CITY OF Vancouver WASHINGTON

P.O. Box 1995 • Vancouver, WA 98668-1995
www.cityofvancouver.us

March 22, 2017

Final Mitigated Determination of Nonsignificance (MDNS)
NuStar Biofuel Conversion Project
PRJ-150882/LUP-54033

The city issued a Notice of Application and Optional SEPA Determination of Nonsignificance (DNS) for this project July 11, 2016. The city received approximately 55 responses. A synopsis of the comments received is attached as Attachment A to this determination After carefully considering the application, Environmental Checklist, comments and the other information on file, the city hereby issues a Mitigated Determination of Nonsignificance for this proposal under Chapter 43.21C RCW, Chapter 197-11 WAC and Chapter 20.790 VMC.

As the lead agency for this proposal, the City has determined the project will not have a probable significant adverse impact on the environment after the below mitigation measures and compliance with applicable City, County, State, and Federal requirements. An Environmental Impact Statement is not required under RCW 43,21C.030(2)(c).

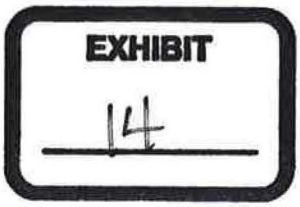
Proponent: Chad Edinger
NuStar Terminal Services, Inc.
2565 Harborside Drive
Vancouver WA 98660
(360) 694-8591

Description: NuStar is requesting approval for the Biofuel Conversion project at its Vancouver terminals located at 2565 NW Harborside Drive and at 5420 NW Fruit Valley Road.

The project includes retrofitting existing facilities to receive ethanol via rail or marine vessel, store it temporarily, and transfer it to tanker trucks for further shipment, and marine vessels for further shipment including via the Columbia River.

Location: 2565 NW Harborside Dr. and 5420 NW Fruit Valley Rd. The proposed project will occur within portions of tax lots 152190-000, 502010-000, 502010-002, 151979-000, 591115-010, 502015-000, 502020-001, 502020-000, 502020-003, and 502010-001 located in the SE ¼ of Sections 20, 21, 28 and 29 of Township 2N, Range 1E of the Willamette Meridian. Tax lot 147360-000 is located on NW Fruit Valley Rd. in the S ½ of section 16, Township 2 N, Range 1E of the Willamette Meridian.

Neighborhood Association(s): Fruit Valley



Mitigation Measure(s)

1. The applicant has signed a 10 year agreement to pay fees specifically designed to mitigate potential impacts on the Vancouver Fire Department. The funds generated will be dedicated to increased Hazardous Material Team planning and personnel costs, including for overtime related to coverage and training. No building permits may be issued prior to the recording of the agreement.
2. The applicant will withdraw the currently pending application for crude oil storage and transshipment facility (PRJ-145874/PIR-39140). As the city no longer allows crude oil uses, the proposed ethanol use could not, therefore, be converted to accommodate crude oil. No building permits may be issued prior the applicant withdrawing the pending application to construct a crude oil transshipment facility (LUP-40862).

These required measures are based on the City's substantive authority, including in Chapter 20.790 VMC and WAC 197-11-660.

Requests to appeal this decision must be made in writing within 14 calendar days from the below date the decision is mailed An appeal shall state the case number designated by the city, the name of the applicant, name and signature of each petitioner, a statement showing that each petitioner is entitled to file the appeal under Chapter 20.210 VMC, the specific aspect(s) of the decision and/or SEPA issue being appealed, the reasons each aspect is in error as a matter of fact or law, and the evidence relied on to prove the error. A substantive appeal of the SEPA determination must be filed in conjunction with and within the limitation period applicable to an available administrative appeal of the applicable permit or approval (VMC 20.790.640.D).

All appeals, along with the required fee, must be received by 4 p.m., Wednesday, April 5, 2017.

Submit the appeal request and fee to Community and Economic Development Department, Permit Center 415 W. 6th Street, or mail to PO Box 1995, Vancouver, WA 98668-1995.

Permit center hours are 8 a.m.–12:30 p.m. and 1:30 p.m.–4 p.m., except Wednesday, when permit center hours begin at 9 a.m.

Responsible Official: Jon Wagner, Senior Planner, PO Box 1995, Vancouver, WA 98668
Telephone: 360-487-7885
E-mail: jon.wagner@cityofvancouver.us

Jon Wagner 3/22/17

Jon Wagner, AICP, Senior Planner **Date**

SEPA Exhibits:

A. Synopsis of Public Comments
B Comment Letter from Washington Department of Ecology dated July 25, 2016
C. Comment Letter from Columbia River Keeper, Clark County Natural Resource Council, Friends of the Columbia Gorge, Oregon Physicians for Social Responsibility, Center for Biological Diversity, The Lands Council and Northwest Environmental Defense Center dated July 25, 2016
D. Including Greenhouse Gas Emissions in SEPA Reviews, Guidance for Ecology**
E. Applicant's Response to Public Comments
F. Hypothetical Ethanol Spill Findings Memorandum Prepared by HDR dated Oct. 19, 2016
G. River Dissolved Oxygen Analysis and Potential Aquatic Impact Effects Memorandum Prepared by HDR dated Feb. 23, 2017
H. Staff Responses to Comments Received by Environmental Element
I. Memorandum of Agreement to Perform Voluntary Additional Mitigation

Synopsis of Public Comments

All public comments received are on file and available.

	Comment by	Date	Comments	
1	Joint comments from Columbia River Keeper, Clark Country Natural Resource Council, Friends of the Columbia George, Oregon Physicians for Social Responsibility, Center for Biological Diversity, The Lands Council and NEDC.	07/25/2016	• Environmental Health • Risk of Fire and Explosion • Impacts of spill on threatened salmon and other aquatic species • Impacts on Columbia River Estuary and Columbia River Gorge National Scenic Area • Precedent for future crude oil	
2	Diana Gordon	07/25/2016	Ethanol classified in same risk category as crude oil. Possible derailment and explosion. Current tank cars not safe	
3	David Kreisman	07/25/2016	Ethanol is a toxic, flammable substance. Similar to crude oil. Likely to derail, catch fire and explode. Concern with proposed scope of excavation. Terminal could be converted to export crude oil*	
4	Analis Martin	07/25/2016	Ethanol is a toxic, flammable substance. Similar to crude oil. Likely to derail, catch fire and explode. Concern with proposed scope of excavation. Terminal could be converted to export crude oil*	
5	Delia Tyrrell	07/25/2016	Ethanol is a toxic, flammable substance. Similar to crude oil. Likely to derail, catch fire and explode. Concern with proposed scope of excavation. Terminal could be converted to export crude oil*	
6	Dr. Sharon Bucher	07/25/2016	Ethanol flammable, similar to crude oil by rail concept. Fire	

			and environmental risks.	
7	Diana Gordon	07/25/2016	Shipping ethanol by truck and rail; ageing infrastructure ; earthquake-prone area. Ethanol from corn, not efficient.	
8	Dr. Theodora Tsongas	07/25/2016	Number of additional rail tank cars, 5,200 cubic yards of excavation. Ethanol toxic, flammable, trains subject to explosions and fires. Diesel emissions.	
9	Bill Brake	07/25/2016	Current rail tank cars not safe.	
10	Bill Brake	07/25/2016	Many unknowns concern with accumulation of ethanol as there re to be 22,200 Barrels/Day in and only 4,760 Barrels/Day out by Tanker Truck.	
11	Bill Brake	07/25/2016	Video on ethanol and methanol fire comparison	
12	David Lafayette	07/25/2016	Increased diesel particulate emissions, and noise. Possibility of future use of facility to handle crude oil. NuStar near a wetland and bird sanctuary	
14	Department of Ecology	07/25/2016	Hazardous waste regulations, Toxic cleanup areas in the vicinity of the proposal, Waste resources standards and water quality standards.	
15	Katharine Cotrell	07/25/2016	Rail traffic impact on at grade crossings, possible switch to crude oil once facility established; climate change/global warming. Ethanol is toxic and highly combustible and could harm forests, rivers, cities and towns along the railway corridor	
16	Cathryn Chudy	07/24/2016	Requesting a Determination of Significance.	
17	Nancy Shimeall	07/24/2016	Must stop burning fossil fuel; climate change	
18	Sharon Rickman	07/24/2016	Ethanol is toxic, flammable; likely to explode or catch fire when derail. Impacts to communities along rail line. Need cumulative public safety and water quality impacts in all communities along the rail route. Facility could be converted to crude oil	
19	Try Horton	07/24/2016	Global warming, toxic, flammable substance. Likely to	

			explode or catch fire when they derail. Danger to the communities along the rail line, amount of excavation. Recent vote on crude oil handling and refining. Facility could be converted to crude oil. *	
20	Marilyn McFarland	07/24/2016	Ethanol toxic and flammable. Trains will derail resulting in explosion and fire endangering the region	
21	Emily Herbert	07/24/2016	Ethanol toxic and flammable. Trains carrying ethanol likely to explode and catch fire when they derail. Endangers communities along the rail line. New unloading spots and soil excavation. Earthquake zone. Project could be converted to crude oil export	
22	Penelope Lichatowich	07/24/2016	Ethanol toxic and flammable. Trains carrying ethanol likely to explode and catch fire when they derail. Endangers communities along the rail line. Lack of any cleanup plan by rail companies	
23	Nancy Pfeiler	07/24/2016	Ethanol toxic and flammable. Trains carrying ethanol likely to explode and catch fire when they derail. Endangers communities along the rail line. Amount of excavation and conversion of the facility to crude oil use. (email sent twice)	
24	Dr. Theodora Tsongas	07/24/2016	Diesel emissions, ethanol toxic, flammable liquid. Threat to communities along the railroad from spill and/or fire. Removal of 5,200 cubic yards of material,	
25	Martha Peterson	07/23/2016	Require an EIS for the ethanol proposal	
26	Judy Krenelka	07/23/2016	Require an EIS. Do not allow conversion to crude oil exports	
27	Lehman Holder	07/23/2016	Facility could be converted to crude oil export. Requests full EIS	
28	Samuel Atkinson	7/23/2016	Require an EIS for the ethanol proposal	
29	Kalama Reuter	07/22/2016	Consider the risks to the community. Due diligence and special requirements for this type of project are well worth	

			considering.	
30	Don Steinke	07/22/2016	Requesting an EIS. Cites expert comments	
31	Gary Dayton	07/22/2016	Issue DS and require EIS. Concerns with global warming, ethanol not clean, will not create large amounts of jobs, targets for terrorists, fossil fuel industries.	
32	Denis Markian Wichar (Den Mark)	07/22/2016	Ethanol flammable and toxic. Huge amounts of soil to be excavated. Requests DS & EIS	
33	Mary McMonegal	07/22/2016	Ethanol tanks and trains have significant impacts. Request issue DS and require EIS	
34	Rich Golb	07/22/2016	Would be prudent to required EIS for NuStar.	
35	Sharon Miller	07/22/2016	Requested an Environmental Impact Statement	
36	Maya Jarrad	07/22/2016	Ethanol is flammable and is liable to explode or catch fire in a derailment. This could impact the city of Vancouver and all communities along the rail line. Possible conversion of facility to crude oil. Request DS and EIS.	
37	Terry L. Eaton	07/22/2016	Ethanol toxic, flammable substance. Trains carrying ethanol likely to explode and catch fire when they derail. Amount of soil excavation must have an impact	
38	Thomas Gordon	07/21/2016	Ethanol a Group 1 Carcinogens. Long term exposure to vapors would raise risk of cancer in worker at NuStar, those who transport it to NuStar and to the docks, plus those living nearby.	
39	Lynda Cunningham	07/21/2016	As new commodity request EIS	
40	Reverend Jayna	07/21/2016	Concern that facility could be used for crude oil export. Ethanol may have significant environmental impacts.	
41	Michael Gary	7/21/2016	Requested DA & EIS. Concern with conversion to fossil fuel uses.	
42	Marianne Eddington	7/21/2017	Ethanol company would bring toxins equally as dangerous as crude oil	
43	Julie Persitz	07/21/2016	Requested a DS and EIS	

44	Nancy Schultz	07/21/2016	Ethanol categorized the same as crude oil. Need EIS. Could be converted to crude oil	
45	Phillip Norman	07/21/2016	All public support to export energy encourages destruction of life on Earth. Requested DS and EIS.	
46	Merna Baker Blagg	07/21/2016	Ethanol is a toxic, flammable substance. Similar to crude oil. Likely to derail, catch fire and explode. Concern with proposed scope of excavation. Terminal could be converted to export crude oil*	
47	Jan Zuckerman	07/21/2016	Ethanol may have significant environmental impacts. Facility could be converted to crude oil export	
48	Karen Romanelli	07/21/2016	Please issue a DS and require EIS	
49	Rev. Richenda Fairhhurst	07/20/2016	Concerns with petrochemicals and potential impacts of ethanol. Requests an EIS	
50	Jean M. Avery	07/20/2016	Concern with fossil fuels. Ethanol is toxic and flammable. Trains transporting ethanol can explode and catch fire. Additional train traffic will create additional traffic along the rail lines. Possibility of future expansion must be fully reviewed with lifting of the oil export ban. Concern with conversion to crude oil export facility Request DS and EIS.	
51	Nicolette O'Connor	07/19/2016	Requests EIS. Ethanol is a toxic and flammable substance. It is likely to explode or catch fire when they derail. Impacts of construction of facility. The infrastructure could be used to export crude oil.	
52	John Karpinski	07/14/2016	DNS not appropriate	
53	Bill Brake	07/12/2016	Requested volumes and expected receipts as well as Load Outs by Tanker Truck and Marine	

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

July 25, 2016

Jon Wagner, AICP, Senior Planner
City of Vancouver
Community & Economics Development
PO Box 1995
Vancouver, WA 98668

Dear Mr. Wagner:

Thank you for the opportunity to comment on the optional determination of nonsignificance/notice of application for the NuStar Biofuel Conversion Project (PRJ-150882 & LUP-54033) located at 2265 Northwest Harborside Drive and 5420 Northwest Fruit Valley Road as proposed by Harris Group. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

HAZARDOUS WASTE & TOXICS REDUCTION: Tara Davis (360) 407-6275

The applicant must ensure that all waste generated from operations at this site are designated and managed in accordance with the Dangerous Waste Regulations, Chapter 173-303 WAC.

TOXICS CLEANUP: Craig Rankine (360) 690-4795

The proposed SEPA action is in areas of known contamination that has been detected related to facility environmental investigations at 2265 NW Harborside Drive which is in Vancouver Port of NuStar Cadet Swan (Facilities Site List #1026, project manager Craig Rankine at (360) 690-4795) cleanup site and 5420 Fruit Valley Road (61862781, ST Services NuStar Energy LP (Andy Smith [360] 407-6316). Reference information for other nearby cleanup sites is included here; see Ecology Facility Site ID Number, site name and project manager:

- 12436367, Malcolm Montague (Andy Smith [360] 407-6316)
- 54933627, Koppe Metals South Property and 2297659, Port Way Row Pacific Coast Shredding (Kirsten Alvarez [360] 407-6246)
- 4723154, Emerald Petroleum Services Inc. Transfer (no project manager assigned, contact Craig Rankine [360] 690-4795)
- 1029, Fort Vancouver Plywood (Craig Rankine [360] 690-4795)

The action should not cover or interfere with existing monitoring wells or structures related to cleanup activity.

If environmental contamination is discovered at the site of the proposed action, it must be reported to Ecology's Southwest Regional Office by contacting the Environmental Report Tracking System Coordinator at (360) 407-6300. For assistance regarding cleanup information on sites listed above contact the Ecology project manager. The applicant should make sure only clean soil is used as fill. Provisions and equipment should be on hand to contain and cleanup a release of oil or fuel from heavy equipment operation.

WASTE 2 RESOURCES: Beth Gill (360) 407-6380

If greater than 250 cubic yards of inert, demolition, and/or wood waste is used as fill material, a Solid Waste Handling permit may be required (WAC 173-350-990). Check with your local jurisdictional health department for any permitting requirements that may be required.

WATER QUALITY: Chris Montague-Breakwell (360) 407-6364

Erosion control measures must be in place prior to any clearing, grading, or construction. These control measures must be effective to prevent stormwater runoff from carrying soil and other pollutants into surface water or stormdrains that lead to waters of the state. Sand, silt, clay particles, and soil will damage aquatic habitat and are considered to be pollutants.

The following construction activities require coverage under the Construction Stormwater General Permit:

1. Clearing, grading and/or excavation that results in the disturbance of one or more acres **and** discharges stormwater to surface waters of the State; and
2. Clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more **and** discharge stormwater to surface waters of the State.
    a) This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, **and** discharge to surface waters of the State; and
3. Any size construction activity discharging stormwater to waters of the State that Ecology:
    a) Determines to be a significant contributor of pollutants to waters of the State of Washington.
    b) Reasonably expects to cause a violation of any water quality standard.

If there are known soil/ground water contaminants present on-site, additional information (including, but not limited to: temporary erosion and sediment control plans; stormwater

pollution prevention plan; list of known contaminants with concentrations and depths found; a site map depicting the sample location(s); and additional studies/reports regarding contaminant(s)) will be required to be submitted.

You may apply online or obtain an application from Ecology's website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/ - Application. Construction site operators must apply for a permit at least 60 days prior to discharging stormwater from construction activities and must submit it on or before the date of the first public notice.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(SM:16-3674)

cc: Tara Davis, HWTR
Beth Gill, W2R
Chris Montague-Breakwell, WQ
Craig Rankine, VFO/TCP
Harris Group (Applicant)
Port of Vancouver USA (Owner)

July 25, 2016

Jon Wagner, Senior Planner
City of Vancouver
Community & Economic Development Department
P.O. Box 1995
Vancouver, WA 98668

Sent via email to: jon.wagner@cityofvancouver.us

Re: Environmental Impact Statement Required for NuStar's Proposed Ethanol Conversion Project (PRJ-150882 and LUP-54033).

Dear Mr. Wagner,

In response to the City of Vancouver's ("City") combined Notice of Application and Optional SEPA Determination of Nonsignificance ("DNS") for applications PRJ-150882 and LUP-54033, the undersigned organizations assert that NuStar Terminal Service Inc.'s ("NuStar") proposed conversion to ethanol trans-loading would have significant negative environmental impacts requiring the preparation of an Environmental Impact Statement ("EIS") under Washington's State Environmental Policy Act ("SEPA"). The City many not act on NuStar's pending application until the City prepares a full EIS that reveals the extent and severity of the human health risks and environmental impacts posed by NuStar's proposed ethanol project. The City should deny NuStar's ethanol project if the EIS reveals that the project would likely result in significant adverse environmental impacts and reasonable mitigation measures are insufficient to mitigate those impacts.

The undersigned organizations submit these comments in response to the City's DNS for NuStar's proposal under WAC 197-11-340(2)(c). We understand that we will have a later opportunity to comment on the substance of NuStar's requested land use approvals, as well as

EXHIBIT
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9 PAGES

the scope and content of an EIS, if any, under WAC 197-11-408(2)(a). We reserve the right to comment on those other aspects of the project approval process at a later date.

Columbia Riverkeeper, Oregon Physicians for Social Responsibility, the Center for Biological Diversity, Friends of the Columbia River Gorge, Clark County Natural Resources Council, the Northwest Environmental Defense Center, and the Lands Council (hereinafter "commenters") submit the following comments to explain the need for an EIS and to identify issues the City should address during the environmental review process. And if, after the careful completion of an EIS, the City permits NuStar to retrofit its existing facilities to handle ethanol, commenters request that the City explicitly condition such permits on NuStar not using the permitted infrastructure to handle crude oil. Commenters are non-profit organizations dedicated to protecting the environment and natural resources of the Columbia River and the Pacific Northwest, and ensuring that all citizens of Washington and the Pacific Northwest have safe, clean, and healthy air, water, and communities. These organizations' members live, work, and recreate near NuStar's proposed ethanol terminal, and along the rail and shipping lines that would serve the terminal. These members' lives could be materially impacted by increased ethanol shipping through NuStar's proposed ethanol terminal.

I. The City must prepare an EIS because NuStar's proposed ethanol terminal would have significant negative environmental and health impacts.

NuStar proposes to retrofit existing facilities to receive ethanol via rail or marine vessel, store it temporarily, and ship it via truck or marine vessel along the Columbia River. The storage and handling of ethanol is inherently dangerous and poses significant environmental and health risks. These serious impacts will be felt in the Vancouver community and throughout our region.

The City should prepare an EIS because the impacts of ethanol shipping and storage may be significant. To satisfy SEPA, the City[1] must make a "threshold determination" of whether NuStar's project may have a significant negative impact on the environment. WAC 197-11-330. Significant means a "reasonable likelihood of more than a moderate adverse impact on environmental quality." WAC 197-11-794. For the purposes of SEPA's threshold determination, a project's negative environmental impacts may be "significant" if they would adversely affect public health or safety, environmentally sensitive areas, or endangered or threatened species or their habitat. WAC 197-11-330(3)(e). As explained below, NuStar's proposed ethanol storage and handling facility implicates these criteria. Accordingly, the City must prepare an EIS before making any decisions about the pending applications. WAC 197-11-330(4).

The significant negative environmental and health impacts of NuStar's ethanol facility include, but are not limited to:

- Rail car explosion risks near population centers in Vancouver and along the entire transport route;
- Ethanol tank explosion and fire risks;

[1] As the City's Notice of Application and DNS acknowledge, NuStar's proposed ethanol facility is a project action subject to SEPA, over which the City has jurisdiction

- Impacts of increased rail and vessel traffic in Washington communities and on the Columbia River;
- Ethanol spills along the rail route, at the facility, in the Columbia River, and in the Pacific Ocean;
- Threats to endangered salmon and steelhead populations in the Columbia River; and
- Impacts to the Columbia River Estuary and the Columbia River Gorge National Scenic Area.

When assessing "significance," SEPA compels the City to look beyond the direct environmental impacts of a project—the determination of significance must consider impacts outside the City's jurisdiction, short-term and long-term effects of a proposal, and any indirect effects of a proposal. WAC 197-11-060(4). Accordingly, the City's threshold determination, and subsequent EIS, must go beyond the impacts at NuStar's leasehold in Vancouver and account for *all* impacts of NuStar's proposed ethanol facility. NuStar's application materials consider only the effects at NuStar's Vancouver terminal site and fail to consider the many effects that will or could occur along shipping lines. A complete EIS is necessary to adequately evaluate the full range of significant environmental impacts of storing and transporting ethanol. Below are a few examples of such significant impacts of NuStar's terminal and operation.

a. NuStar's proposed ethanol facility creates explosion and fire risks.

The City should prepare an EIS because ethanol shipping and handling poses serious risks and severely threatens public health and safety. Those risks are highest during ethanol transport via rail car to the terminal, when ethanol will pass through population centers. NuStar's application only proposes fire hazard mitigation measures at NuStar's leasehold in Vancouver, but does not acknowledge the risk of fires and explosions along the shipping lines that would service the proposed ethanol terminal.[2] Furthermore, adequate emergency response capacity (if it exists) would not eliminate the significant adverse impacts flowing from an accident. The growing production of ethanol will likely cause the rail traffic associated with NuStar's project to increase in the long term.[3] Even in well-managed operations, increased ethanol shipment by rail heightens the risk of ethanol explosions or fires. The following are examples of recent rail accidents involving ethanol that resulted in explosions or fires:

- **October 20, 2006:** A train carrying tank cars loaded with ethanol derailed in New Brighton, PA, while crossing the Beaver River. Twenty out of the 23 tank cars that derailed released ethanol, igniting a fire that burned for about 48 hours. The accident caused homes and businesses within a seven-block area to be evacuated for two days and resulted in $5.8 million of damages.[4]

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[2] *See* NuStar's SEPA Checklist Submitted to the City of Vancouver, pp. 15–20 (May 27, 2016) (hereinafter "SEPA Checklist").

[3] Renewable Fuels Association, *Global Ethanol Production*, http://www.afdc.energy.gov/data/10331 (last updated March, 2016).

[4] National Transport Safety Board ("NTSB"), *Derailment of Norfolk Southern Railway Company Train 68QB119 with Release of Hazardous Materials and Fire, New Brighton, Pennsylvania, October 20, 2006* 1 (May 13, 2008), http://www.ntsb.gov/investigations/AccidentReports/Reports/RAR0802.pdf.

- **October 10, 2007:** Five ethanol tank cars left the tracks during a 30-car derailment in Painesville, OH. The resulting fire burned for three days and caused $8.48 million of damages.[5]
- **June 19, 2009:** 14 tank cars of ethanol derailed in Rockford, IL, at a highway/rail grade crossing. One motorist was killed and nine others injured from the resulting explosion and fire, which burned for 24 hours. Damages totaled an estimated $7.9 million, with an additional $36 million paid to the family of the dead motorist.[6]
- **February 6, 2011:** 34 cars of an ethanol unit train derailed outside the village of Arcadia, OH. Two tank cars immediately exploded and 32 others caught fire due to the heat. An estimated 780,000 gallons of ethanol burned or spilled in the incident.[7]
- **May 4, 2011:** A log train derailed outside of Scappoose, OR, colliding with 12 ethanol cars parked on the track siding. Several ethanol cars ignited and burned for hours. Emergency personnel evacuated a one-half mile area around the accident in case of an explosion.[8]
- **October 7, 2011:** 26 train cars derailed in Tiskilwa, IL. Ten cars contained ethanol that ignited or burned, resulting in $1.6 million of damage.[9]
- **July 11, 2012:** A freight train derailed in Columbus, OH. Three cars contained ethanol: one punctured in the derailment and caused all three ethanol tankers to be engulfed in a pool fire. An estimated $1.2 million of damages resulted.[10]
- **August 5, 2012:** 17 ethanol tankers derailed in Plevna, MT. Five cars caught fire and exploded, burning the surrounding area resulting in and evacuations.[11]

In response to these incidents, the Federal Railroad Administration ("FRA") issued Emergency Order No. 28, which imposed additional safety requirements on railroads transporting hazardous materials.[12] Order No. 28 emphasized that ethanol is a highly flammable material that is transported by rail more than any other hazardous material.[13] FRA also

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[5] NTSB, *Railroad Accident Brief: Accident No. DCA-08-FR-001* 1 (June 1, 2009), http://www.ntsb.gov/investigations/AccidentReports/Reports/RAB0902.pdf; Massachusetts Department of Environmental Protection ("MassDEP"), *Large Volume Ethanol Spills: Environmental Impacts and Response Options* A-2 (July, 2011), http://www.mass.gov/eopss/docs/dfs/emergencyresponse/special-ops/ethanol-spill-impacts-and-response-7-11.pdf.

[6] NTSB, *Derailment of CN Freight Train U70691-18 with Subsequent Hazardous Materials Release and Fire, Cherry Valley, IL, June 19, 2009* viii (Feb. 14, 2012), http://www.ntsb.gov/investigations/AccidentReports/Reports/RAR1201.pdf; CBS Chicago, *Family Settles Lawsuits over Fatal Train Derailment for $36M* (Oct. 18, 2011), http://chicago.cbslocal.com/2011/10/18/family-settles-lawuits-over-fatal-train-derailment-for-36m/.

[7] MassDEP, *supra* note 5, at A-4.

[8] The Chronicle, *Cleanup Follows Train Derailment and Ethanol Fire by Cornelius Pass* (May 10, 2011), http://www.thechronicleonline.com/news/cleanup-follows-train-derailment-and-ethanol-fire-by-cornelius-pass/article_c137a02e-768f-11e0-bf30-001cc4c03286.html.

[9] NTSB, *Railroad Accident Brief No. DCA-11-FR-001* 1 (Aug. 14, 2013), http://www.ntsb.gov/investigations/AccidentReports/Reports/RAB1302.pdf.

[10] NTSB, *Railroad Accident Brief: Norfolk Southern Railway Company Train Derailment and Hazardous Materia ls Release* (Sept. 18, 2014), http://www.ntsb.gov/investigations/AccidentReports/Reports/RAB1408.pdf.

[11] Department of Transportation, *FRA Emergency Order No. 28, Notice No. 1*, 78 Fed. Reg. 48218, 48221 (Aug. 7, 2013), https://www.fra.dot.gov/eLib/details/L04719.

[12] *Id.* at 48218, 48223.

[13] *Id.* at 48221.

recognized the potential for catastrophic outcomes resulting from ethanol release including "additional deaths, injuries, property damage, and environmental damage."[14] This history indicates that ethanol tanker derailments are by no means "remote or speculative." WAC 197-11-782.

Major accidents and derailments resulting in ethanol explosions and fires are not the only threats; minor leaks and spills are also a concern. Ethanol is a flammable colorless liquid that burns with a blue flame and does not produce visible smoke, making it difficult to detect.[15] Ethanol vapors are heavier than air and will settle in low spaces, which, if confined, creates an explosion hazard.[16] Ethanol in its liquid phase will seep into soil and groundwater, where it rapidly biodegrades into methane.[17] Methane can persist in soil and create a long-term explosion hazard if the methane migrates into a confined space.[18]

b. Ethanol spills threaten salmon and other aquatic species.

Beyond the immediate dangers posed by fires and explosions, these accidents also involve a significant amount of ethanol spilled into the environment, which can have adverse impacts on surface waters including the Columbia River, its tributaries, and all waterbodies along the rail lines servicing NuStar's proposed ethanol terminal.

The risk of a spill from a rail car transporting ethanol to NuStar's terminal, and the risk of a spill from a marine vessel or truck transporting ethanol away from NuStar's terminal is significant. Every step in the storage, handing, and transport process must be carefully considered, which NuStar's SEPA Checklist fails to do. Among other things, NuStar's SEPA checklist does not account for the "significant" adverse impacts that an ethanol spill would have on endangered and threatened salmon and other fish species in the Columbia River. *See* WAC 197-11-330(3)(e)(ii). Accordingly the City should prepare an EIS that considers the impacts that shipping ethanol via rail and marine vessel would have on the Columbia's endangered salmon species and their habitat.

NuStar's SEPA Checklist acknowledges the existence of threatened and endangered salmon species in the Columbia, but dismisses the notion that the proposed ethanol terminal would have any impact on the salmon or their habitat.[19] Consequently, NuStar proposed no measures to mitigate significant adverse impacts on threatened salmon species.[20] *See* WAC 197-11-330 (requiring the lead agency to consider mitigation measures proposed by the applicant while making threshold determinations). Yet again, NuStar neglected to look beyond its Port of Vancouver rail off-load site.

An ethanol spill into the Columbia River or its tributaries could further diminish threatened and endangered salmon populations. In cool temperatures, ethanol biodegrades

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[14] *Id.*
[15] MassDEP, *supra* note 5, at 2-1.
[16] *Id.* at 4-11.
[17] *Id.*
[18] *Id.* at 4-5.
[19] *See* SEPA Checklist, pp. 14.
[20] *Id.*

slowly, resulting in rapid depletion of dissolved oxygen in fresh water environments like the Columbia.[21] The lack of dissolved oxygen could cause massive fish kills from oxygen stress. For example, a 500,000 gallon ethanol release from a distillery in Kentucky caused the worst fish kill in the state's history.[22] The mainstem Columbia already has four segments listed as dissolved oxygen-impaired on Washington's 303(d) list—one of which is just outside of the proposed ethanol facility site.[23] The potential for large-scale ethanol spills into the Columbia exists in every phase of NuStar's ethanol project, including spills from rail cars transporting ethanol to the facility, from marine vessels moving ethanol away from the facility, and from the storage tanks at NuStar's facility.

Because ethanol rapidly mixes with water, containing spills and mitigating the impacts of large-scale spills is difficult.[24] The City should prepare an EIS that fully considers the impacts of NuStar's ethanol facility on salmon and other aquatic species and any possible measures to mitigate the effects of large-scale ethanol spills into surface waters.

c. Ethanol transloading could degrade the Columbia River Estuary and the Columbia River Gorge National Scenic Area.

The City should prepare an EIS because NuStar's ethanol handling project could seriously degrade the Columbia River Estuary, Columbia River Gorge National Scenic Area, and their unique ecological and cultural resources. The impacts of NuStar's project would be "significant" because they would "[a]dversely affect" the Columbia River Estuary and Gorge, which are "environmentally sensitive or special areas." *See* WAC 197-11-330(3)(e)(i). A proposal to ship and load ethanol in the midst of the Columbia River's unique ecological, social, recreational, and cultural resources deserves careful analysis in an EIS.

The Columbia River estuary is a local and regional treasure, and a national priority for watershed health and salmon recovery. The Columbia River estuary is a federally-designated Estuary of National Significance under the Clean Water Act's National Estuary Program. In 2006, the U.S. Environmental Protection Agency designated the Columbia River as one of seven Priority Large Aquatic Ecosystems. The lower river and estuary are lined with wetlands, riparian areas, and parks[25] which would all be impacted by increasing vessel traffic, associated increases in dredging, and invasive species brought in on ethanol tankers. Additionally, an ethanol spill or explosion in the river, the estuary, or riparian areas could harm this sensitive ecosystem. The Columbia River estuary is an "environmentally sensitive" and "special" area within the meaning of WAC 197-11-330(3)(e)(i), that is essential to the survival of juvenile salmon and steelhead, waterfowl, and many other species.[26] NuStar's project will jeopardize and contribute to the

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[21] MassDEP, *supra* note 5, at 4-9.
[22] *Id.* at 3-1, 4-9.
[23] Washington Department of Ecology ("Ecology"), *Washington State Water Quality Assessment: 303(d)/305(b) Integrated Report* (2012), https://fortress.wa.gov/ecy/wats/UIEpaSearch/ApprovedSearchResults.aspx.
[24] MassDEP, *supra* note 5, 4-2.
[25] *E.g.* Julia Butler Hansen Refuge for the Columbian White-Tailed Deer; Lewis and Clark National Wildlife Refuge.
[26] National Marine Fisheries Service ("NMFS"), *Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead* (2011); *Fresh et al., NOAA Technical Memorandum NMFS-NWFSC-69: Role of the Estuary in the*

degradation of this "environmentally sensitive" area at the center of a national and regional effort to restore endangered salmon and other fish runs.

The Columbia River also supports a vibrant tradition of subsistence, commercial, and sport salmon fishing. Salmon fishing in the estuary and lower Columbia River is a cultural and economic practice with a rich history reaching back many generations. NuStar proposes shipping ethanol through the middle of several Columbia River salmon fisheries, potentially causing the loss, destruction, or disruption of these significant cultural and historical resources. Because serious impacts to cultural and historic resources are "significant" for SEPA purposes, *see* WAC 197-11-330(3)(e)(i), the City should use an EIS to analyze the impacts of ethanol tanker ship traffic and potential ethanol spills, explosions, and fires on salmon fishing in the lower Columbia.

Trains serving NuStar's proposed project would pass through the Columbia River Gorge National Scenic Area, an "environmentally sensitive" and "special" area containing significant "historic, scientific, and cultural resources." *See* WAC 197-11-330(3)(e)(i). The Gorge has long been considered a special area. Native American tribes have occupied the Gorge for more than 10,000 years. In 1915, the U.S. Forest Service established Eagle Creek as the nation's first Forest Service Recreation Area. In 1986, Congress recognized the national significance of this landscape and created the Columbia River Gorge National Scenic Area to protect and enhance the Gorge's aesthetic, biological, ecological, historic, and recreational values. *See* Columbia River Gorge National Scenic Area Act, 16 U.S.C. § 544 *et seq.* The Gorge offers a stunning array of cultural and historic resources, including scenic and historic views along the Columbia River, the location of Lewis and Clark's journey, nationally-owned recreational opportunities, and dozens of parks and campgrounds. NuStar's prospective ethanol transportation route would transect this special area, exposing Gorge residents and visitors to increased diesel particulate pollution, traffic congestion, and the risk of ethanol spills and explosions. These risks are significant because they would degrade the Gorge's nationally-renowned "historic, scientific, and cultural resources." *See* WAC 197-11-330(3)(e)(i).

II. NuStar's application would set a precedent for future crude oil projects.

The City should prepare an EIS because NuStar could use the proposed ethanol infrastructure to handle crude oil in the future. Consequently, the environmental impacts of NuStar's ethanol project may be "significant" because the project "establish[es] a precedent for future actions with significant effects." *See* WAC 197-11-330(3)(e). Permitting NuStar to build infrastructure to store and handle ethanol could enable NuStar to switch to storing and handling crude oil with little regulatory review.

NuStar applied for permits to retrofit its existing facility to handle crude oil, proposing infrastructure similar to NuStar's current ethanol plans.[27] The City issued a determination of significance for NuStar's crude oil terminal, and the applications have since stalled and are

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Recovery of Columbia River Basin Salmon and Steelhead (2005); 78 Fed. Reg. 2,726 (Jan. 14, 2013) (*Proposed Critical Habitat Designation for Lower Columbia Coho Salmon*).

[27] *See* NuStar's Applications LUP-40862 and PRJ-145874.

pending approval from the City. NuStar[28] and other companies converted or plan to convert ethanol facilities to handle crude oil. For example, an Oregon company switched to crude oil with little public notice.[29] The facility merely updated its air quality permits to accommodate increased emissions, "a routine move."[30] In California, a company converted its ethanol terminal into a crude oil terminal without any public review and without a full environmental review.[31] NuStar's pending applications (LUP-40862/PRJ-145874) and plans to switch from ethanol handling to crude oil handling in California suggest NuStar may hope to make a similar switch at its Port of Vancouver facility.

The City determined that NuStar's proposed crude oil terminal (applications LUP-40862 and PRJ-145874) will have "significant effects" on the environment, requiring an EIS. *See* WAC 197-11-330(3)–(4). If NuStar builds infrastructure to handle ethanol, NuStar could potentially circumvent the required full environmental review by using the existing ethanol infrastructure to handle crude oil in the future. The City should consider this potential future development as a significant impact of NuStar's ethanol facility.

III. Any permit should prohibit NuStar from using the proposed ethanol infrastructure to trans-load crude oil.

If, after an EIS and careful deliberation, the City permits NuStar to build infrastructure to handle ethanol, the City should expressly condition such permits on NuStar not using such infrastructure to move crude oil. An express prohibition in any permits issued by the City is necessary in light of NuStar's previous applications to trans-load crude oil at this site[32] and instances where NuStar[33] and other companies[34] converted or plan to convert ethanol handling facilities into crude oil-by-rail terminals—often with little regulatory review.

NuStar's current applications (PRJ-150882/LUP-54033) cannot result in the approval of facilities that store or handle crude oil. The City's Emergency Ordinance M-4157 prohibits "any applications for permits for the establishment or expansion of all Crude Petroleum Product Facilities that will accept crude oil . . . ." Ordinance M-4157 was in effect on June 1, 2016, when NuStar filed its current application, and an identical predecessor, Ordinance M-4132, was in effect when NuStar filed its pre-application packet for this project on December 18, 2015.

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[28] Bay Area Air Quality Management District ("BAAQMA"), *Board of Directors Regular Meeting Minutes*, pp. 7–8 (February 17, 2017) (online at: http://www.baaqmd.gov/~/media/files/board-of-directors/2016/brd_agenda_021716.pdf?la=en) (explaining that NuStar is planning to convert its ethanol transloading facility in the Bay Area to a crude oil-by-rail terminal).

[29] *See* The Oregonian, *Ethanol plant in Clatskanie, built with $36 million in Oregon loans and credits, now shipping crude oil* (May 13, 2013) (online at: http://www.oregonlive.com/environment/index.ssf/2013/05/former_ethanol_plant_in_clatsk.html).

[30] *Id.*; *See also* Oregon DEQ, *Columbia Pacific Bio-Refinery Questions and Answers* pg. 1, https://www.oregon.gov/deq/docs/QA_CPBR.pdf.

[31] *See* East Bay Times, *Kinder Morgan, Air Quality District Sued by Environmental Groups over Crude Oil by Rail Shipments to Richmond* (Mar. 28, 2014), www.eastbaytimes.com/contra-costa-times/ci_25442826/kinder-morgan-air-quality-district-sued-by-environmentala, (allowing Kinder Morgan to transload crude oil under an amended air quality permit and without review under the California Environmental Quality Act).

[32] *See, e.g.,* NuStar's Applications LUP-40862 and PRJ-145874.

[33] BAAQMA, *Board of Directors Regular Meeting Minutes*, *supra* note 28, at 7–8.

[34] *See, e.g.,* The Oregonian, *Ethanol plant in Clatskanie, supra* note 29.

Because NuStar was prohibited from applying for a permit for a crude oil facility, any approval or permit the City issues for this project should expressly state that NuStar may not use the proposed facilities to handle crude.

NuStar cannot use the facilities proposed in PRJ-150882/LUP-54033 to handle crude oil in the future, even if NuStar would not need any additional land use approvals or permits from the City in order to be capable of receiving crude. The City's newly enacted ban on petroleum storage and refining applies prospectively to NuStar's industrially zoned leasehold at the Port of Vancouver USA. City code prevents corporations like NuStar from using any facilities in ways that do not comply with the uses designated in the City zoning ordinance. VMC § 20.140.010(A). Accordingly, any City permits for the ethanol facility should expressly explain that NuStar cannot begin using the equipment to trans-load crude oil in the future.

The only possible way for NuStar to receive permission to handle crude oil would be to receive City approval of Applications LUP-40862 and PRJ-145874, which relate to crude oil and which *may* have vested in September of 2014. Short of completing the required EIS and receiving project approvals from the City for those specific applications, the City's more recent rules regarding crude oil prevent NuStar from handling crude at this site. The City's permits—if any—for the ethanol facility should expressly forbid crude oil storage and handling.

Conclusion

NuStar's ethanol handling project would jeopardize public health and safety, air and water quality, fish and wildlife habitat, and the economic, cultural, and historic resources of Vancouver and the entire Columbia River and beyond. These significant negative impacts require an EIS, and if these impacts cannot be mitigated, the City should deny NuStar's proposed ethanol facility.

Sincerely,

Miles Johnson
(541) 490 – 0487
miles@columbiariverkeeper.org

On behalf of:
Columbia Riverkeeper
Oregon Physicians for Social Responsibility
Center for Biodiversity
Friends of the Columbia Gorge
Clark County Natural Resources Council
Northwest Environmental Defense Center
The Lands Council

Guidance for Ecology
Including Greenhouse Gas Emissions in SEPA Reviews

The purpose of this document is to assist Ecology staff in determining which projects should be evaluated for greenhouse gas emissions and how to evaluate those emissions under SEPA when Ecology is the lead agency. This document does not attempt to provide a comprehensive overview of SEPA - see the SEPA Handbook and Ecology's SEPA Intranet page for more general information about SEPA. This internal guidance is intended to answer specific questions about including greenhouse gases in a SEPA analysis. It is not an adopted rule and SEPA decisions on whether a project has significant impacts must still be made on a case-by-case basis. It also is not intended to take the place of the procedure for considering greenhouse gas emissions already being used by the Nuclear Waste Program for projects at the Hanford site.

This document will be revised as agency staff recommend improvements and to reflect any relevant decisions by the Shorelines Hearing Board or other tribunals. Questions and suggested improvements should be sent to both Janice Adair at jada461@ecy.wa.gov **and** Brenden McFarland at bmcf461@ecy.wa.gov. Gail Sandlin in the Air Quality Program (gasa461@ecy.wa.gov) is available to assist with the SEPA GHG reviews.

A. SEPA and climate change

SEPA requires state and local agencies to identify, disclose, and consider the probable environmental impacts that may result from their decisions. Greenhouse gas (GHG) emissions adversely affect the environment by contributing to global climate change. In turn, global climate change results in environmental impacts in Washington such as rising sea levels and changes in water supply. These changes can impact the built environment, and SEPA requires these types of impacts to be disclosed, too.

Thus, two different climate change impacts of a proposal should be considered.

1. New GHG emissions caused by the proposal
2. The effects of a changing climate on the proposal's new infrastructure as a result of:
    a. Increased sea levels
    b. Reduced snowpack
    c. Changes in water availability
    d. Changes in stream flow timing
    e. Increased forest fires
    f. More extreme precipitation events and flooding

B. Ecology's role in SEPA reviews

Ecology plays one of three roles in reviewing a SEPA analysis.

1. Lead agency
2. Agency with jurisdiction (where another governmental entity is the lead agency, but Ecology will be issuing permits for the project)

3. Other - no agency action on proposal (we are an agency with expertise, a commenting agency, or no review or comment)

This document is to be used when Ecology is either the lead agency or an agency with jurisdiction. It is not expected that Ecology will review SEPA analyses solely for GHG emissions.

C. Greenhouse gases in brief

Greenhouse gases include carbon dioxide (CO_2), methane (CH_4), Nitrous oxide (N_2O), nitrogen trifluoride (NF_3), hydrofluorcarbons (HFCs), perflurocarbons (PFCs), and sulfur hexafluoride (SF_6).

In a very simple sense, GHG emissions are air pollutants. However, there are distinctive features about these emissions that make them different from other air pollutants.

GHGs, and in particular carbon dioxide, are emitted by a vast number of sources, both natural and anthropogenic, in amounts ranging from trivial to massive. These emissions mix rapidly and uniformly in the atmosphere. They contribute equally to global concentrations no matter where they are emitted. A ton of CO_2 emitted from Seattle has the same effect on global concentrations as a ton emitted in Clarkston. Unlike many conventional air pollutants, local concentrations of GHGs are not greater near large sources than they are in areas far away.

Carbon dioxide equivalent (CO_2e) is the preferred measure for determining GHG emissions rates for any combination of these GHGs. Emissions of greenhouse gases are typically expressed in a common metric, so that their impacts can be directly compared, as some gases have a higher global warming potential (GWP) than others.

How will I know if a particular project will result in GHG emissions?

GHG emissions come from multiple sources in widely varying levels. The majority of GHG emissions are produced by the burning of fossil fuels. The most common sources are:

- Energy production and use, including transportation (e.g. vehicles)
- Industrial manufacturing processes, including[1]:
    - Cement
    - Glass
    - Steel
    - Aluminum
    - Lime
    - Pulp and Paper
    - Oil and gas refining
    - Silicon production

[1] These industrial facilities are typically energy intensive and will include a number of boilers. The manufacturing process itself will also create greenhouse gas emissions.

- Waste disposal and wastewater treatment
- Electricity or natural gas distribution
- Permanent deforestation
- Cattle manure management

While nearly every project will have some level of GHG emissions, not every project will produce emissions to a level that warrants disclosure.

It is important to note that under current state law (RCW 70.235.020(3)), emissions of carbon dioxide from industrial combustion of biomass in the form of fuel wood, wood waste, wood by-products, and wood residuals are not considered a greenhouse gas.

D. Which emissions need to be disclosed?

"New" emissions that are expected to average 10,000 metric tons or more of carbon dioxide equivalent (CO_2e) per year and that are "proximately caused" by the proposal should be disclosed. We expect the majority of projects to be below this level of emissions.

10,000 metric tons is the equivalent of the emissions produced by 2,092 passenger cars in one year. Attachment 1 is a screening table that can be used by staff to determine if a proposal is likely to emit greater than 10,000 metric tons per year.

"New" emissions are any emissions that will result from the project that are additional ("above and beyond" current emission levels). For example, replacing an existing boiler with a more efficient boiler might result in no "new" emissions if the new boiler decreases emissions whereas an industrial development on land currently used for agriculture would likely result in some quantity of "new" emissions. A proposal that will improve or replace infrastructure but not add any new business or throughput would not be expected to result in "new" operational or transportation emissions. Relocating an operation could result in additional emissions, or might reduce emissions depending on the specifics of the relocation. Relocating a supply route from one location to another, such as between ports or distribution centers, may not result in new emissions.

"Proximate cause" means a "reasonably close causal relationship between the environmental effect and the alleged cause." It is the standard that the United States Supreme Court adopted under NEPA.[2] Although Washington courts have not ruled on this issue as it relates to SEPA, we have used the same standard in the state because it presents a reasonable approach to defining the scope of impacts that need to be considered. Proximate cause requires a showing that the proposal is the cause of the emissions in a direct sequence, unbroken by any superseding cause. The courts have further defined proximate cause as whether the action and the impacts (emissions) are "two links of [the same] chain." If the environmental impact is linked to the action, then it should be considered under SEPA.

[2] *Dept. of Transp. v. Public Citizen*, 541 U.S. 752, 754 (2004)

Generally, Ecology believes that only larger development projects such as new industrial facilities and electricity generation units will have emissions to a level that will necessitate their specific disclosure. For example, a proposal to redevelop a site into an industrial park would likely have emissions that would require disclosure. On the other hand, a building permit for a small business enterprise would not be expected to have emissions that necessitate disclosure even though the completed project will use energy and there may be traffic associated with the business.

E. How should GHG emissions be quantified?

When quantifying new emissions that are caused by the project, proponents should use accepted protocols and emissions factors such as those outlined in Attachment 2. We have also developed a simple tool that will be helpful in quickly estimating emissions from specific projects. It is available online: SEPA GHG Calculation Tool.

F. What are the boundaries of the project for which emissions must be disclosed?

For all impacts, WAC 197-11-060(4)(b) states that "In assessing the significance of an impact, a lead agency shall not limit its consideration of a proposal's impacts only to those aspects within its jurisdiction, including local or state boundaries." If the emissions are proximately caused by the project, they should be disclosed regardless of their location.

The project proponent should carefully consider any transportation emissions associated with movement of products related to the operation of the project. At a minimum, the analysis should include the emissions that occur within Washington state, including the nautical three mile boundary if transporting products by ship. For projects with ongoing operations that include transporting products from outside the state, such as a port, a more thorough and perhaps more defensible analysis would include the transportation emissions from the source location outside of Washington to the final destination *if either is known and the extent to which either is known*. Whether or not SEPA requires the transportation analysis to include these out-of-state transportation emissions is an unsettled question under SEPA case law.

Remember that this document does not supersede or otherwise replace the current SEPA handbook and provisions prohibiting piecemealing and other requirements on defining the scope of the project still apply.

G. What level of detail is needed for emissions disclosure?

For projects that are expected to annually produce an average estimate of at least 10,000 but less than 25,000 metric tons CO_2e, proponents should at least *qualitatively* disclose the GHG emissions caused by the project. A qualitative disclosure should include a general description of the project's expected source(s) of the emissions, as well as any proposed GHG mitigation measures incorporated or designed into the project.

Proponents of projects that are expected to produce an average of 25,000 or more metric tons CO_2e each year should include a *quantitative* disclosure of GHG emissions. The screening table included as Attachment 1 can be used by staff to estimate if a proposal is likely to require this quantitative analysis. The quantitative analysis should include GHG emissions from all phases of the project. Emissions from the operation of the completed

project should be disclosed separately from emissions associated with the project construction including site preparation and any demolition. This will allow the agency to better understand the difference between short term and long term emissions. In addition, the proponent should average the annual estimated operational emissions over the lifespan of the project. Remember that the SEPA rules require the official to consider mitigation measures which the proponent proposes to implement as part of the proposal, including any mitigation measures required by other existing environmental rules or laws.

The GHG analysis should include emissions in the following categories.[3,4]

Scope 1 Emissions

- Direct stationary combustion of fossil fuels once the project is complete.
- Vehicle fleet emissions once the project is complete.
- Loss of carbon storage from the permanent conversion of forested lands.
- Methane emissions from new landfills, wastewater treatment plants, or manure management systems.

Scope 2 Emissions

- Purchased electricity or steam consumed by the project.

Scope 3 Emissions

- Heavy-machinery emissions during site preparation, construction, or clean-up activities.
- New on-going product transportation emissions that are caused by the project; as noted above in F, this will at a minimum include emissions that occur within Washington state and its three mile nautical boundary.
- Vehicle trips generated by the project during construction and operation, including those of employees, customers, vendors, or residents.

H. How can the current SEPA checklist be used to disclose emissions and effects on the built environment?

The current SEPA environmental checklist (WAC 197-11-960) can be used to identify and disclose sources of GHG emissions as well as the impacts on the built environment expected as a result of global climate change.

Section B2 of the checklist requires the proponent to identify air emissions associated with the project during construction and when the project is completed, as well as any measures proposed to avoid, minimize, or mitigate those emissions. These questions can be used to help disclose GHG emissions.

The checklist includes other questions that may be useful in identifying other potential GHG emissions, such as the number of people residing or working in the completed project (under "Land and Shoreline Use"), vehicle

[3] 25,000 metric tons is the greenhouse gas reporting threshold for the US Environmental Protection Agency. It is the equivalent of 4,545 average passenger cars or 60,749,347 kilowatt hours of electricity.

[4] GHG measurement tools group emissions into three categories. Scope 1 may also be referred to as direct emissions and Scopes 2 and 3 as indirect emissions. However, since "direct" and "indirect" are also used in SEPA and mean something different, we recommend refraining from using those terms to refer to emissions.

trips per day and other demands on transportation (under "Transportation"), and energy use (under "Energy and Natural Resources").

Projects with a long lifespan should consider their vulnerability to a changing climate. This is especially true for buildings and infrastructure along coastlines and in floodplains, as well as large water users. By 2050 sea level in Washington is projected to increase between 1 and 22 inches, depending on location and future emissions. Major storms and floods are also projected to increase in the future, increasing the flooding danger to projects located within existing flood plains. Climate change will also affect future water availability and should be considered for projects that will be large water users.

Section B.3 of the checklist concerning surface water could be used to disclose a project's vulnerability to climate change. Additional information of the effects of climate change can be found on Ecology's climate adaptation website.

J. When are emissions considered "significant"?

The SEPA rules include a process for determining when impacts are considered significant (WAC 197-11-330). Under this rule, the responsible official is tasked with taking into account whether or not the proposal conflicts with local, state or federal rules or laws. The official is also directed to consider mitigation measures which the proponent proposes to implement as part of the proposal, including any mitigation measures required by other existing environmental rules or laws.

The SEPA rules also state, in defining significance, that it involves context and intensity and does not lend itself to a formula or quantifiable test (WAC 197-11-794). However, we believe that we can identify what level of greenhouse gas emissions would not be significant, especially taking into account the state's greenhouse gas reduction targets and other legal requirements to reduce or mitigate emissions.

RCW 70.235.020 establishes greenhouse gas reduction targets for Washington. By 2020, we are to return to 1990 levels. While there are also reduction targets for 2035 and 2050, at this point we are concentrating on meeting the 2020 targets. Based on Ecology's most recent Comprehensive Plan to meet those targets, the state must reduce its emissions by 11%[5] in order to return to 1990 levels by 2020[6].

There are also some legal requirements to reduce or mitigate GHG emissions. These include:

- Facilities subject to Prevention of Significant Deterioration (PSD) requirements under the Clean Air Act that have been determined to meet "Best Available Control Technology" for GHGs.
- New fossil-fueled thermal electric generating facilities required to offset a portion of their CO_2 emissions under RCW 80.70.
- Baseload power generation facilities subject to the state Emissions Performance Standard (RCW 80.80).

[5] The agency is required to update the emissions inventory every even-numbered year, and the percentage reduction needed to reach the statutory targets will be updated accordingly.

[6] Ecology is still considering how and when to use the percentage reduction required to meet the 2035 statutory target.

A proposal will be presumed to be not significant for greenhouse gas emissions and thus no further mitigation for greenhouse gas emissions will be necessary if it is:

- expected to result in fewer than 25,000 metric tons a year;
- subject to a legal requirement to reduce or mitigate GHG emissions; or
- expected to result in emissions of 25,000 metric tons or more a year and has incorporated mitigation measures to reduce its emissions by approximately 11% below what its emissions would have been without those mitigation measures.

These proposals should still disclose their emissions as outlined in Section D of this document and at the appropriate level of detail as outlined in Section G.

For projects that have incorporated mitigation measures to reduce emissions by 11%, the project proponent should use a reasonable amount of effort to demonstrate that those measures will get as close to the 11% reduction as possible, however it is not necessary to mitigate emissions by exactly 11%.

By identifying the level of emissions that would be presumed to be not significant, the agency is not taking the position that emissions exceeding those levels would be presumed to be significant. It is unlikely that a proposal would be considered significant based solely on its greenhouse gas emissions. We would expect a project with high GHG emissions to also have other environmental impacts.[7]

It is important to remember that a project may still be found to be significant because of other impacts even if the greenhouse gas emissions are not significant.

K. How can a project proponent mitigate emissions?

For proponents who wish to mitigate emissions, there are many options. A number of these are outlined in Attachment 2.

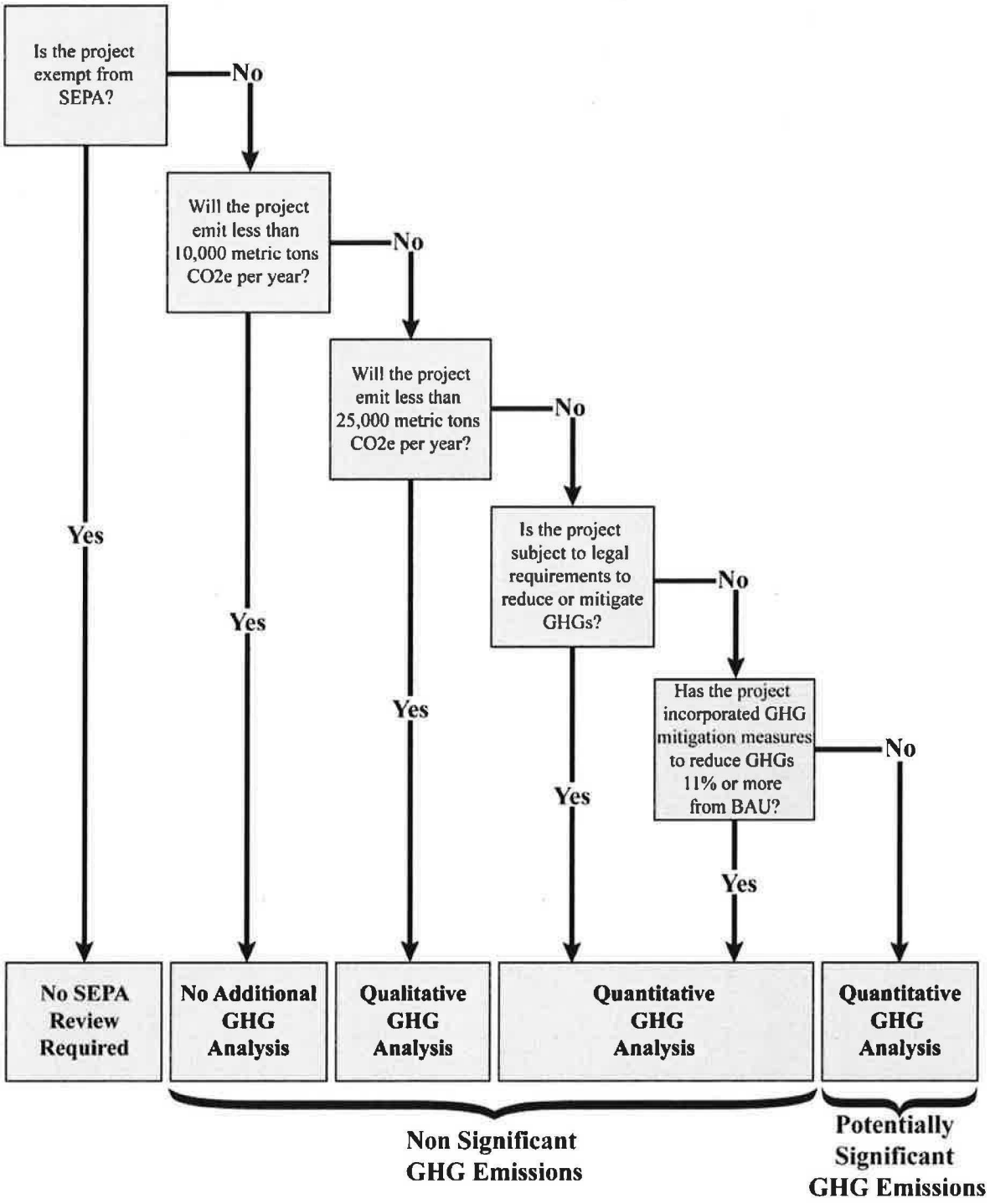
If a proponent chooses to mitigate GHG emissions by including energy efficiency or other design features that will reduce GHG emissions, the proponent should quantify and disclose the expected emissions from the project both with and without those design features.

Mitigation may occur at a different location or at a different source than the emissions associated with the project. Greenhouse gases mix rapidly in the atmosphere and persist for a number of years, therefore a reduction in any location will reduce the overall atmospheric burden. Some ideas for off-site mitigation that have been suggested include energy efficiency improvements in schools, low income housing, or other public or community buildings, as well as projects that will capture methane from landfills or manure management systems. These are just examples.

[7] Some electronic manufacturing, such as photovoltaic solar cell and film silicon modules, may use fluorinated gases with a very high global warming effect. These projects could have extremely high levels of GHG emissions without other environmental impacts.

If a project proponent proposes to mitigate emissions by purchasing a GHG offset project from a third party, you should contact Ecology's Climate Policy Group for assistance. These types of projects can be controversial and it is important to ascertain that the offset project meets the necessary criteria.

Ecology SEPA and Greenhouse Gas Emissions Significance Flow Chart



Attachment 1: GHG Screening Table

The following table can be used to screen projects in order to determine the level of additional greenhouse gas emissions analysis that should be done by the project proponent. For each category the table estimates the size of a project that would be expected to produce emissions at annual levels of 10,000 and 25,000 metric tons during operation. Projects that are near the threshold may require additional project-specific analysis to determine if emissions may trigger GHG analysis.

For development projects, emissions are included from direct combustion and induced transportation emissions. For development projects the table uses national and regional estimate of energy use compiled by the U.S. Energy Information Administration. Estimated emissions from development projects also include induced transportation emissions based on the Fehr and Peers VMT spreadsheet with default values for Puget Sound.

	10,000 MT CO_2e Per Year	25,000 MT CO_2e Per Year	Data Unit
Energy Usage			
Gasoline	1,136,708	2,841,769	Gallons
Diesel	983,367	2,458,418	Gallons
Natural Gas	1,881,255	4,703,138	Therms
Electricity Consumption	24,300	60,749	MWh
Commercial or Industrial Boilers			
Natural Gas Fired	22	54	Heat Input (MMBtu/hr)
Fuel Oil Fired	15	38	Heat Input (MMBtu/hr)
Coal Fired	12	30	Heat Input (MMBtu/hr)
Biomass Fired (carbon neutral CO_2)	578	1,446	Heat Input (MMBtu/hr)
Residential Development (Includes Transportation and Operation)			
Single Family	409	1,023	Dwelling Units
Multi-Family	575	1,438	Dwelling Units
High-Rise Condo	854	2,135	Dwelling Units
Commercial Development (Includes Transportation and Operation)			
General Retail	185	463	Thousand Square Feet
Supermarket	75	187	Thousand Square Feet
Fast-Food Restaurant	18	45	Thousand Square Feet
Office Space	399	998	Thousand Square Feet
Medical Office	160	399	Thousand Square Feet
Hotel	565	1,411	Hotel Rooms
Movie Theatre	30	75	Movie Screens
Educational Facility Development			
Grade School	5,050	12,624	Number of Students
High School	3,662	9,154	Number of Students
College	2,644	6,610	Number of Students
Industrial Development			
Warehouse/Distribution Center	119	298	Thousand Square Feet
Conversion of Forested Lands			
Deforestation (Western WA)	83	207	Acres
Deforestation (Eastern WA)	213	532	Acres
Waste and Wastewater Treatment			
Landfill	74,830	187,075	Tons MSW Disposed per Year
Domestic Wastewater Treatment Plant	26	65	1000 People Served
Dairy Cattle Manure Management (Open Lagoon)	2,046	5,115	Head Cattle
Beef Cattle Manure Management (Open Lagoon)	6,063	15,158	Head Cattle

Attachment 2: Sources of GHG Emissions Mitigation Options

The following table lists various sources of GHG emissions as well as potential quantification methodologies and mitigation options for each source. These emissions sources can be evaluated quantitatively or qualitatively to address greenhouse gas reduction strategies. Not all categories must be quantified or mitigated.

GHG Emission Sources	Definition and Examples	Emissions Scope	Quantification Methodologies, Tools, and Emission Factors* (see last page for links to all of these tools)	Potential Mitigation Options†
On-Road Mobile Sources	Mobile sources owned by the project proponent operating both within the proponent's facility and off-site.	Scope 1	• TCR • WRI/WBCSD • Seattle Climate Partnership • Ecology • *EIA* • *URBEMIS* • *CalEEMod*	• Highly efficient vehicles • Alternative fuel vehicles • Site location • Video conferencing • Anti-idling technology
Non-Road Mobile Sources	Non-road mobile sources owned by the project proponent used for construction, maintenance, and facility operation (e.g. heavy machinery, maintenance equipment, trains, and boats)	Scope 1	• TCR • WRI/WBCSD • Seattle Climate Partnership • Ecology • *URBEMIS* • *CalEEMod*	• Highly efficient vehicles • Alternative fuel vehicles • Site location • Anti-idling technology
Stationary Combustion	On-site combustion of fossil fuels	Scope 1	• TCR • WRI/WBCSD • EPA Reporting Rule • *EIA* • *URBEMIS*	• Building design and operation • Energy efficiencies

GHG Emission Sources	Definition and Examples	Emissions Scope	Quantification Methodologies, Tools, and Emission Factors* (see last page for links to all of these tools)	Potential Mitigation Options†
Industrial Processes	Non-combustion emissions resulting from certain industrial processes such as oil refining, cement production, aluminum production, and steel manufacturing	Scope 1	• TCR • EPA Reporting Rule • WRI/WBCSD • IPCC	• Facility operation • Methane capture and use or destruction • High-global warming potential gas destruction
Fugitive Emissions	Non-combustion emissions from owned resources (e.g. landfills , natural gas transmission, electricity transmission, and wastewater treatment plants)	Scope 1	• TCR • EPA Reporting Rule • WRI/WBCSD • IPCC • CCME	• Facility operation • Methane capture and use or destruction • High-global warming potential gas destruction
Agricultural Emissions	Non-combustion emissions from agriculture (e.g. manure management, fertilizer application, enteric fermentation, and soil preparation)	Scope 1	• WRI/WBCSD • IPCC • DOE 1605b • CAR • CCME	• Methane capture and use or destruction • Waste reduction • Organic or low input agriculture
Land Use Change	Emissions from lost carbon storage from the permanent conversion of forested land to other uses	Scope 1	• DOE 1605b • U.S Forest Service • WRI/WBCSD • IPCC • CAR	• Site design and location • Low impact development

GHG Emission Sources	Definition and Examples	Emissions Scope	Quantification Methodologies, Tools, and Emission Factors* (see last page for links to all of these tools)	Potential Mitigation Options†
Purchased Electricity and Steam	Off-site emissions produced to generate purchased electricity or steam	Scope 2	• TCR • EPA eGRID • Seattle Climate Partnership • *EIA* • *URBEMIS* • *CalEEMod*	• Building design and operation • Energy efficiencies
Road and Non-Road Mobile Sources	Combustion emissions from leased or contractor on-road and non-road mobile sources used as part of construction , maintenance, and facility operation (e.g. heavy machinery, maintenance equipment, trains, and boats)	Scope 3	• TCR • WRI/WBCSD • Ecology • *URBEMIS* • *CalEEMod*	• Highly efficient vehicles • Alternative fuel vehicles • Site Location • Anti-idling technology
Generated Vehicle Trips	Combustion emissions from vehicle trips generated by the project during construction and operation including those of employees, customers, vendors, and residents.	Scope 3	• TCR • CTR • Seattle Climate Partnership • *URBEMIS* • *Fehr & Peers* • *CalEEMod*	• Highly energy efficient or alternative fueled vehicles and infrastructure • Site location • Public transit infrastructure and incentives • Bike/ped accessibility • Anti-idling technology

GHG Emission Sources	Definition and Examples	Emissions Scope	Quantification Methodologies, Tools, and Emission Factors* (see last page for links to all of these tools)	Potential Mitigation Options†
Water Use and Wastewater Disposal	Combustion and fugitive emissions created to provide water and dispose of wastewater (e.g. pumping energy and POTW fugitive methane)	Scope 3	• TCR • WRI/WBCSD • IPCC	• Low impact development • Site location • Methane capture and use or destruction • Water conservation/efficiencies (fixtures, appliances) • Water reuse
Supply Chain Transportation Emissions	Supply chain transportation emissions generated to transport feedstocks to the completed project, finished products away from the project, and any additional new shipping emissions that are caused by the project.	Scope 3	• TCR • WRI/WBCSD • *URBEMIS* • *CalEEMod*	• Highly efficient or alternative fueled vehicles and infrastructure • Site location • Anti-idling technology

*The following list is illustrative showing some good sources for quantification tools, protocols, and emissions factors that can be used to quantitatively assess emissions from each of these sources. It is not meant to be exhaustive. We are not advocating the use of these methodologies for determining acceptable error rates for assessing emissions. Tools in italics are simple models that can be used to estimate the magnitude of future emissions.

†These are general examples of mitigation options for various emissions sources. This list is not meant to be comprehensive.

Quantification Methodologies, Tools, and Emissions Factors

- Athena Institute EcoCalculator (Athena) - http://www.athenasmi.org/index.html
- CalEEMod - http://www.caleemod.com/
- CCME - http://www.ccme.ca/ourwork/waste.html?categoryid=137
- Department of Commerce GHG Emissions Planning Tools (Commerce) - http://www.commerce.wa.gov/site/1277/default.aspx
- Ecology Mobile Source Tool (Ecology) - http://www.ecy.wa.gov/programs/air/pdfs/ghgfleetcalculator.xls
- Energy Information Agency End Use Consumption Data (EIA) - http://www.eia.doe.gov/emeu/consumption/index.html
- EPA Reporting Rule - http://www.epa.gov/climatechange/emissions/ghgrulemaking.html
- EPA WARM Model - http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html
- Fehr & Peers VMT spreadsheets - http://coolconnections.org/solutions/
- IPCC Emissions Factor Database (IPCC) - http://www.ipcc-nggip.iges.or.jp/EFDB/main.php
- National Renewable Energy Laboratory (NREL) Life-cycle Inventory Database - http://www.nrel.gov/lci/
- Seattle Climate Partnership - http://seattleclimatepartnership.org/tools/index.html#tool
- The Climate Action Reserve (CAR) - http://www.climateactionreserve.org
- The Climate Registry (TCR) - http://www.theclimateregistry.org/
- U.S Department of Energy 1605b (DOE 1605b) - http://www.eia.doe.gov/oiaf/1605/reporting_tools.html
- U.S Forest Service Carbon Lookup Tables (U.S Forest Service) - http://nrs.fs.fed.us/pubs/8192
- URBEMIS - http://www.urbemis.com/
- World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) - http://www.ghgprotocol.org/
- WSDOT Commute Trip Reduction Program (CTR) - http://www.wsdot.wa.gov/TDM/CTR

Applicant's Response to Public Comments

August 22, 2016

Existing Conditions

NuStar's facility is currently authorized to and capable of handling multiple liquid commodities including methanol. NuStar is now proposing a project to also handle biofuel (ethanol). Before making a SEPA threshold determination, an agency is required to consider the facility's current authorizations, capabilities and uses as the baseline condition. Therefore, when considering the impacts of this proposal, the baseline condition to which the proposal should be compared is the facility's existing ability to handle at full capacity methanol and the other currently authorized commodities.

Ethanol and Methanol have Multiple Similarities

The following information describes how impacts associated with the handling of ethanol would be similar to impacts associated with the handling of a currently authorized commodity, methanol. Much of this information is also included in NuStar's application to the city.

Fire Risk

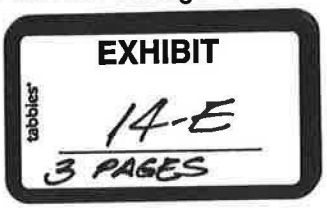
Due to the additional commodity, NuStar is required to obtain a new International Fire Code (IFC) Operational Permit and a Hazardous Material Regulatory Fee Certificate from the City. As part of the application for an updated operational permit, NuStar has funded completion of a third party Fire Operations Impact Assessment and Gap Analysis Study, and a Fire Protection Systems Review by third party Fire Protection Engineer (FPE). This process will ensure that the appropriate measures are in place at the facility to meet IFC standards. Both of these studies are described in detail in the SEPA checklist.

Both methanol and ethanol products are similar in their fire characteristics in regards to flash point, boiling point, vapor density, and explosive limits (see Table below). Because the two commodities are so similar, the fire extinguishment calculations (see "Flammable Range" in Table below) which provide the basis for fire protection needs are the same and therefore the existing fire protection systems for methanol already meet the requirements of ethanol. In sum, the risk of fire and explosions would not increase..

Another similarity between methanol and ethanol is that they are both polar solvents, which means the OH chain of methanol and ethanol attracts water making both materials miscible and totally soluble in water. Should either product be spilled into a waterway, the spilled product would quickly dilute with the river water making the risk of fire low.

Training

NuStar completes annual fire & safety training for all personnel associated with the terminal including fire extinguisher trainings, evacuation/fire drills, and trainings with the VFD to test the terminal plans and fire department equipment. The Fire Department received training on the management of polar solvent emergencies as part of the previous methanol project. NuStar is prepared to provide similar training as a refresher on the handling of polar solvent emergencies.



NuStar has funded completion of a third party Gap Analysis which analyzed the Project's effect on the VFD's ability to provide emergency response services, including, but not limited to, the VFD's capabilities (e.g., spill response, flammable liquids firefighting, marine firefighting, confined space rescue, etc.) and preparedness (e.g., training, planning, equipment, etc.) to provide emergency response services to the proposed facilities and related transportation systems, and to identify any gaps where mitigation measures may be required. In addition, the study will recommend mitigation measures for the project's impacts on the VFD's ability to provide emergency response services, and to address any gaps in capabilities or preparedness.

Transportation/Traffic

As previously stated in the SEPA checklist, Section14.e and 14.f, the proposed project is not anticipated to increase potential rail traffic beyond that of the methanol operations (baseline condition). In addition, marine vessel traffic is not expected to increase as a result of the project and truck traffic from carrier loading will be comparable to methanol.

Throughput and Air Quality

The facilities Air Discharge Permit (ADP) governs the allowed throughput at the terminal through air quality emissions. An amended ADP to permit ethanol has been submitted and is currently under review by the Southwest Clean Air Agency (SWCAA). As part of the permit application, SWCAA will verify the emission calculations prepared by NuStar. As previously stated in the SEPA checklist the proposed conversion of existing equipment to receive ethanol will not increase the annual total emissions of volatile organic compounds above currently permitted levels. During operation of the proposed project, there will be a change of type of toxic air pollutants (TAPs) generated, but any changes will be less than regulatory thresholds requiring further analysis. As shown in the documentation included in the application, the proposed project is not anticipated to increase potential rail traffic beyond the permits of the previous methanol facility.

In addition, marine vessel traffic is not expected to increase as a result of the project and the number of vehicular trips to and from the site from employee traffic, delivery traffic and truck traffic from carrier loading, will be comparable to methanol and will remain within the average historic range for the site.

Ecological Persistence

Methanol and ethanol are also both readily biodegradable in aerobic and anaerobic environments and will not persist in the environment. Since methanol and ethanol are miscible with water and biodegradable, they are unlikely to bio-accumulate in groundwater, surface water, air or soil.

Crude Oil

Crude oil is not proposed. In order to handle crude, NuStar would need to get and modify several permits. In addition, the city must issue an IFC Operational Permit and a hazardous material regulatory fee certificate for a change in commodity.

Whereas ethanol and methanol share many of the same key physical properties and fire characteristics, crude oil differs from methanol in terms of flammability, solubility and persistence (see Table below).

Whereas methanol and ethanol are both polar solvents and water soluble, crude oil is a non-polar solvent which means that it is not water-soluble and will float if spilled in water. Therefore, a spill of crude oil in water could pose a greater risk of fire when compared to a spill of methanol or ethanol in water. Additionally, whereas ethanol and methanol have a low potential for ecological persistence and bioaccumulation, crude oil is not regarded as readily biodegradable and is therefore more persistent in water and has a greater potential to bio-accumulate over time.

Key Physical Properties and Fire Characteristics of Ethanol, Methanol, and Crude

	Methanol[1]	Ethanol[2]	Crude[3]
Flash Point	11 °C	13-18 °C	<-7 °C
Boiling Point	64.7 °C	78.5 °C	38-570 °C
Vapor Density[4]	1.11	1.59	2.5-5
Flammable Range (Explosive Limits)[5]	6-36%	3-19%	1-8%
Water Solubility	soluble	soluble	insoluble
Ecological Persistence	low	low	high

[1] Source: Methanol Material Safety Data Sheet (MSDS), Methanex Corporation 2013 (CAS# 67-56-1)
[2] Source: Ethanol MSDS, ScienceLab.Com 2013 (CAS# 64-17-5)
[3] Source: Crude Oil (Sweet) MSDS, Conoco Phillips 2012 (SDS# 724160) and Crude Oil (Sweet) MSDS, Cenovus Energy Inc. 2011
[4] @15°C (air=1)
[5] % volume in air

Conclusion

There would be no significant impacts resulting from the proposal. A DNS should be issued especially after considering the facility's baseline condition, that ethanol has extremely similar chemical properties (e.g., flammability, solubility and volatility) to the facility's baseline condition commodities such as methanol, and that the project is not proposing a significant increase in throughput. Both the railway and marine waterway are currently used by this facility for liquid transport and the project is not expected to increase rail or marine vessel traffic above previous levels.

Memo

Date:	Wednesday, October 19, 2016
Project:	Vancouver Biofuel Conversion Project
To:	Chad Edinger, NuStar Energy
From:	Cristhian Mancilla and Corrinne Atkinson, HDR
Subject:	Hypothetical Ethanol Spill Findings

A dilution study was performed to estimate river ethanol concentrations resulting from a hypothetical spill from railcars transporting ethanol to the proposed NuStar Biofuel Facility at the Port of Vancouver, Washington. Dilution modeling results indicate that river ethanol concentrations resulting from this hypothetical spill are well below the acute impact threshold for fish of 564 mg/L. The study assumed three railroad cars simultaneously leaking ethanol through a 4-inch hole (per car). This scenario was used because it represents a most probable scenario at a typical facility along the transit route of the railcar to the site. A spill to the ground at the actual Port of Vancouver site would not have the opportunity to make it to the river due the railcar proximity to the river and due to the redundant physical boundaries in place to divert flow to secondary containment.

Given the volume of ethanol per car (28,500 gallons), the total load from the hypothetical spill was computed to be 255,000 Kg of ethanol, released over 3.9 hours. A potentially critical condition for a spill to a river is a low flow situation (less dilution); therefore, a representative low river flow was selected. The closest active USGS gauge with nontidal high frequency river measurements is station 14105700 (Columbia River at The Dalles); the incremental drainage area between this gauge and the Port of Vancouver is minimal (<2 percent); therefore, flow records at The Dalles are a valid surrogate for river flows near the proposed facility. A river flow of 75,000 cfs was selected to perform the river dilution calculations,, this river flow is approximately the 5th percentile of the last 10 years (2007-2016) of river flow records and therefore has been exceeded 95% of the time. The average river flow during that 10-year period was around 175,000 cfs.

River ethanol concentrations for such spill loading and river flow conditions were computed by employing a two-dimensional dilution model. Because longitudinal and horizontal dispersion coefficients are not available for the study area, multiple model scenarios were executed with multiple dispersion coefficients found in the literature.[1] [2]

[1] Martin, J.L., McCutcheon, S.C., 1999. Hydrodynamics and Transport for Water Quality Modeling. Lewis Publ., New York.

[2] USGS http://nwis.waterdata.usgs.gov/or/nwis/dv/?site_no=14105700&agency_cd=USGS&referred_module=sw Accessed October 11, 2016. Flow Duration, Columbia River near The Dalles, OR Gage 14105700, WR 1967 - 2016

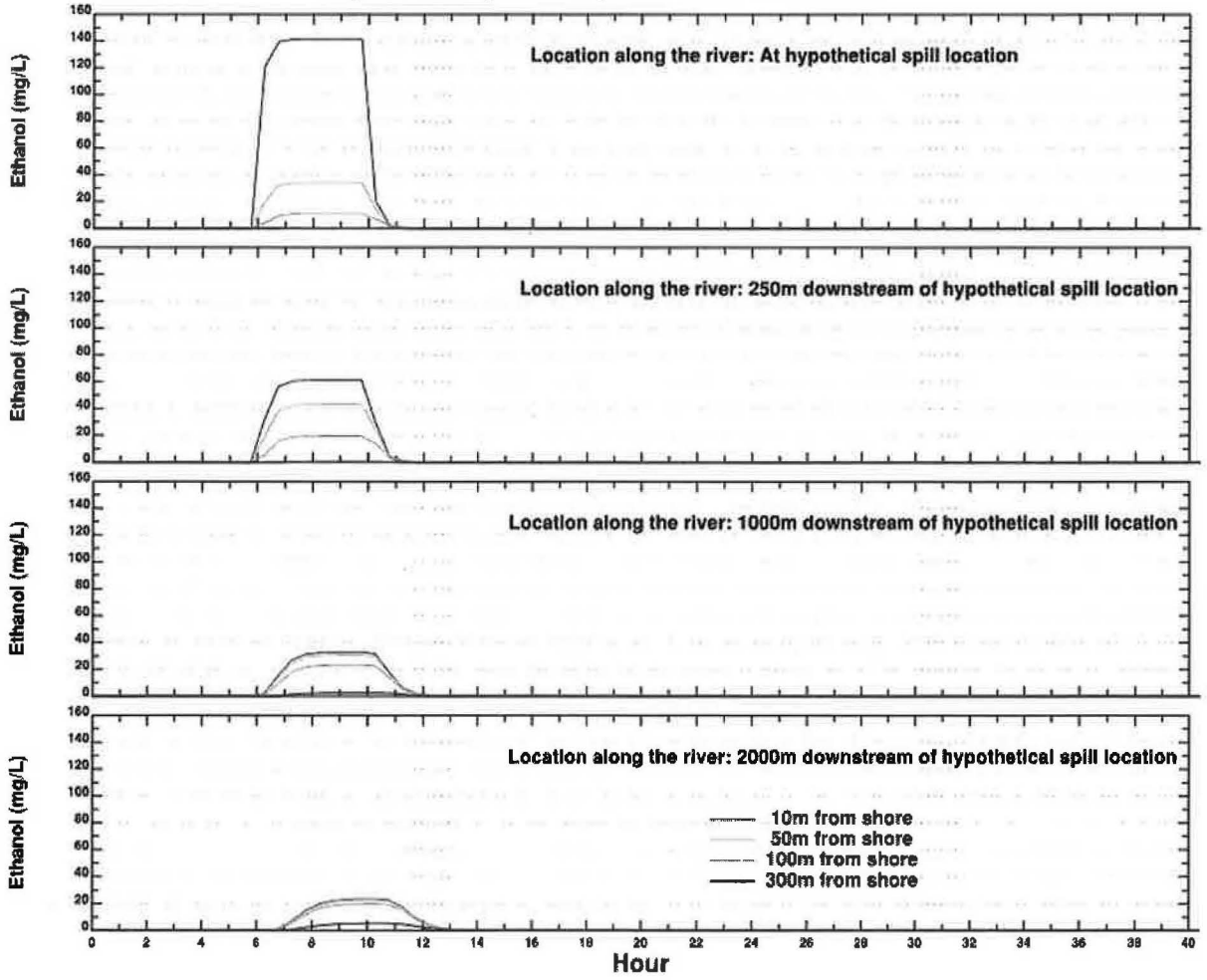
Dilution modeling results indicate that river ethanol concentrations resulting from this hypothetical spill are well below the acute impact threshold for fish of 564 mg/L. The most conservative (critical) scenario results in river ethanol concentrations ranging from 141.5 mg/L, at the spill location, to 0.3 mg/L at a location 300 meters from the spill location (300 meters from shore). Concentrations decrease substantially going farther downstream in the river. Table 1 presents these results. Figure 1 presents a graphical representation of these results.

Table 1: Ethanol Peak Concentrations (mg/L)

Distance from hypothetical spill (m) (downstream, along the river)	Ex = 40 m2/s, Ey – 2.5 m2/s			
	Distance from shore (m)			
	10	50	100	300
0	141.5	34.1	11.2	0.3
250	61.3	43.1	19.6	0.6
1000	33.1	30.5	23.4	2.5
2000	23.7	22.8	20.0	5.3

Note: Ex – longitudinal dispersion coefficient, Ey – lateral dispersion coefficient

Figure 1. Graphical Representation of Results



Memo

Date:	Thursday, February 23, 2017
Project:	Vancouver Biofuel Conversion Project
To:	Chad Edinger, NuStar Energy
From:	Thomas Gallagher P.E.; Cristhian Mancilla M.S.; and Dave Ward, Senior Fisheries Biologist
Subject:	Hypothetical Ethanol Spill – River Dissolved Oxygen Analysis & Potential Aquatic Impact Effects.

HDR performed a dissolved oxygen (DO) modeling analysis to estimate the change in dissolved oxygen (DO) resulting from a hypothetical ethanol spill from railcars transporting ethanol to the proposed NuStar Biofuel Facility at the Port of Vancouver, Washington. A dilution model[1] previously developed to estimate river ethanol concentrations resulting from such a theoretical spill was expanded into a BOD (Biochemical Oxygen Demand) - DO model to estimate the change in DO that might occur due to a spill of ethanol. The ethanol load employed for the dilution study was then converted to an Ultimate Oxygen Demand load (UOD) and employed in the BOD model.

Consistent with the dilution study previously developed, the study assumed three railroad cars simultaneously leaking ethanol through a 4-inch hole (per car) and, therefore, given the volume of ethanol per car (28,500 gallons), the total load from the hypothetical spill was computed to be 255,000 Kg of ethanol, released over 3.9 hours.

Based on chemical stoichiometry (equation 1), it is estimated that 46 g of ethanol is required to consume 96 g of oxygen. Consequently, the ultimate oxygen demand associated with the ethanol spill load of 255,000 Kg of ethanol is approximately 532,000 Kg.

$$C_2H_6O + 3O_2 \rightarrow 2CO_2 + 3H_2O \qquad \text{Eq. (1)}$$

DO model parameters employed for the river DO calculations are presented in Table 1. The oxygen transfer rate is a typically used minimum value and the ethanol oxidation rate is an average value from limited information provided in a handbook of degradation rates[2].

Table 1. Model Parameters

Parameter	Value
Atmospheric Reaeration Coefficient (Oxygen Transfer)	1.0 m/d
Ethanol Oxidation Rate	1.0 1/d

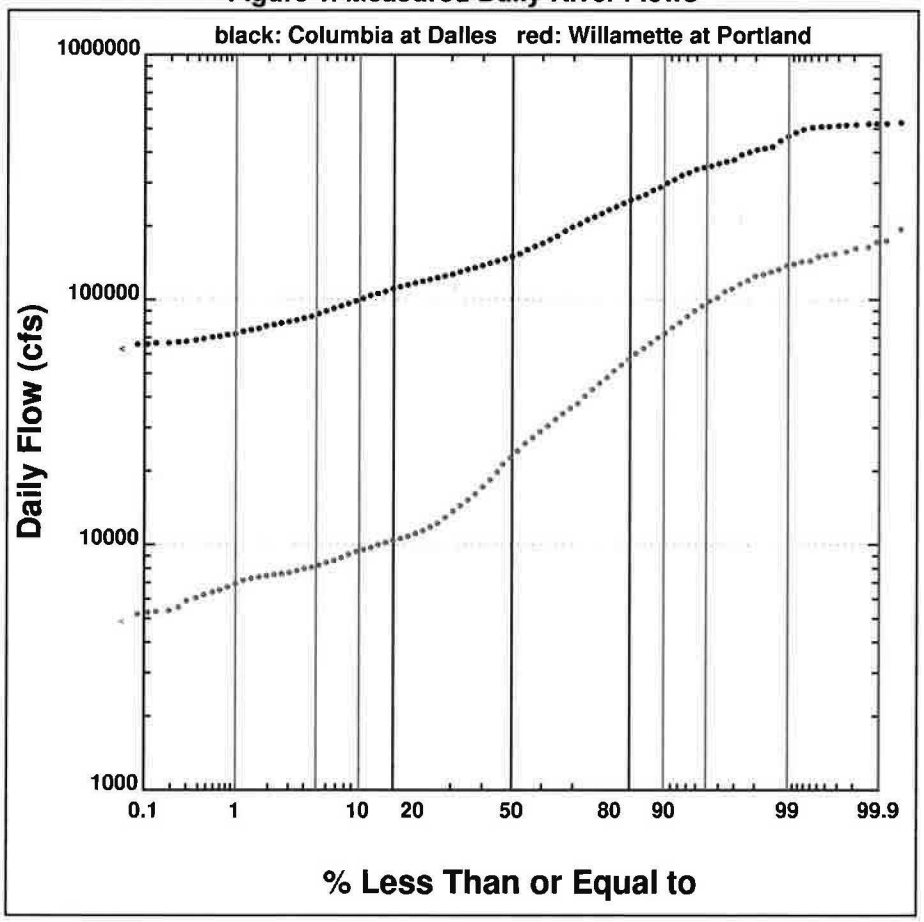
A very low river flow condition was selected for a very conservative assessment of the possible river DO decrease, due to the hypothetical spill. A model scenario was set with a river flow that is exceeded 98.5 percent of the time. A probability plot of Columbia River daily flows at station

[1] Mancilla C. and Atkinson C., October 19, 2016. Memo: Hypothetical Ethanol Spill Finding
[2] Philip H. Howard, CRC Press, 1991. Handbook of Environmental Degradation Rates.

EXHIBIT 14-G 5 PAGES tabbies

14105700 (Columbia River at The Dalles) and Willamette River daily flows at station 14211720 (Willamette River at Portland), for the years 2007-2016, is shown in Figure 1. In this figure, daily flows exceeding 98.5 percent are approximately 75,000 cfs and 7,300 cfs for the Columbia River and Willamette River, respectively. The addition of both river flows, that is 82,300 cfs, was used in the model as critical DO decreases occur many miles downstream of the confluence of these rivers. Average river flows during that 10-year period were around 178,000 cfs for the Columbia River at Dalles and 33,000 cfs for the Willamette River at Portland; for a total average river flow (downstream of the confluence) of 211,000 cfs.

Figure 1. Measured Daily River Flows



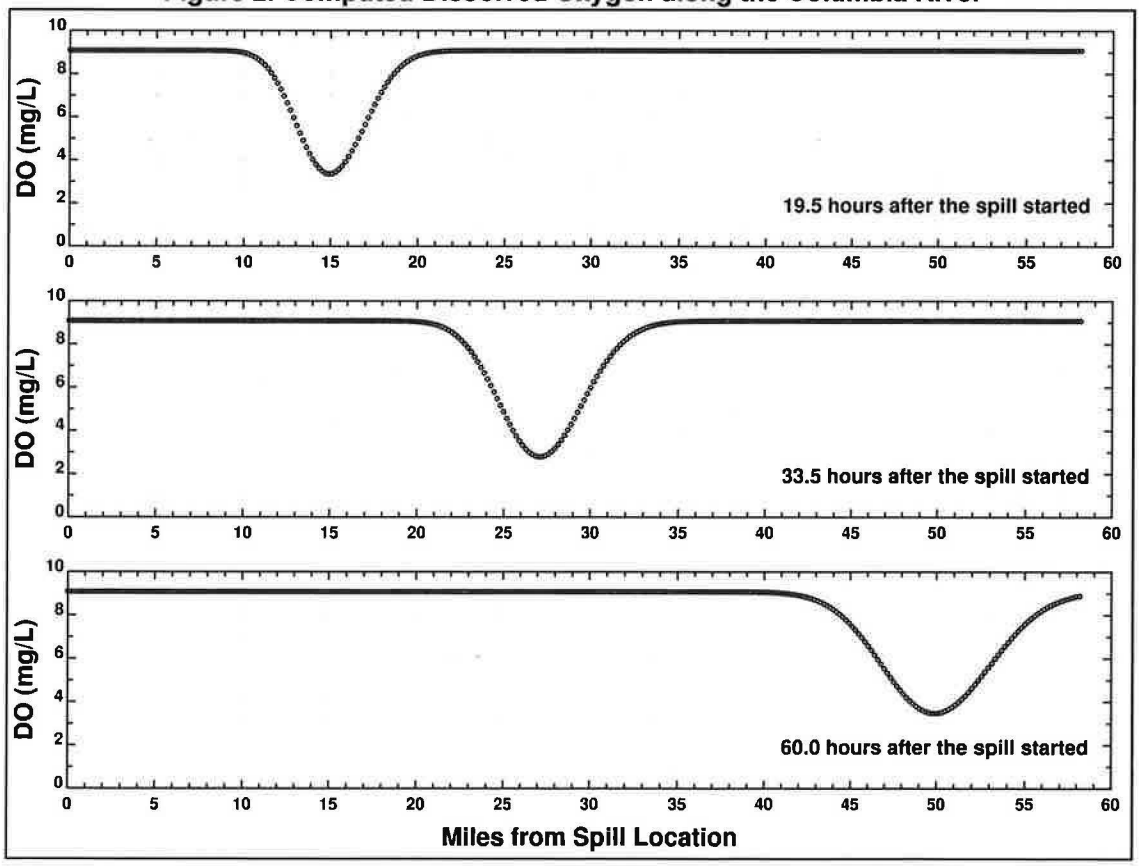
An analysis of continuous river temperature data (USGS gage at Dalles) shows that a value of 20°C is representative of river temperature during low flow months, and therefore, a river temperature of 20°C was assigned to the river model. Limited DO data for the study area, retrieved from STORET, indicates the river DO is approximately 9.0 mg/L, which is saturation level for a temperature of 20°C. Background DO in the river model was then assigned at 9.0 mg/L; this is the DO level assigned to river water upstream of the spill location.

River DO concentrations for the spill loading, river flow, temperature, and background DO conditions described above were computed by employing the two-dimensional ethanol-DO model. The model results indicate that the slug of Columbia River water affected by the 3.9-hour ethanol spill would gradually experience a decrease in DO due to biodegradation of the ethanol.

After flowing downstream for approximately 33.5 hours, the lowest DO in the contaminated slug would reach 2.8 mg/L. Figure 2 presents the computed DO along the river 33.5 hours after the spill started (middle panel); for reference, the computed DO 19.5 and 60.0 hours after the spill started are also shown. After 19.5 hours, the DO sag (profile) is on its way to the critical location and reflects a minimum DO in the curve of 3.3 mg/L, located 15 miles downstream of the spill location; 60 hours after the spill the DO sag reflects a minimum DO of 3.5 mg/L, located 50 miles downstream of the spill location and it is on its way to DO saturation values. For aquatic organisms, the duration of exposure to this depressed DO level (2.8 mg/L to 3.0 mg/L in the critical location) would be no more than 1.5 hours, which is too short a time to produce any acute or chronic effect. To further examine the question, another model scenario, less conservative than the first one, was set with a river flow that is exceeded 90 percent of the time. This scenario indicates that DO could drop to 3.5-3.2 mg/L for no more than 1.5 hrs.

Conclusion: A very critical (low flow) model scenario was set with a river flow that is exceeded 98.5 percent of the time; Given that control, model results indicate that in the critical DO depletion area (20 to 36 miles downstream of the spill location), DO could drop to 3.0-2.8 mg/L for no more than 1.5 hours, which is too short a time to produce an acute or chronic effect.

Figure 2. Computed Dissolved Oxygen along the Columbia River



Potential impacts on Aquatic Species

Over 100 fish species are present in the Columbia River Basin, including over 50 species that are native[3] (Ward and Ward 2004). Over 50 fish species are present in the lower Columbia River (Estuary Partnership 2017)[4], and Farr and Ward (1993)[5] documented 20 native species and 19 exotic species in the lower Willamette River near the Columbia River. In general, species native to the lower Columbia and Willamette rivers are not as tolerant of habitat and water quality perturbations as non-native species.

All native species have a role in the aquatic community of the lower Columbia River; however, some species are often afforded special consideration because of their status under the Endangered Species Act (ESA), their importance in commercial and recreational fisheries, or their importance to the cultures of Native American Tribes. A number of species and stocks of anadromous Pacific salmon and steelhead (*Oncorhynchus* spp.) listed as threatened or endangered under the ESA migrate through the lower Columbia River, both as adults migrating upstream to spawn and again as juveniles migrating downstream to the Pacific Ocean. White sturgeon (*Acipenser transmontanus*), historically present in great numbers in the lower Columbia River, are one of the largest freshwater fish species in the world, and are sought after in recreational fisheries. Pacific Lamprey (*Entosphenus tridentatus*) serve an important role in the ecosystem and are very important to Native American tribes in the Columbia River Basin. Like salmon and steelhead, Pacific Lamprey are anadromous; however, larval lamprey may spend as many as 7years in fresh water substrates before metamorphosing into juveniles and migrating to the ocean. In addition to their extended period in fresh water, larval Pacific Lamprey are not very mobile; therefore, they may be especially susceptible to disturbances to water quality.

This DO section above describes the potential changes to DO levels in the lower Columbia River resulting from a hypothetical ethanol spill from railcars transporting ethanol to the proposed NuStar Biofuel Facility at the Port of Vancouver, Washington. The Columbia River DO is approximately 9.0 mg/L during low summer flow, and the analysis indicates that a large ethanol spill may lower the DO level to 2.8 mg/L in the first 33.5 hours after the spill. The duration of DO levels between 2.8 mg/L and 3.5 mg/L was estimated to be 1.5 hours.

In general, fish species native to the Lower Columbia River prefer relatively high DO levels. For example, steelhead (*O. mykiss*) do best when DO exceeds 7 mg/L (NOAA Fisheries 2017)[6]. As DO levels drop below 5.0 mg/L, many native species are put under stress (River Keeper 2017)[7]. Generally, fish kills may occur when DO levels remain below 1-2 mg/L for a few hours.

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[3] Ward, N. E., and D. L. Ward. 2004. Resident fish in the Columbia River Basin: restoration, enhancement, and mitigation for losses associated with hydroelectric development and operations. Fisheries 29:10:18.
[4] Estuary Partnership. 2017. http://www.estuarypartnership.org/learn/river-species
[5] Farr, R.A., and D.L. Ward. 1993. Fishes of the lower Willamette River, near Portland, Oregon. Northwest Science 67:16-22.
[6] NOAA Fisheries. 2017. http://www.fisheries.noaa.gov/pr/species/fish/steelhead-trout.html
[7] Riverkeeper. 2017. https://www.riverkeeper.org/water-quality/testing/what/

Conclusion: Because most native fish species in the lower Columbia River are relatively mobile, individuals would likely be able to avoid inhabiting areas of critically low DO for a long enough period to avoid acute or chronic effects. A potential exception may be larval Pacific Lamprey. Larval lamprey are sensitive to low oxygen levels and are unable to survive in very low concentrations (Potter et al. 1970 as cited in Docker 2014)[8]. However, the oxygen requirement of larvae is generally low (Lewis 1980)[9], which allows them to colonize silt banks in slow-flowing areas where oxygen tensions must often be low (Hill and Potter 1970)[10]. Therefore, it has been documented that larvae can tolerate very low oxygen tensions for up to 4 days (Potter et al. 1970 as cited in Docker 2014)[11].

The low oxygen requirements of larval Pacific Lamprey, combined with the limited amount of time individual lamprey may be subjected to low DO levels, support the premise that lowered DO levels, as described above, would not result in acute or chronic effects to lamprey. Because they have greater mobility than larval lamprey, affects to other native fish species would likely also be limited and probably not significant.

[8] Potter, I. C., B. J. Hill, and S. Gentleman. 1970. Survival and behaviour of ammocoetes at low oxygen tensions Journal of Experimental Biology 53:59-73.
[9] Lewis, S. V. 1980. Respiration of lampreys. Canadian Journal of Fisheries and Aquatic Sciences 37:1711-1722.
[10] Hill, B. J., and I. C. Potter. 1970. Oxygen consumption in ammocoetes of the lamprey Ichthyomyzon hubbsi Raney. Journal of Experimental Biology 53:47-57.
[11] Docker, M. F., Editor. 2014. Lampreys: Biology, conservation and control, volume 1. Fish and Fisheries Monograph Series. Springer, New York.

Staff Responses to Comment Received
Listed by Environmental Element

1. **Earth**

   Comments were received regarding the impacts of proposed excavations associated with construction. Specifically, the amount of material to be moved. Concerns were also expressed regarding the geology and potential earthquake hazards associated with the site.

   Approximately 5,856 cubic yards of material are proposed to be excavated and approximately 665 cubic yard will be placed. The applicant is required to meet all grading, building code requirements and to address geotechnical hazards including earthquakes and liquefaction.

   The city of Vancouver adopted the 2015 International Building Code. This code addresses earthquake, liquefaction and other life/safety codes. Any construction within the city is required to conform to these standards.

   The proposal is also required to meet critical area protection standards found in VMC 20.740. This includes meeting standards for geological hazards. The proposal must also meet the standards of 14.24 Erosion Control.

2. **Air**

   Comments included diesel particulate matter (DPM), Greenhouse gases (GHG) and direct impacts from release of ethanol fumes.

   <u>Greenhouse Gases</u>

   The SEPA Checklist states there will be some GHG released during construction. Previously, the site handled methanol. The change from methanol to ethanol will change the type of toxic air pollutants but the proposed change would be less than the regulatory thresholds requiring further analysis.

   The Washington Department of Ecology (Ecology) is the agency directed to monitor greenhouse gases. In 2011, Ecology issued a document titled "Guidance for Ecology Including Greenhouse Gas Emissions in SEPA Review". Beginning at the top of page 7, the document states:

   > A proposal will be presumed to be not significant for greenhouse gas emissions and thus no further mitigation for greenhouse gas emissions will be necessary if it is:
   >
   > - Expected to result in fewer than 25,000 metric tons a year;
   > - Subject to legal requirements to reduce or mitigate GHG emissions; or
   > - Expected to result in emission of 25,000 metric tons or more a year and has incorporated mitigation measures to reduce its emissions by approximately 11% below what its emissions would have been without those mitigation measures.

The proposal is not anticipated to produce 25,000 metric tons of GHG emissions per year.

Throughput and Air Quality

The facilities Air Discharge Permit (ADP) governs the allowed throughput at the terminal through air quality emissions. An amended ADP to permit ethanol has been submitted and is currently under review by the Southwest Clean Air Agency (SWCAA). As part of the permit application, SWCAA will verify the emission calculations prepared by NuStar. As previously stated in the SEPA checklist the proposed conversion of existing equipment to receive ethanol will not increase the annual total emissions of volatile organic compounds above currently permitted levels. During operation of the proposed project, there will be a change of type of toxic air pollutants (TAPs) generated, but any changes will be less than regulatory thresholds requiring further analysis. As shown in the documentation included in the application, the proposed project is not anticipated to increase potential rail traffic beyond the permits of the previous methanol facility.
In addition, marine vessel traffic is not expected to increase as a result of the project and the number of vehicular trips to and from the site from employee traffic, delivery traffic and truck traffic from carrier loading, will be comparable to methanol and will remain within the average historic range for the site.

The facility will provide a 98-percent plus destruction efficiency Marine Vapor Combustion Unit (MVCU) to abate vapor marine vessel loading emissions. At no time will the MVCU be operated, other than during a marine vessel loading period.

Emissions associated with the stationary facilities, are permitted, regulated and monitored by the Southwest Clean Air Agency. The applicant is required to obtain a permit from Southwest Clean Air.

Regarding DPM, the applicant states the number of vessel railcars serving the proposed facility is anticipated to be similar to that allow by the air discharge permit previously approved for handling methanol.

DPM from rail, ship and vehicles is regulated by the Environmental Protection Agency. The city of Vancouver does not have authority emission from these modes of transportation.

The project is required to meet all applicable regulations.

3. Water

Comments were received regarding potential for water quality issues. The project is required to meet all applicable water quality standards including those required by the city in VMC 14.25 Stormwater.

Specific questions were raised related to spill or release of ethanol to water. Based on information contained in the document *Large Volume Ethanol Spills – Environmental Impacts and Response Options, July 2011, Commonwealth of Massachusetts*, when

ethanol is released into water it can have two distinct impacts; toxicity and oxygen deficiency resulting from ethanol degradation (pages 5-5 & 5-6).

Toxicity

For toxicity, concentrations of 564 mg/L are considered acutely toxic and concentration of 63 mg/L are chronically toxic.

The applicant provided an analysis based on modeling an ethanol spill to the Columbia River (Exhibit C to the SEPA MDNS). Modeling involved a dilution study performed to estimate river ethanol concentrations resulting from a hypothetical spill from railcars transporting ethanol to the proposed NuStar Biofuel Facility at the Port of Vancouver, Washington. Dilution modeling results indicate that river ethanol concentrations resulting from this hypothetical spill are well below the acute impact threshold for fish of 564 mg/L. The study assumed three railroad cars simultaneously leaking ethanol through a 4-inch hole (per car). This scenario was used because it represents a most probable scenario at a typical facility along the transit route of the railcar to the site. A spill to the ground at the actual Port of Vancouver site would not have the opportunity to make it to the river due the railcar proximity to the river and due to the redundant physical boundaries in place to divert flow to secondary containment.

Dilution modeling results indicate that river ethanol concentrations resulting from this hypothetical spill are well below the acute impact threshold for fish of 564 mg/L. The most conservative (critical) scenario results in river ethanol concentrations ranging from 141.5 mg/L, at the spill location, to 0.3 mg/L at a location 300 meters from the spill location (300 meters from shore). Concentrations decrease substantially going farther downstream in the river.

Oxygen Depletion

Relating to oxygen depletion, comments stated that concentration of ethanol of more than 13 mg/L are sufficient to deplete dissolved oxygen in a large river. To compute oxygen depletion due to a possible ethanol spill, the two-dimensional model employed for ethanol dilution calculations was upgraded to a BOD-DO type model. The ethanol load employed for dilution calculations was converted to an ultimate oxygen demand load (UOD) based on ethanol stoichiometry. An ethanol oxidation rate was derived from values provided in the Handbook of Environmental Degradation Rates (Philip H. Howard, CRC Press, Mar 28, 1991). An analysis of continuous river temperature data (USGS gage at Dalles) shows that a temperature of 20 C (or less) is representative of river temperature during low flow months; a river temperature of 20 C was assigned to the river model for all scenarios. Limited DO data for the study area, retrieved from the Environmental Protection Agency Storage and Retrieval and Water Quality Exchange (STORET), indicates the river DO is approximately 9.0 mg/L, which is saturation level for a temperature of 20 C. DO background in the river model was assigned at 9.0 mg/L.

A very critical (low flow) model scenario was set with a river flow that is exceeded 98.5% of the time;. Given that control, model results indicate that, in the critical DO

depletion area (20 to 36 miles downstream of the spill location), DO could drop to 3.0-2.8 mg/L for no more than 1.5 hrs.

To further examine the question, another model scenario, less conservative than the first one, was set with a river flow that is exceeded 90% of the time. This scenario indicates that DO could drop to 3.5-3.2 mg/L for no more than 1.5 hrs. (See Exhibit D to the SEPA MDNS)

4. **Plants**
The project site is entirely paved with impervious surfaces and lacks vegetation. Some limited vegetation exists along the banks of the Columbia River shoreline near the dock. However, site work is not proposed along the banks and no vegetation would be impacted by the project.

Spills or accidents may impact plants. However, that should not result in a significant adverse impact.

5. **Animals**
Comments were received on the possibility an ethanol spill and the impacts of such a spill may have on animals. Ethanol is completely miscible in water. However, as ethanol degrades in water it depletes the oxygen supply. The severity of the depletion relates to the volume of the spill and the volume of water.

As indicated in the Water Quality section, the applicant prepared both a dilution study and a dissolved oxygen (DO) study. These studies indicate that DO levels would be depressed only for a very short duration (not more than 1.5 hours). Because most native fish species in the lower Columbia River are relatively mobile, individuals would likely be able to avoid inhabiting areas of critically low DO for a long enough period to avoid acute or chronic effects.

In addition, while larval Pacific Lamprey are sensitive to low oxygen levels and unable to survive in very low concentrations, the oxygen requirement of larvae is generally low, which allows them to colonize silt banks in slow-flowing areas where oxygen tensions must often be low. Therefore, it has been documented that larvae can tolerate very low oxygen tensions for up to four days.

The low oxygen requirements of larval Pacific Lamprey, combined with the limited amount of time individual lamprey may be subjected to low DO levels, supports the premise that lowered DO levels as described above would not result in acute or chronic effects to lamprey. Because they have greater mobility than larval lamprey, affects to other native fish species would likely also be limited and would not be significant.

6. **Energy and natural resources**
Fuel would be consumed for construction. The proposed project will use electricity and natural gas for the completed facility. No mitigation is necessary

7. Environmental Health

Environmental health addresses hazards including exposure to toxic chemicals, risk of fire and explosion, spill or hazardous waste that could occur as a result of the proposal.

All of these are potential issues for this proposal. NuStar has addressed through the following plans and documents:

- o Facility Operations Manual
- o NuStar Vancouver Emergency Response Action Plan
- o NuStar Vancouver Fire Pre-Plan
- o Site-specific Spill Prevention Control and Containment Plan
- o NuStar Corporate Safety Policies and Procedures
- o United States Coast Guard procedures for the handling of flammable liquids

Due to the change in commodity, NuStar is required to obtain a new IFC Operational Permit and a Hazardous Material Regulatory Fee Certificate from the VFD. As part of the application for an updated operational permit, NuStar funded a third party Fire Operations Impact Assessment and Gap Analysis Study, and a Fire Protection Systems Review by third party Fire Protection Engineer (FPE).

As mitigation, NuStar has offered to enter into a 10 year agreement to pay a fee to the Vancouver Fire Department specifically designed to mitigate the Department's increased Hazardous Material Team planning, personnel costs, including for overtime related to for coverage and training.

Additionally, the applicant has voluntarily agreed to withdraw the currently pending proposed use of the subject facility for crude oil storage and transshipment. Under the city's ban on oil facilities, the proposed ethanol facility could not be converted to an oil facility.

8. Land and shoreline use

The site is designated Industrial on the city of Vancouver Comprehensive Plan. The zoning is IH (Heavy Industrial).

Currently, the site is used for storage and transfer of liquid materials to and from marine vessels and railroad liquid storage cars. Adjacent properties include the Terminal 2 and Terminal 3 Port properties to the east and west, and Burlington Northern Santa Fe (BNSF) rail lines to the north. The proposal will not affect adjacent land uses, other than potential noise impacts during construction, which would be minor and temporary.

The applicant has a pending application for conversion of the existing facility to handle crude oil. The city adopted ordinance M-4147 which prohibits Bulk Crude Oil storage and handling facilities. The ordinance became effective Dec. 7, 2015.

The applicant's request for conversion was submitted prior to the effective date of the ordinance

As mitigation, the applicant will withdraw the current application for a crude oil facility on this site.

9. Housing

No new housing units are proposed and no housing units would be eliminated for construction of this project.

10. Aesthetics

Proposed structures include a new rail unloading station, equipped with a rail access platform, and the Vapor Combustion Unit. The proposed rail access platform has elements that may be up to 25 feet in height. The height of the proposed Vapor Combustion Unit will be determined by the manufacturer during later stages of design, but is expected to be approximately 35 feet in height.

The site is within an industrial area. there are no significant view impacted by the development. The proposal would not significantly alter the character of the area.

11. Light and glare

The proposed rail access platform would be equipped with directional lighting (surface-mounted LED fixtures) to illuminate the top railcar hatches and under belly hose connection fittings. In addition, pole- mounted LED floodlights are proposed in the rail unloading area, tank farm area, and Berth 5 dock area. Lighting would be used during all non-daylight hours.

No adverse impacts are anticipated.

12. Recreation

Portions of the Columbia River provide recreational opportunities such as boating, waterskiing, fishing, etc. Most of these activities occur southeast and west of the project site, away from the Port's property. The Columbia River shoreline immediately adjacent to the project site is closed off to the public for safety and security reasons. As a result, the shoreline adjacent to the site does not provide formal or informal recreational opportunities. No direct adverse impacts to recreational facilities and uses are anticipated.

13. Historic and cultural preservation

The site is not on any register. There are no resources that are eligible for listing. The site has been heavily disturbed. Archaeological predeterminations have been completed for previous ground disturbing activities on the site. These were reviewed by archaeologist under contract to the city of Vancouver. The recommendations were that no additional survey work was required. The city accepted the recommendations.

14. Transportation

Both the railway and marine waterway are currently used by this facility for liquid transport. The project is not expected to increase rail or marine vessel traffic above

previous levels. The number of vehicle trips per day would remain within the average historic range for the site.

15. Public Services

Fire and police protection are currently provided to the site. The applicant has funded an analysis of any issues or gaps in the ability of the fire department to respond to an incident created by the proposed facility. This analysis has been completed and based on the gap analysis, the applicant has agreed to the provide mitigation. , the applicant has agreed to enter into a 10 year, agreement to pay a fee specifically designed to mitigate Vancouver Fire Department increased Hazardous Material Team planning, personnel costs, including for overtime related to for coverage and training.

16. Utilities

The site will require electricity and natural gas for the operation of the facility and water service for fire protection systems (ie., fire hydrants). The existing services are adequate to serve the proposed use.

The preapplication conference for this project, conducted on Jan. 21, 2016, indicated city water and sewer were adequate and available to the site

MEMORANDUM OF AGREEMENT TO PERFORM VOLUNTARY ADDITIONAL MITIGATION

This Memorandum of Agreement to perform Voluntary Additional Mitigation under the Washington State Environmental Policy Act ("SEPA"), Chapter 43.21C RCW, WAC Chapter 197-11, and WAC 197-11-660(1)(d) ("Agreement") is entered in_____, 2017 by and between NuStar Terminals Services, Inc. ("NuStar") and the City of Vancouver, Washington ("City") through the Vancouver Fire Department ("VFD").

Whereas, NuStar operates a storage terminal at 2565 NW Harborside Drive in Vancouver, Washington (the "Terminal");

Whereas, NuStar is seeking permits and other authorizations, including from the City, to handle ethanol at the Terminal (the "Project");

Whereas, NuStar has paid for an independent third party Fire Protection Engineer to perform a Fire Operations Impact Assessment and Gap Analysis Study (the "Study") for the VFD related to the Project and the VFD;

Whereas, NuStar will comply with all applicable federal, state and other legal requirements, including those related to fire safety, for the Project;

Whereas, the City is the SEPA lead agency for the Project; and

Whereas, the City and the VFD have requested, and subject to the terms and conditions contained herein NuStar has agreed, in addition to complying with applicable federal, state and other legal requirements, to perform the below voluntary additional mitigation under SEPA, Chapter 43.21C RCW, WAC Chapter 197-11, and WAC 197-11-660(1)(d).

Now therefore, NuStar, the City and VFD agree as follows:

1. Term. Commencing on signature of this agreement by both NuStar and VFD and continuing annually for ten (10) years (such period, the "Term"), as voluntary additional mitigation under SEPA, Chapter 43.21C RCW, WAC Chapter 197-11, and WAC 197-11-660(1)(d), NuStar will pay a fee specifically designed to mitigate VFD increased Hazardous Material Team planning, personnel costs, including for overtime related to for coverage and training (the "Fee").

   a. The Fee will be paid annually by February 15th.

   b. The Fee will be calculated as follows:

      NuStar agrees to pay $0.025 per barrel of ethanol received by the Terminal under the Project, up to $100,000 (one hundred thousand dollars) per calendar year with such maximum amount to be prorated for any partial year. On or before February 1 of each year, NuStar shall prepare a statement reflecting the actual barrels received by the Terminal under the Project during the preceding calendar year along with the total amount of Fee due to the City. NuStar shall submit the statement along with the Fee made payable to the City on or before February 15 of each year.

c. REFUND IF NOT USED FOR SPECIFIED PURPOSES. The Fee is specifically designed to mitigate VFD increased Hazardous Material Team personnel costs, including for overtime related for coverage and training. The City shall establish a fund for deposit of the mitigation fees provided for under this Agreement. Funds in this account shall only be used for increased Hazardous Material Team planning, personnel costs, including for overtime related for coverage and training.

d. NO FEE DUE IF OTHER PER BARREL FEE IS CHARGED. In the event any other fee in any way related to funding the City or VFD is charged to NuStar as a separate or different per barrel fee, tax, or any other similar or related per barrel expense, charge, costs or other amount by the City, VFD, State of Washington, or any other similar or related government agency or third party, the parties expressly agree that NuStar's obligation to pay the Fee under this Agreement shall cease upon NuStar payment of such separate or different per barrel fee if the fee directly is applied to the VFD.

e. DEDUCTION FOR NON PER BARREL FEES. In the event any other new fee, tax, expense, charge or cost in any way related to funding the City or VFD's fire, hazardous materials or response programs is charged to NuStar that is not covered by 1(d), then parties expressly agree that NuStar will be allowed to deduct that amount from the Fee.

2. NuStar, the City and VFD agree that nothing in this Agreement shall create any special duty or relationship between NuStar and the City or VFD, nor guarantee any particular result should VFD respond to an emergency call at any NuStar facility.

3. NuStar is not making any representations or warranties regarding the City or VFD's use of the Fee.

4. This agreement will survive any transfer of the facility to any other owner and/or operator.

5. All notices, demands, requests, or other writings delivered pursuant to this Agreement shall be in writing and may be given: (i) by a nationally recognized overnight delivery service, or (ii) by fax with a copy sent by United States mail, certified, registered or equivalent, return receipt requested, postage prepaid, properly addressed, and sent to the following addresses:

City and VFD:

Vancouver Fire Department
Attn: Special Operations Division Chief
7110 NE 63rd St.
Vancouver, WA 98661

with a copy to:

City of Vancouver
Attn: Assistant City Attorney
415 West 6th St.
Vancouver, WA 98668

NuStar: NuStar Terminals Services, Inc.
Attn: Senior Vice President, Marketing & Business Development
19003 IH-10 West
San Antonio, TX 78257
Fax: (210) 918-5657

with a copy to:

NuStar Terminals Services, Inc.
Attn: Senior Vice President, General Counsel – Environmental, Litigation and Regulatory
19003 IH-10 West
San Antonio, TX 78257
Fax: (210) 918-5469

6. This Agreement memorializes the entire agreement between NuStar, the City and VFD regarding the Fee. There are no other promises, inducements, or agreements that are not expressed in this Agreement. No amendment to this Agreement shall be effective unless made in writing and signed by a duly authorized representative of the City and NuStar.

7. This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same agreement. This Agreement is effective when signed by NuStar and the City.

[remainder of page intentionally left blank]

In witness whereof, NuStar, the City and VFD have executed this Agreement by their respective, duly authorized representatives.

NUSTAR TERMINALS SERVICES, INC.

By: _____

Name: DANIEL S. OLIVER

Title: SVP

VANCOUVER FIRE DEPARTMENT

By: _____

Name: JOSEPH BUCKLAND

Title: FIRE CHIEF VANCOUVER WA

Approved as to form:

By: _____

Name:

Title: Attorney for City of Vancouver