by international anthropogenic emissions and days not influenced by international anthropogenic emissions [that includes]:

- the meteorological conditions associated with high concentration days influenced by international emissions, including a description of the route traveled by transported pollution, such as distance and altitude; [and,]
- the meteorological conditions associated with high concentration days not influenced by international emissions.

¹⁰ Although it is not altogether clear, it appears that DAQ is seeking to show that emissions from Asia are somehow responsible for the NWF NAA's inability to meet the 2015 ozone standard. *E.g.* DAQ Demo at 5 ("Persistent global circulation patterns establish a direct transport route linking the Asian east coast and the US west coast."). Of course, the NWF NAA is not on the west coast.

¹¹ EPA, Guidance on the Preparation of Clean Air Act Section 179B Demonstrations for Nonattainment Areas Affected by International Transport of Emissions (December 2020).

EPA Guidance at 9-10. By failing to establish a relationship between weather conditions and high ozone days influenced by international emissions, the 179B(b) Demonstration has failed to pass the first step of a “weight-of-evidence” test.

B. DAQ’s HYSPLIT Backward Dispersion Analysis

Next, DAQ undertakes a HYSPLIT backward dispersion analysis to “determine the influence of international anthropogenic source emissions on local ozone concentrations along the NWF[.]” DAQ Demo at 8. Again, DAQ was seeking to “determine predominant meteorological pathways influencing receptor sites” in the Salt Lake Valley. DAQ Demo at 8. Again, DAQ was unable to show that international anthropogenic sources were large contributors relative to U.S. contributions on exceedance days or establish a relationship between international emissions and exceedances of the ozone standard. Rather, DAQ concluded:

Results from the HYSPLIT analysis suggest that while receptor sites in Utah are impacted to some extent by source emissions outside the US, transport patterns between ozone exceedance and non-exceedance days are not significantly different (Figure 6).

DAQ Demo at 10. Importantly, the agency also conceded that “[a]ir masses originating from Asia were also evident but associated with exceedingly small fractions of particle.” DAQ Demo at 10.

Thus, DAQ’s second effort to support its 179B(b) Demonstration was unsuccessful. The backward dispersion analysis – meant to determine the influence of international emissions on local ozone concentrations – concluded only that ozone concentrations in the NWF NAA “are impacted to some extent by source emissions outside the U.S.” As a result, DAQ’s Demonstration has failed to pass the “weight-of-evidence” test.

EPA Guidance states that modeling like HYSPLIT is intended to establish a relationship between international sources and local receptors, noting that “[m]easured exceedances should be connected to international source emissions by meteorological analysis.” EPA Guidance at 31. The goal of backward trajectory and backward dispersion models is to show that international contributions are larger on exceedance days and substantially larger than domestic contributions.¹² Because DAQ’s modeling did not make any such finding, its HYSPLIT modeling actually undermines rather than supports its 179B(b) Demonstration.

¹² EPA Guidance at 36 (“When exceedance days show larger fractions of NPSC from international anthropogenic sources, this adds to the weight of evidence that international anthropogenic sources contribute to exceedances.”); *id.* at 38 (“When the fraction of NPSC is substantially larger on exceedance days than typical days, this strengthens the weight of evidence.”).

C. Ramboll's CMAQ and CAMx Analysis Created for UMA and UPA

Finally, DAQ turns to the “Ramboll CMAQ & CAMx Analysis” to support its 179B(b) Demonstration. Initially, as discussed below, we find it troubling that DAQ appears to accept this analysis uncritically and without disclosing upfront that it was prepared at the behest of the Utah Mining Association and Utah Petroleum Association. As DAQ and Ramboll underscore, this sensitivity analysis and source apportionment methods run for the Utah Mining and Utah Petroleum associations are “preliminary.” DAQ Demo at 11.

Despite the fact that both DAQ and Ramboll consider the CAMx and CMAQ efforts to be rather crude beginnings in an effort to support a 179B demonstration, *e.g.* DAQ Demo at 14 (apparently conceding that Ramboll did **not** use “Utah-specific meteorology” in its models); Ramboll Analysis at 20 (stating “[a] more rigorous State-led modeling analysis employing high resolution and area-specific meteorology and emission inventories is warranted to confirm these results and to support a Section 179B demonstration.”), DAQ seems to rely heavily on the Ramboll report to claim – sort of – “that the Wasatch Front would attain the 70ppb ozone standard in the absence of international anthropogenic contributions.” DAQ Demo at 12.

However, DAQ does admit that both Ramboll models underpredict ozone on high ozone days and may overestimate “international contributions to local” design values. DAQ Demo at 13. DAQ concludes only that Ramboll maintains that despite these modeling inaccuracies, “the NWF would attain the standard but for the contribution of international anthropogenic emissions.” DAQ Demo at 13.

First, it is critical that despite Ramboll’s claims, DAQ does **not** assert that its demonstration has met the “but for” test. *See* DAQ Demo at 14 (concluding only that “[t]he analyses included in this demonstration provide evidence that internationally transported ozone contributes to the ozone concentrations on exceedance and non-exceedance days in the NWF NAA.”).

Second, the Ramboll conclusions do not meet the standards EPA sets forth in its 179B guidance. Relative to sensitivity and source apportionment modeling, EPA repeats the same mantra, explaining that a convincing demonstration will establish that on exceedance days, *vis-à-vis* non-exceedance days, both that international emission contributions are larger and that international emissions are larger than domestic contributions.

When results show that international contributions are larger on exceedance days and meaningfully larger than domestic contributions, the weight of evidence will be more compelling.

EPA Guidance at 44. The preliminary Ramboll analysis has not shown either of these outcomes. Rather, at best,¹³ the analysis shows, as DAQ itself explains, that international emissions impact the NWF NAA, but there is no relationship between the degree of that impact and exceedance

¹³ We point out additional weaknesses in the Ramboll analysis below.

days. The Ramboll modeling also confirms that indeed, international emission contributions are **not** larger than U.S contributions.

For example, Figure 8 depicts in orange that averaged over the summer of 2016, international anthropogenic emissions contribute 9.9 ppb to total ozone concentrations, while Utah and U.S. anthropogenic emissions – totaling 13.3 ppb – and global natural and re-circulated U.S. emissions together contributed something like¹⁴ 42.6 ppb. Further, Figure 8 appears to show that around August 17, 2016, when there were several exceedance days in Bountiful, U.S. and Utah anthropogenic sources, not including re-circulating or natural U.S. emissions, contributed something like 31 ppb to ozone concentrations, while international sources contributed around 10 ppb. DAQ Demo at 13. Thus, Ramboll’s analysis actually undermines the 179B(b) Demonstration rather than supporting it because Ramboll shows that international contributions are **not** larger on exceedance days and are **not** meaningfully larger than domestic contributions.

In sum, as DAQ seems to acknowledge, its demonstration is not adequate to meet the 179B(b) “but for” test. As DAQ explains, the demonstration shows only that there is “evidence that internationally transported ozone contributes to the ozone concentrations on exceedance and non-exceedance days in the NWF NAA.” DAQ Demo at 14. Moreover, the three sets of analyses described in the document undermine rather than support DAQ’s 179B(b) Demonstration. The demonstration modeling shows that rather than being larger on exceedance days, ozone from international sources contributes to ozone concentrations in the NWF NAA on both exceedance and non-exceedance days and that there is no correlation between international emissions and exceedance days. The modeling also shows that international contributions are not larger than domestic contributions and that indeed, on exceedance days, international contributions decrease and may be dwarfed by domestic contributions.

IV. The 179B(b) Demonstration Does Not Address and Does Not Meet the Requirements of EPA Guidance.

As already discussed and as DAQ apparently acknowledges, the 179B(b) demonstration is not adequate to meet the “weight of the evidence” test that EPA will apply to a state submission.¹⁵ Initially, we find it disconcerting that DAQ does not discuss the results of its modeling and the

¹⁴ The numbers in this table are difficult to read. Moreover, domestic contributions must include, at a minimum, Utah and U.S. anthropogenic emissions, including re-circulating U.S. anthropogenic emissions, as well as U.S. natural emissions. Even when domestic contributions are limited to anthropogenic contributions, the total calculated by Ramboll (which apparently does not include recirculating anthropogenic contributions) exceeds Ramboll’s calculation of international contributions.

¹⁵ EPA Guidance at 7 (“Given the extensive number of technical factors and meteorological conditions that can affect international transport of air pollution, EPA believes that section 179B demonstrations should be evaluated based on the weight of evidence of all information and analyses provided by the air agency.”).

Ramboll modeling in the context of the December 2020 EPA Guidance. Indeed, DAQ does not even mention the weight of the evidence test or the modeling outcomes that the EPA would find compelling. At a minimum, such an analysis would allow members of the public to meaningfully comment on the 179B(b) Demonstration because they would better understand the degree to which DAQ believes it has met the weight of the evidence test. For this reason, we ask DAQ to explain if and the extent to which it believes it has established the “but for” test by the weight of the evidence and whether and how it has presented modeling that EPA would find convincing.

Turning to the EPA Guidance to further inform these comments confirms that the 179B(b) Demonstration is not adequate to negate Utah’s obligation to its citizens to adopt emission reductions that will bring the NWF NAA into compliance with the ozone standard as soon as possible.

First, EPA acknowledges that it will be harder for a state like Utah, located away from an international border, to submit a convincing 179B(b) Demonstration: “[T]echnical demonstrations for non-border areas may involve additional technical rigor and resources compared to demonstrations for border areas.” EPA Guidance at 6. Both DAQ and Ramboll concede that their modeling is preliminary. *E.g.* DAQ Demo at 13 (“[D]AQ could conduct a more rigorous analysis that would optimize the photochemical model performance for NWF NAA”); DAQ Demo at 14 (apparently conceding that Ramboll did **not** use “Utah-specific meteorology” in its models); Ramboll Analysis at 20 (stating “[a] more rigorous State-led modeling analysis employing high resolution and area-specific meteorology and emission inventories is warranted to confirm these results and to support a Section 179B demonstration.”). Therefore, on its face, the demonstration is insufficiently rigorous and resource intensive.

Second, EPA also puts a premium on identifying the sources of the international emissions that, in this case, DAQ believes are influencing ozone concentrations in the NWF NAA: “The conceptual model should also identify which regions and sources meaningfully contribute to the international portion of emissions that influence ambient concentrations in the area of interest.” EPA Guidance at 19. DAQ does not identify any such regions or sources (other than to vaguely refer to Asia, Canada and Mexico). EPA also states that “[a] comprehensive emissions analysis is an important component of a section 179B demonstration.” EPA Guidance at 39. This emissions analysis should include domestic emissions. *Id.* DAQ does not undertake a comprehensive emissions analysis, even for domestic or Utah emissions.

Third, and importantly, DAQ consistently fails to address EPA’s request that DAQ identify particular days and particular monitoring stations that it considers influenced by international anthropogenic emissions. For example, EPA explains that the “kinds of information that would typically be useful to include in a conceptual model” includes:

- “A list of the monitor(s) and days that the air agency has identified as influenced by international anthropogenic emissions;” [and,]

- “A description of the key differences between the measured exceedances influenced by international emissions concentrations and typical exceedances influenced by local, non-international emissions. It would be helpful to include a table of the relevant monitor data (e.g., date, hours, monitor values, and design value calculations with and without the international emissions)[.]”

EPA Guidance at 19. EPA elaborates further:

A well-constructed conceptual model of pollutant formation and transport for the area can assist in the determination of international transport impacts by highlighting the contrast between locally formed pollutant days and the internationally influenced days in question.

EPA Guidance at 18-19.

Rather than identifying, comparing and contrasting specific days or monitoring stations, DAQ acknowledges that its analysis does not distinguish between or find differences among any particular days or monitoring stations, much less identify specific days during the relevant 2018 to 2020 timeframe that are relevant to its analysis.

Fourth and relatedly and as discussed above, DAQ’s demonstration does not address or find a key component of an adequate 179B(b) demonstration – a relationship between international emissions and days that exceed the ozone standard (or contribute to a violation of the standard):

A retrospective demonstration pursuant to sections 179B(b)-(d) (i.e., one intended to avoid a reclassification by showing that an area would have attained the standard but for international emissions) should illustrate that air quality was influenced by international emissions on specific days during the years that contribute to the design value calculation for the area.

EPA Guidance at 6; *see also* EPA Guidance at 19-20 (requesting that a state provide “[a] summary of the meteorological and atmospheric conditions that lead to high concentrations at the monitor on days influenced by international anthropogenic emissions and days not influenced by international anthropogenic emissions” that includes “the meteorological conditions associated with high concentration days influenced by international emissions, including a description of the route traveled by transported pollution, such as distance and altitude” and “the meteorological conditions associated with high concentration days not influenced by international emissions.”); EPA Guidance at 31 (To establish an international source-receptor relationship “measured exceedances should be connected to international source emissions by meteorological analysis.”); EPA Guidance at 40 (“Using air pollution modeling techniques – such as chemical transport models or dispersion models – is the most complete way to estimate the contribution of international emissions to monitors exceeding the NAAQS.”).

Rather, as DAQ admits, its analysis shows no correlation between international emissions and high ozone days. For example, DAQ explains that its synoptic pattern analysis indicates only

that “while international emissions are likely to have an impact on Utah ozone measurements, differences between ozone exceedance and non-exceedance days do not appear to be correlated with changes in international emissions.” DAQ Demo at 8. DAQ concludes that its HYSPLIT backward dispersion analysis shows only that “while receptor sites in Utah are impacted to some extent by source emissions outside the US, transport patterns between ozone exceedance and non-exceedance days are not significantly different.” DAQ Demo at 10. Similarly, according to DAQ, the Ramboll analysis reveals only that

that receptor sites in the NWF NAA are impacted by international sources during the summer exceedance season. This influence is, however, observed consistently throughout the spring and summer and not just on high ozone exceedance days.

DAQ Demo at 14.

Finally, EPA Guidance consistently states that a compelling 179B demonstration will show that, on exceedance days, the contribution from international emissions is “meaningfully” larger than contributions from domestic sources:

When a section 179B demonstration shows that international contributions are larger than domestic contributions, the weight of evidence will be more compelling than if the demonstration shows domestic contributions exceeding international contributions.”

EPA Guidance at 7; *see also* EPA Guidance at 43 (“The range of results should demonstrate that international anthropogenic sources were large contributors relative to U.S. contributions on exceedance days.”); EPA Guidance at 44 (“When results show that international contributions are larger on exceedance days and **meaningfully** larger than domestic contributions, the weight of evidence will be more compelling.”); EPA Guidance at 36 (“When exceedance days show larger fractions of NPSC from international anthropogenic sources, this adds to the weight of evidence that international anthropogenic sources contribute to exceedances.”); EPA Guidance at 38 (same).

However, DAQ admits that it could not show that that international anthropogenic sources were large contributors relative to U.S. contributions on exceedance days, explaining that the influence of international contributions “is also relatively small in comparison to the composition total of ozone.” DAQ Demo at 14. Moreover, as explained above, examination of Figure 8 – a figure prepared by Ramboll at the behest of UMA and UPA – indicates that around August 17, 2016, when there were several exceedance days in Bountiful, U.S. and Utah anthropogenic sources, not including re-circulating or natural U.S. emissions, contributed something like 31 ppb to ozone concentrations, while international sources contributed around 10 ppb. DAQ Demo at 13. Plainly, 10 is not greater than 31.

Thus, reference to EPA Guidance indicates that DAQ’s Demonstration has failed to meet the 179B(b) “but for” test as well as EPA’s weight of the evidence test. DAQ’s unwillingness to

acknowledge or address EPA's guidance considerably weakens its purported demonstration and makes it very difficult for the public to evaluate or comment on this crucial document.

V. The 179B(b) Demonstration Is Improperly Based on a Modeling Exercise Paid for by the Utah Mining Association and Utah Petroleum Association that DAQ Appears to Adopt without any Vetting.

Although Ramboll prepared its CAMx and CMAQ analysis for the Utah Mining Association and Utah Petroleum Association, DAQ does not disclose this fact in its demonstration. The agency also fails to critique the Ramboll analysis in any way and seems to adopt the Ramboll modeling exercise in total without question.

This approach to an analysis done at the behest of third parties is inappropriate and fails to safeguard the interests of the public DAQ is duty bound to serve. This apparent adoption of the Ramboll analysis without critique also undermines DAQ's efforts to meet the 179B(b) "but for" test as well as EPA's weight of the evidence test. For example, EPA Guidance contains an extensive discussion of sensitivity and source apportionment analyses that Ramboll purports to carry out. *E.g.* EPA Guidance at 41 to 44. EPA also explains what types of outcomes from these types of analyses it considers to be compelling. *E.g.* EPA Guidance at 43 ("The range of results should demonstrate that international anthropogenic sources were large contributors relative to U.S. contributions on exceedance days."); EPA Guidance at 44 ("When results show that international contributions are larger on exceedance days and **meaningfully** larger than domestic contributions, the weight of evidence will be more compelling.").

Yet, DAQ does not explain the extent to which it believes the Ramboll analyses comports with EPA Guidance or is persuasive based on what EPA considers to be compelling modeling outcomes. Plainly, such an approach lacks rigor, appears biased and fails to support DAQ's demonstration.

VI. The Ramboll CMAQ & CAMx Is Not Compelling.

There are additional reasons not already mentioned above that the Ramboll analysis is unconvincing. First, Ramboll attempts to show that international emissions are causing the NWF's non-attainment by comparing the estimated international anthropogenic contribution to the margin by which the NWF exceeds the ozone NAAQS. Inexplicitly, Ramboll bases this analysis on the summer of 2016 in Bountiful, DAQ Demo at 11-12, and then extrapolates this analysis to what happened everywhere in the NWF during 2018 to 2020. DAQ Demo at 13 (Table 2). This degree of extrapolation is not persuasive and fails to justify DAQ's request that it be excused from the requirements of the Clean Air Act that apply to moderate nonattainment areas.

Second, Ramboll admits that both its models underpredict ozone on high ozone days, DAQ Demo at 13, the very days that matter most to the 179B(b) "but for" test and the EPA weight of

the evidence test. This, combined with the other weakness that plague the Ramboll analysis, further confirms that the modeling effort is not compelling.

Third, Ramboll also concedes that this underprediction is most “likely due to a lack of local ozone production, which could lead to an overestimation in the international contributions to local” design values. DAQ Demo at 13. To address this model failure, Ramboll references a 10,000-foot monitoring site in the Colorado Rockies. Ramboll at 12. Ramboll claims that “its remote location results in little influence from local urban areas and so it provides an indication of higher elevation, regional and global scale ozone concentrations over the western US.” *Id.*

Initially, it is quite an assumption to presume that one monitoring site can reflect regional and global ozone concentrations over the entire western US. Further, this assumption appears to contradict EPA’s conclusion that

While some surface monitoring locations in certain rural areas in the inter-mountain western U.S. can be substantially affected by USB O₃, multiple analyses have shown that even the most remote O₃ monitoring locations in the U.S. are at least periodically affected by U.S. manmade emissions. As a result, the EPA believes that it is inappropriate to assume that monitored O₃ levels at a remote surface site (e.g., Grand Canyon or Yellowstone National Parks) can be used as a proxy for USB O₃.¹⁶

Without explanation and in light of EPA’s assessment, Ramboll’s efforts to insist that its modeling is representative necessarily fail.

Furthermore, and again without explanation, Ramboll suggests that it can evaluate the performance of its model by referencing a site at 10,000 feet above sea level that does not share any of the characteristics of the NWF NAA. In particular, it appears that the problem with the Ramboll modeling is a failure to capture ozone that is produced locally in the NWF. However, it is difficult to understand how reference to a site that is not near urban emission sources can help evaluate model results for the 4300 foot Salt Lake Valley. Because Ramboll does not adequately justify its decision to use the Colorado site to assess its model, the analysis is unavailing.

Fourth, neither Ramboll’s modeling nor atmospheric science support the idea that the international contribution can be precisely determined by subtracting the zeroed-out design value from a reference value. There may be an inverse relationship between local ozone formation and longer-range ozone transport, due to the fact that ozone reaches a chemical equilibrium at a certain concentration. Ramboll has not shown that the zeroed-out method accurately accounts for the possibility that the local contribution would increase if the international contribution were removed.

¹⁶ EPA, Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone, White Paper for Discussion (December 2015) at 7.

Fifth, Ramboll claims that its findings are in keeping with EPA analysis. However, in its White Paper, EPA concluded that:

Existing modeling analyses indicate that U.S. manmade emission sources are generally the dominant contributor to the modeled exceedances of the 2015 O₃ NAAQS, nationally and within individual regions across the country. Higher O₃ days generally have smaller fractional contributions from USB across all regions. When averaged over the entire U.S., the models estimate that the mean USB fractional contribution to daily maximum 8-hour average O₃ concentrations above 70 ppb is less than 35 percent.¹⁷

Sixth, as discussed above, Ramboll considers its modeling to be preliminary and admits that much more needs to be done to before its modeling can support a 179B(b) demonstration. Ramboll at 20. Ramboll concludes that “[a] more rigorous State-led modeling analysis employing high resolution and area-specific meteorology and emission inventories is warranted to confirm these results and to support a Section 179B demonstration.”

Finally, DAQ seems to acknowledge the weaknesses in the Ramboll analysis, noting that it reveals only that

that receptor sites in the NWF NAA are impacted by international sources during the summer exceedance season. This influence is, however, observed consistently throughout the spring and summer and not just on high ozone exceedance days.

DAQ Demo at 14.

Taken together, these short comings indicate that the Ramboll report is not adequate to support DAQ’s efforts to meet the “but for” requirements of 179B(b) and the weight of the evidence test imposed by EPA guidance. Because the DAQ demonstration does not fulfill these criteria, it should be dismissed and DAQ should begin the critical job of reducing emissions of ozone precursors in the NWF NAA.

VII. Conclusion

In sum, the weight of the evidence uniformly discredits the idea that international anthropogenic emissions are a substantial factor in causing non-attainment in the NWF NAA. DAQ has not produced sufficient evidence to suggest that the NWF NAA is uniquely affected by international anthropogenic emissions. To the contrary, it appears that the NWF is too far from Asia, Mexico or Canada to be meaningfully impacted by emissions from these countries and continent. While the component of the boundary condition that can be attributed to international anthropogenic emissions may have a modest impact on NWF NAA’s ozone levels, this impact is tiny in comparison to the impact caused by domestic sources, including the Wasatch Front itself.

¹⁷ EPA, Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone, White Paper for Discussion (December 2015) at 3

Based on the above and in light of your duty to protect public health and welfare and the environment, we urge you to drop efforts to make a 179B(b) demonstration and to instead focus your efforts on reducing ozone concentrations in the NWF NAA.

A handwritten signature in black ink, appearing to read 'Joro Walker', with a stylized, cursive script.

JORO WALKER
General Counsel
Western Resource Advocates