Columbia Riverkeeper
111 Third Street
Hood River, OR 97031
phone 541.387.3030
www.columbiariverkeeper.org

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Wess Stafford
Southwest Clean Air Agency
11815 NE 99th Street, Suite 1294
Vancouver, WA 98682

Sent via email to: **wess@swcleanair.org**

RE: Comments on SWCAA's preliminary Air Discharge Permit 16-3204 for Northwest Innovation Works.

Dear Mr. Stafford,

Columbia Riverkeeper, Washington Physicians for Social Responsibility, Oregon Physicians for Social Responsibility, and the Center for Biological Diversity (collectively, "Commenters") submit these comments to the Southwest Clean Air Agency ("SWCAA") regarding SWCAA's preliminary determination to issue Air Discharge Permit 16-3204 to Northwest Innovation Works Kalama ("NWIW") for the methanol production facility to be located at 222 Tradewinds Road in Kalama, Washington. The proposed facility would contribute significantly to greenhouse gas ("GHG") pollution in Washington and undermine the state's significant progress and leadership on GHG reductions. The methanol refinery and power generation unit would also be a significant source of conventional and toxic pollution in southwest Washington.

Commenters represent tens of thousands of members and supporters working to protect and restore Washington's environment and the Columbia River. Appellants' members and supporters work, live, and recreate in and along the Columbia River and the surrounding landscape near Kalama, Washington. Commenters and their members are deeply concerned by plans to construct a 100-acre methanol refinery, export terminal, pipeline, and associated facilities in and along the lower Columbia River—and by the air permit application and proposed permit that would allow significant and, in some cases, completely avoidable air pollution. For the reasons explained below, NWIW's proposed project does not meet the requirements of both local and federal air pollution rules, and the permit must be denied.

I. The facility is a major source because it has the potential to emit over 100 TPY of VOCs and CO.

Based on comparisons to the air permit for a smaller methanol refinery proposed in Louisiana[1], NWIW's facility has the potential to emit ("PTE") over 100 tons per year ("TPY") of both volatile organic compounds ("VOCs") and carbon monoxide ("CO"). Because VOCs and

[1] Application for a Minor Modification to Title V Permit No. 2560-00295-V0, Yuhuang Chemical, Inc. Methanol Plant, June 2016, Prepared by Ramboll Environ (Yuhuang Application).

CO are criteria pollutants under the Clean Air Act's PSD program, the facility's PTE over 100 TPY of these pollutants makes the facility a "major source" that must demonstrate that it is using the best achievable control technology ("BACT") to control all criteria pollutants and GHGs.

The Draft Technical Support Document, at page 18, states that the facility's PTE for VOCs and CO are 55.68 TPY and 72.73 TPY, respectively. However, these numbers significantly underestimate the facility's potential to emit these pollutants.

The most important way in which the application and the Draft Technical Support Document appear to miscalculate PTE for VOCs and CO is by underestimating the amount of time the process flare will operate. SWCAA estimates, without any apparent justification, that the process flare for the world's largest methanol refinery will operate just 176 hours per year, resulting in the discharge of 10 TPY of CO and 18.4 TPY of VOCs.[2] By contrast, permitting documents for Yuhuang Chemical Inc.'s proposed natural gas-to-methanol plant in Louisiana estimate that that facility's process flare would operate 312 hours per year. Yuhuang's proposed natural gas-to-methanol plant would consist of just one process line producing 5,000 metric tons of methanol per day—half the methanol production, and half the number of process lines, as NWIW's facility. Thus, NWIW is underestimating flaring emissions by about a factor of 3.5.[3]

a. Flaring

Applying Yuhuang's estimate of flaring, which is likely an underestimate, to NWIW's facility, NWIW's CO emissions from flaring would increase from 10.01 ton/yr to 35 ton/yr.[4] This is sufficient to increase CO emissions from 72.7 ton/yr to 97.7 ton/yr[5], just 2.3 ton/yr shy of the major source threshold of 100 ton/yr. VOC emissions from flaring would increase from 18.4 ton/yr to 64.4 ton/yr.[6] This is sufficient to increase total facility VOC emissions from 55.7 ton/yr to 102 ton/yr,[7] which exceeds the major source threshold of 100 ton/yr. As discussed below, NWIW's Application and SWCAA's Technical Support Document have underestimated other sources of VOCs and CO emissions sufficient to equal or exceed the major source threshold of 100 ton/yr for both VOC and CO. Thus, the facility is a major source and must be built with best available control technology for all pollutants that exceed the PSD significance threshold, including NOx, VOC, PM/PM10/PM2.5, and GHG.

SWCAA should re-evaluate the amount of time NWIW could run its process flare, based on information in the permitting documents for Yuhuang Chemical Inc.'s methanol plant and actual data from other methanol plants operating around the country. The application provides no

[2] *See* Draft Technical Support Document, p.14 ("Calculations assume [that the process flare will operate during] six 22-hr process startups, four 6-hr process shutdowns, four 4-hr process upsets, and two 2-hr emergency process shutdowns.").

[3] Underestimate in flaring emissions: (312 hrs/176 hrs)(2 process lines/1 process line) = 3.5.

[4] Increase in CO flaring emissions: 10.01 x 3.5 = 35 ton/yr.

[5] Increase in total facility CO emissions: 72.7 – 10.01 + 35 = 97.7 ton/yr.

[6] Increase in VOC flaring emissions: 18.4 x 3.5 = 64.4 ton/yr.

[7] Increase in total facility VOC emission : 55.7 – 18.4 + 64.4 = 101.7 ton/yr.

basis for why the ULE technology NWIW proposes would require less flaring than conventional steam reforming technology. Rather, NWIW's facility seems likely to need to operate its flare *more* frequently than the Yuhuang methanol plant for the following reasons:

- NWIW has two process lines, so it is twice as likely that at least one line will be in upset condition at any time, thereby requiring more frequent process flaring.

- NWIW is proposing to use an untested "ULE" technology at the commercial scale for the first time, so it's likely that upset conditions and emergency shutdowns could occur more frequently than with conventional reforming technology.

- NWIW represented, in the public hearing on the Shorelines permits, that the facility's gas supply is at least partially interruptible. Accordingly, the facility might be forced to shut down one or both process lines without much notice and/or more frequently than the facility would prefer. This situation could also contribute to the amount of flaring necessary.

SWCAA should provide an explanation for its estimate of how often the process flare will operate, taking into account the above considerations, and re-assess the facility's PTE.

b. Tanks

The facility includes two crude methanol tanks, four methanol shift tanks, and eight finished methanol tanks.[8] The Application estimated VOC emissions from these tanks using EPA's "TANKS 4.09d" model. However, the EPA no longer recommends using this model to calculate tank emissions.[9] Further, it is well known that both the TANKS model and the AP-42 equations recommended in the proposed permit significantly underestimate tank VOC emissions.[10] EPA itself demonstrated that actual measurements of tank emissions using differential absorption lidar ("DIAL") [11] underestimate tank VOC emissions by factors of 2 to 15, compared to those calculated using AP-42 equations/algorithms (and, thus TANKS 4.0.9d), as demonstrated in the summary data in Table 1:

[8] TSD, pp.6-7.

[9] EPA, TANKS Emissions Estimation Software, Version 4.09D; Available at: https://www3.epa.gov/ttnchie1/software/tanks/.

[10] *See* literature review in EIP, Comments on EPA's Draft "Emission Estimation Protocol for Petroleum Refineries, March 31, 2010, p. 5.

[11] Lidar is a surveying technology that measures distance by illuminating a target with a laser light. Differential absorption lidar ("DIAL") measurements utilize two or more closely spaced (<1 nm) wavelengths to factor out surface reflectivity as well as other transmission losses, since these factors are relatively insensitive to wavelength. When tuned to the appropriate absorption lines of a particular gas, DIAL measurements can be used to determine the concentration (mixing ratio) of that particular gas in the atmosphere. *See* Wikipedia, Lidar; https://en.wikipedia.org/wiki/Lidar#Meteorology_and_atmospheric_environment.

Table 1.
Comparison of DIAL Results and
Tank Emissions Estimated Using AP-42.[12]

Source	Source Description	Compound	Average DIAL flux, lb/hr[a]	Estimated emissions using standard estimating procedures with actual conditions at the time of the DIAL test, lb/hr
Tanks 1020, 1021, 1024, and 1025	EFR[c] tanks storing crude oil	VOC	6.4[d]	1.3 – 1.9[e]
Tanks 1052, 1053, and 1055	EFR tanks storing crude oil	VOC	16.3[d]	1.8 – 2.3[e]
Tanks 501, 502, 503, and 504	EFR tanks storing light distillates	VOC	8.6[d]	3.0 – 3.9[e]
Tank 43	VFR[f] tank storing fuel oil #6	VOC	2	1.3
			9.3	1.3
Tanks 60, 63, 11, 12, 18, 42, 61, and 65	VFR and EFR tanks storing various products	VOC	9	0.6 – 9.1[e]
Tanks 54, 55, 56, and 98	VFR and EFR tanks storing various products	VOC	3.1[d]	0.3 – 9.7[e]
Tanks 53 and 55	VFR tanks storing diesel fuel	VOC	23.8[d]	4.8 – 5.2[e]

Another recent study concluded that "[c]rude oil and heated oil tank emissions measured by DIAL were 5 to 10 times higher than estimated by TANKS.[13] Thus, using the TANKS model to estimate PTE in the Application and the equations in AP-42 to determine compliance with the tank VOC and methanol emissions do not assure that actual tank VOC emissions will remain below the levels used to calculate the PTE. NWIW should be required to use real-timing monitoring methods, such as DIAL, to confirm, on an annual basis, that VOC emissions remain below the reported tank emissions.

In sum, depending on the number of hours that NWIW runs its process flare each year, the facility at least has the *potential* to emit over 100 TPY of at least two criteria pollutants. Because, as discussed in Section II, below, there are no practically enforceable limits on emissions from flaring, the PTE makes the facility a Major Source subject to BACT for all criteria pollutants and GHGs.

II. The facility is not a synthetic minor source because the draft permit's limits on criteria air pollutants are not practically enforceable.

If NWIW began operating under the draft permit's conditions tomorrow, neither the public nor SWCAA could tell whether NWIW was exceeding its emissions limits. The emissions monitoring, testing, and reporting requirements and the process controls in the draft permit are not sufficient to detect, prevent, or prosecute violations of the emissions limits. From a public perspective, it will be impossible to know whether NWIW is delivering on its promises of pollution reduction based on the novel ULE technology. From a legal perspective, the draft permit is not practically enforceable, as required under the EPA's rules. Without practically

[12] U.S. EPA, *Critical Review of DIAL Emission Test Data for BP Petroleum Refinery in Texas City, Texas*, Table 2 (November 2010) (Available at: https://www3.epa.gov/airtoxics/bp_dial_review_report_12-3-10.pdf.)

[13] Rod Robinson, *The Application of Differential Absorption Lidar (DIAL) for Pollutant Emissions Monitoring*, p.46, (January 2015) (Available at: http://www.h-gac.com/taq/airquality/raqpac/documents/2015/Jan%2015/DIAL%20%202015%20Houston%20Meeting%20January%20(sent%20version).pdf.)

enforceable limits on the facility's potential to emit criteria pollutants, the facility must apply BACT for criteria pollutants and GHGs.

Importantly, only emissions limits that meet certain criteria may be used to restrict a Facility's PTE, thereby avoiding major source status and the BACT requirement. As the EPA recently explained, permits for such 'synthetic minor' sources "must include sufficient terms and conditions such that the source cannot lawfully exceed the limit"—in other words, the limit may "be relied upon to restrict a source's PTE only if it is legally and practicably enforceable."[14] To be "legally and practically enforceable," limitations must be supported by monitoring, recordkeeping, and reporting requirements that are "sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action."[15] Further, to keep a facility's PTE under the relevant major source threshold, a permit's emission limits must apply at all times to all actual emissions, and all actual emissions must be considered in determining compliance with the respective limits.[16] Moreover, PTE limitations should be as short-term as possible (e.g., not to exceed one month).[17]

For the following reasons, the emission limits in the draft permit are not legally or practically enforceable:

- The emissions of all criteria pollutants from the flare are not enforceable because there is no requirement to monitor actual emissions while the process flare is in operation to assure that the assumptions used in the potential to emit calculations are achieved in practice. Flare emission testing is essential to estimate actual emissions from the flare because the AP-42 emission factors used in the draft permit to estimate flare emissions are not representative of emissions from flares at methanol plants and methods do not exist to reliably convert flare inlet concentrations, even if proposed for monitoring or estimating flare emissions, into outlet emissions. Further, the introduction to AP-42 clearly states that "Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA…As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance."[18] The draft permit does not require any testing at all for emissions of any pollutant from the flare. Flare emissions (VOC, CO, NOx, and methanol) can be monitored in real time using passive Fourier Transform Infrared ("pFTIR") spectroscopy or differential infrared absorption LIDAR (light detection and ranging) methods, as used by EPA recently to estimate emissions from commercial flares.[19] Without such

[14] Yuhaung Chemical Inc., *EPA Order on Petition No. Vl-2015-03*, p.14 (2016).

[15] *Id.*

[16] *Id.*

[17] *Id.*

[18] U.S. EPA, *AP-42, Introduction*, p. 2 (Available at: https://www3.epa.gov/ttnchie1/ap42/c00s00.pdf.)

[19] U. S EPA, *Draft Review of Emissions Test Reports for Emissions Factors Development for Flares and Certain Refinery Operations* (August 2014); U.S. EPA, Flare Efficiency Study, EPA-600/2-83-052 (July 1983); *Texas Commission on Environmental Quality*, Flare Study Final Report, TCEQ Tracking No. 2008-81 (2010); Marathon Petroleum Company, *Performance Test of a Steam-Assisted Elevated Flare with Passive FTIR-Detroit* (November 2010); Clean Air Engineering, Inc., *PFTIR Test of Steam-Assisted Elevated Flares-Port Arthur* (June 2011); INEOS

monitoring, the draft permit is not "sufficient to enable regulators and citizens to determine whether the limit has been exceeded." The draft permit proposes to rely on the EPA's canned emissions factors, which may or may not be an accurate approximation of the emissions from the process flare.

- The VOC and CO limits are not practically enforceable because the VOC and CO emissions from the process flare are not reported in a manner conducive to enforcement. The EPA strongly suggests that, in order to be practically enforceable, PTE limitations must be as short-term as possible, on the order of a month. The draft permit's yearly PTE limits for VOC and CO blatantly exceed the EPA's directive. The draft permit does require quarterly calculation and reporting of process flare emissions, and a quarterly reporting of the emission total from the preceding 12-month period. However, the permit does not specify whether the TPY limit on VOC and CO applies for each preceding 12-month period, or if the TPY limits apply on a calendar year basis. This lack of clarity would make enforcement impractical or impossible.

- The VOC limit is not enforceable because the draft permit's VOC emission testing requirements are not sufficient. The draft permit only requires testing for VOC emissions from the power generation unit upon startup and once every five years thereafter. In rejecting an air permit for the Yuhuang methanol plant in Louisiana, the EPA found that "a single stack test, repeated every five years" was not sufficient for purposes of demonstrating compliance with the permit's VOC limits.[20]

- The tank VOC limits are not practically enforceable because the proposed draft permit does not require any testing for temperature, vapor pressure, and vapor molecular weight, which are required to calculate tank emissions using the methods proposed in the permit.

- The particulate matter limits for all fired sources are not enforceable because the draft permit only requires one initial test, after startup, of particulate matter emissions from power generation unit and the process boilers. A single snapshot of the particulate matter emissions from the power plant and process boiler is not sufficient for demonstrating compliance with the permit's particulate matter limits over the operating life of the facility. Emissions can increase as combustion equipment ages and/or if the equipment is not adequately maintained.

- There are no limits on the amount of hazardous air pollutants ("HAPs") emitted from the facility. And if there were limits, the draft permit does not require any actual emissions monitoring for HAPs. The lack of limits and monitoring means that the draft permit is not sufficient to demonstrate that the facility will not exceed the 25 TPY yearly aggregate threshold for HAPs or the 10 ton/yr threshold for a single HAP. Further, the absence of any HAP limit means there is no assurance that health impacts will not be significant to the surrounding community.

ABS (USA) Corporation, *Passive Fourier Transform Infrared Technology (FTIR) Evaluation of P001 Process Control Device* (July 2010).

[20] U.S. EPA, *Yuhuang Order*, p.21.

Based on the facility's potential to exceed the 100 TPY threshold for, at least, VOCs and CO, and the lack of practically and legally enforceable PTE permit limits, the facility is not a synthetic minor source and must therefore demonstrate that it is applying BACT for criteria pollutants and GHGs.

III. NWIW has not demonstrated that the proposed facility meets the "Best Achievable Control Technology" standard for reducing GHG emissions.

NWIW's proposal would seriously undermine Washington's attempt to lead the Pacific Northwest and the nation in GHG reduction and climate protection. In terms of producing GHGs, NWIW's refinery complex alone would contribute at least a million tons per year of GHGs—not even counting GHGs released in extracting and transporting natural gas or through shipping methanol to China. More symbolically, NWIW's proposal makes a mockery of Washington's attempt to control GHGs because NWIW admits that massive reductions in GHG emissions are technologically possible—NWIW just does not want to spend money on currently available GHG reduction technologies.

The threats from GHG emissions and climate change are clear. As the Washington Department of Ecology explained:

> "Over the past century, GHG emissions from human activity have risen to unprecedented levels. Higher levels of GHGs in the atmosphere have caused average temperatures to go up and the oceans to become more acidic. Washington has already experienced long-term effects that are consistent with those expected from climate change. Our state faces serious economic and environmental disruption from these changes including:
>
> • An increase in pollution-related illness and death due to poor air quality.
>
> • Declining water supply for drinking, agriculture, wildlife, and recreation.
>
> • An increase in tree die-off and forest mortality because of increasing wildfires, insect outbreaks, and tree diseases.
>
> • The loss of coastal lands due to sea level rise.
>
> • An increase in ocean temperature and acidity.
>
> • Increased death and disease in fish like salmon, steelhead, and trout because of warmer summer water temperatures, lower summer water levels, and river flooding in winter.
>
> • Damaged, ruined, and failed field crops and fruit harvests because of higher temperatures and less water available for irrigation."[21]

[21] Washington Department of Ecology, *Response to comments on Clean Air Rule*, p.3 (2016) (online at: https://fortress.wa.gov/ecy/publications/documents/1602014.pdf).

Recognizing these risks as early as 2008, Washington's Legislature adopted ambitious goals for reducing GHG emissions and reversing the impacts of climate change and ocean acidification. *See* RCW 70.235.020. These goals included reducing overall emissions of GHGs in the state to 1990 levels by 2020 and reducing GHG emissions to 50 percent below 1990 levels by 2050. *Id*. NWIW's proposal is a deliberate step in the opposite direction of these goals.

Commenters recognize that, because of Ecology's July 2016 decision to abandon the BACT requirement for GHGs under certain circumstances, NWIW's refinery may not be subject to BACT by virtue of emitting over 100 TPY of CO_2e. However, as explained in Sections I and II, above, the facility has the PTE over 100 TPY of at least criteria pollutants and does not have emissions limitations that are practically enforceable. For both of those reasons, the facility is a major source and NWIW must therefore apply BACT for all criteria pollutants *and GHGs*. In light of NWIW's professed commitment to reducing climate change, Commenters provide the following comments on what is actually "achievable" in terms of GHG reductions by the facility.

a. NWIW has not demonstrated that the proposed facility meets the "Best Achievable Control Technology" standard for reducing GHG emissions from the power generation units and steam boilers because NWIW arbitrarily eliminated Carbon Capture and Sequestration technology from the BACT analysis.

Without any real analysis or explanation, **NWIW's application dismisses available "Carbon Capture and Sequestration" technology that could reduce CO_2e emissions from the on-site gas-fired power plant and steam boilers by roughly 86%.** The power plant and process boilers account for the majority of GHGs emitted on-site. Other than NWIW's wholly unsupported claims that these currently available technologies would subject NWIW to "unacceptable"[22] costs, NWIW provides no explanation for its proposed facility configuration that would needlessly contribute to GHG pollution.

Specifically, NWIW proposed a GHG emissions limit of 490,600 tons of CO_2e per year from the power generation unit[23] and a GHG emissions limit of 395 pounds of CO_2e per thousand pounds of steam produced from the process steam boilers.[24] NWIW asserts that these limits comply with the Best Achievable Control Technology ("BACT") standard for reducing GHG emissions. But these limits are just based on NWIW buying and operating reasonably efficient gas burners and turbines—essentially, operating the facility without any additional GHG controls. However, NWIW acknowledges that carbon capture and sequestration technology is currently available that would reduce the planned GHG emission from the boilers and power plant by 86 percent.[25] On this basis, NWIW could—if it chose to—prevent 421,916 tons of CO_2e emission per year from its power plant and prevent 233,923 tons of CO_2e emissions per year

[22] NWIW, Appendix C to Air Discharge Permit Application, *Best Available Control Technology for Greenhouse Gases*, p.25 (February 2016).
[23] *Id.* at p.27.
[24] *Id.* at p.36.
[25] *Id.* at pp.24, 33.

from its steam boilers.[26] **Combined, these pollution controls would reduce the facility's GHG emissions by 655,839 tons per year of CO_2e.**

NWIW's rational for refusing to apply carbon capture and sequestration technology to control GHG emissions from the power plant and steam boilers is arbitrary and does not satisfy the BACT standard. After admitting that carbon capture and sequestration technology exists and could be applied to this facility, NWIW asserts that "a CCS system would approximately double the capital cost" of the facility, and the "considerable monetary and energy requirements of a CCS system suggest unacceptable collateral economic, energy, and environmental impacts."[27] While the cost of pollution controls is an appropriate consideration when determining BACT, NWIW never explains why carbon capture and sequestration technology would be cost-prohibitive. First, NWIW's estimate of the cost of applying carbon capture and sequestration is based on extrapolating the estimated cost of implementing this technology at a much smaller methanol refinery that uses a different methanol manufacturing process. There is little or no support for NWIW's calculation of the cost of applying this technology at the Kalama refinery. Second, even if NWIW's cost estimate was correct, there is no indication that employing CCS technology would be cost prohibitive. NWIW provides no information to suggest how the projected cost of this technology would impact the project's profitability. In the absence of such information, NWIW lacked adequate justification for dismissing carbon capture and sequestration technology from the BACT analysis.

CCS technology is very likely feasible at NWIW's facility. The EPA recently determined that CCS technology is a feasible and appropriate control technology for many steam boilers, similar to NWIW's process boilers. *See* 80 Fed. Reg. at 64,510 (October 23, 2015). In fact, CCS will be use at Lake Charles Methanol LLC's methanol refinery being constructed in Lake Charles, Louisiana.[28] EPA determined that the cost of CCS is reasonable, assuming CO_2 storage in deep saline formations. *See id.* at 64,563, 64,566, and 64,572. EPA also found that plants in most parts of the country would have access to CO_2 storage in deep saline formations. *See id.* at 64,576. According to the National Energy Technology Laboratory, western Washington (including adjacent offshore areas) holds some promise for deep saline sequestration,[29] and Washington's CO_2 sequestration potential is estimated at between 36 and 495 billion metric tons.[30] NWIW's application discloses none of this, and gives SWCAA no evidence to conclude that CCS technology is not feasible for this facility.

Finally, commenters encourage SWCAA to look at the projected $1.69 billion monetary investment in carbon capture and sequestration technology not as an economic cost but as a potential economic benefit. Like construction of other aspects of the proposed facility, construction of the carbon capture and sequestration technology would mean a significant increase in NWIW's investment is Cowlitz County. This type of investment, according to

[26] *Id.* at p.15.
[27] *Id.* at p.25.
[28] Morning Consult, *DOE to Guarantee as Much as $2 Billion in Loans for Carbon-Capture Project* (December 21, 2016) (available at: https://morningconsult.com/2016/12/21/doe-guarantee-much-2-billion-loans-carbon-capture-project/).
[29] *See* National Energy Technology Laboratory, *Carbon Storage Atlas, Fifth Edition*, p.28 (2015) (available at: https://www.netl.doe.gov/File%20Library/Research/Coal/carbon-storage/atlasv/ATLAS-V-2015.pdf).
[30] Id. at p.111. (2015).

NWIW, will lead to more construction and process jobs, increased tax base, and increased foreign direct investment in Cowlitz County and Washington.

b. NWIW has not demonstrated that the proposed facility meets the "Best Achievable Control Technology" standard because NWIW arbitrarily eliminated renewable energy sources from the facility's power mix.

NWIW's BACT analysis should have explored the possibility of obtaining some or all of the power that NWIW proposes to generate on-site from renewables such as wind and solar. Fuel mix for a facility, especially in the context of GHG emissions, is an appropriate consideration in the BACT analysis. NWIW purports to foreclose the possibility of using renewable electricity sources by stating that Cowlitz PUC cannot currently deliver the 100 MW of electricity that NWIW proposes to generate on-site. But NWIW could seemingly construct, or fund the construction of, additional electric transmission capacity at least as feasibly as building a 120 MW gas-fired power plant. NWIW's application does not explain why constructing new transmission capacity and purchasing renewably generated power—possibly to be shaped by limited electricity generation on site—could not feasibly satisfy the facility's electricity needs while achieving reductions in the emissions of GHGs and other criteria pollutants.

c. NWIW has not demonstrated that the proposed facility meets BACT for GHG emissions from methanol reforming because NWIW arbitrarily excluded an achievable methanol reforming technology from the BACT analysis.

NWIW has not demonstrated that NWIW's proposed "Combined Gas-Heated Reforming"[31] process constitutes BACT for GHGs released during methanol reforming because NWIW has not compared its proposed reforming process to other reforming technologies that are equally "achievable" within the meaning of the BACT regulations. A BACT assessment for a facility like NWIW's begins by surveying the emission reductions achieved by comparable technologies that are currently "achievable."[32] NWIW purports to do this type of survey—but does so with a thumb on the scale. NWIW compares its combined gas-heated reforming technology to several more-established methanol reforming technologies, and NWIW's relatively more efficient proposal appears to be the best available option. The problem, from a BACT perspective, is that NWIW eliminated from consideration the "Partial Oxidation" reforming technology[33]—which appears to be equally as "achievable" as NWIW's proposed option. NWIW purported to eliminate partial oxidation reforming technology from BACT consideration because partial oxidation reforming technology is a "proprietary technology that has not been commercially demonstrated for methanol production . . . ."[34] But this is also true of NWIW's proposed combined gas-heated reforming technology—which NWIW nevertheless claims to be "technologically feasible."[35] Accordingly, NWIW's decision to eliminate partial

[31] *Id.* at pp.11–12.
[32] *See id.*
[33] *Id.* at 12.
[34] *Id.*
[35] *Id.* at 12 ("Combined GHR is technically feasible, but, to date, has only been employed for methanol production at a single small scale facility in Australia.").

oxidation reforming from the BACT analysis was arbitrary. NWIW should not be allowed to ignore other emerging methanol reforming technologies that could be more efficient at reducing GHGs while using its own novel technology to create a favorable comparison versus older, less efficient ways to create methanol. NWIW must compare like to like; it must compare its novel methanol production technology to similar emerging higher-efficient methanol production technologies to determine whether achievable alternatives are available that would result in reduced GHG emissions.

IV. NWIW's application and SWCAA's technical support document do not address whether the project will violate the .5 deciview standard in the Columbia Gorge Scenic Area.

The permit application, the technical review document, and the proposed permit do not appear to address whether NWIW's facility would violate Washington's regional haze plan and the Columbia River Gorge National Scenic Area Act, 16 U.S.C. §§ 544–544p, the Gorge Management Plan, and the Gorge Air Study and Strategy. These laws and authorities require SWCAA, when issuing air pollution permits for projects that may adversely affect the Scenic Area, to protect and enhance air quality and visibility in the Scenic Area.

Under the authority, and to effectuate the purposes, of the Scenic Area Act, the Columbia River Gorge Commission ("Gorge Commission") and the Forest Service adopted the Gorge Management Plan ("Plan"), an interstate planning regulation that requires Washington to protect and enhance air quality in the Scenic Area "consistent with the purposes of the Scenic Area Act."[36] The Plan requires the State of Washington, in conjunction with SWCAA, the Forest Service, and the State of Oregon, to "develop and implement a regional air quality strategy to carry out the purposes of the Scenic Area Act."[37]

Pursuant to the Act and Plan, SWCCA (in cooperation with Oregon DEQ and the Forest Service) prepared the Gorge Air Quality Strategy ("Strategy"). On September 13, 2011, the Gorge Commission approved the Strategy as consistent with the Gorge Management Plan. The Strategy was upheld by the Oregon Court of Appeals. *See Friends of the Columbia Gorge v. Gorge Comm'n*, 257 Or. App. 197, 305 P3d 156 (2013).

The Strategy provides thresholds for significant adverse impacts to air quality in the National Scenic Area. Specifically, the Strategy expressly defines a "significant impact" to visibility in the Scenic Area as a 0.5-deciview[38] change in visibility.[39] A deciview of zero represents pristine conditions, meaning the absence of natural or manmade impairment in visibility; to the human eye, 0.5 deciview is a barely perceptible change in visibility.

The Gorge Commission and Forest Service interpret the Act to require Washington, and SWCAA, to protect the air quality and visual resources of the National Scenic Area when issuing

[36] *Gorge Management Plan* at I-3-32–33 (2011).
[37] *Id.*
[38] A deciview is a method for measuring haze impacts to visibility. Technically speaking, a deciview is a metric of haze proportional to the logarithm of the atmospheric extinction caused by the haze.
[39] Gorge Air Quality Strategy at 13–18.

air discharge permits. Washington law directs SWCAA to carry out its "functions and responsibilities,"[40]—including the issuance of air permits—in accordance with the Act and, by extension, the Plan and Strategy promulgated under the Act. The Strategy, which establishes an overall goal of continued improvement in visibility and a "significant impact level" of 0.5 deciviews for visibility in the Scenic Area,[41] must therefore be considered when SWCAA issues the permit for NWIW's facility.

SWCAA should have considered whether NWIW's facility would achieve the Strategy's overall goal of continued improvement in visibility in the Scenic Area and whether the methanol refinery's emissions would exceed the "significant impact level" of 0.5 deciview for visibility in the Scenic Area. While the proposed methanol refinery is roughly 62 km from the western boundary of the Scenic Area, other large sources of air pollution even further away from the Scenic Area have been found to cause exceedances of the 0.5 deciview threshold. For instance, Oregon DEQ concluded that PGE's Beaver gas-fired power plants at Port Westward, Oregon, and Georgia Pacific's Wauna paper mill both had had visibility impacts in the Columbia Gorge over the 0.5 deciview significant impact level.[42] And SWCAA concluded that the Weyerhaeuser mill in Longview also exceeded the 0.5 deciview significant impact level.[43] Accordingly, it is reasonable to inquire whether NWIW's facility would exceed the 0.5 deciview significant impact level in the Scenic Area, and SWCAA was required to perform this analysis before issuing this permit.

CONCLUSION

For the reasons set forth above, the proposed air permit does not meet federal, state, and local requirements for air quality, and SWCAA must therefore deny NWIW's permit application. Moreover, this facility's contribution to GHG emissions in Washington would be a deliberate step in the opposite direction of the legislature's goals for addressing climate change and ocean acidification.

Sincerely,

Miles Johnson, Attorney for Columbia Riverkeeper

Submitted on behalf of:
Columbia Riverkeeper
Oregon and Washington Physicians for Social Responsibility
Center for Biological Diversity

[40] RCW 43.97.025(1).
[41] Gorge Air Quality Strategy at iii, 6, 8, 13–18.
[42] *Id*. at 15.
[43] *Id*. at 16.