SEPA Environmental Checklist

Purpose of Checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use “not applicable” or “does not apply” only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of Checklist for Non-Project Proposals:

For non-project proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the Supplemental Sheet for Non-project Actions (Part C). Please completely answer all questions that apply and note that the words “project”, “applicant”, and “property or site” should be read as “proposal”, “proponent” and “affected geographic area”, respectively. The lead agency may exclude (for non-projects) questions in Part B – Environmental Elements that do not contribute meaningfully to the analysis of the proposal.
A Background

1 Name of proposed project, if applicable:
   Green Apple Renewable Fuels Project

2 Name of applicant:
   Green Apple Renewable Fuels, LLC

3 Address and phone number of contact person:
   Steve Drennan, Sr. Manager Engineering, Renewable Energy Group
   Contact phone number: (206) 250-7770
   Contact address: 416 S. Bell Avenue
   City, State, Zip or Postal Code: Ames, IA 50010
   Contact Email address: Steve.Drennan@regi.com

4 Date checklist prepared:
   December 19, 2019

5 Agency requesting checklist:
   Whatcom County Planning and Development Services

6 Proposed timing or schedule (including phasing, if applicable):
   The construction is proposed to start in mid/late 2020 with operation beginning in mid/late 2022, subject to receipt of applicable agency permits and approvals. Construction is anticipated to be continuous without phases.

7 Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal?  Yes ☒  No ☐

   If yes, explain:

   Several future additions under consideration are described throughout this checklist, including potential future additions related to tank storage and shipment methods of renewable feedstock and renewable products as the markets (such as renewable jet fuel) mature. Separate permit applications would be submitted if the additions are deemed warranted.

8 List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal:

   • Wetland Delineation and Critical Areas Assessment Report, Green Apple Renewable Fuels Project (AECOM 2019a)
   • Conceptual Wetland Mitigation Plan, Green Apple Renewable Fuels Project (AECOM 2019b)
   • Cultural Resources Assessment, Green Apple Renewable Fuels Project (AECOM 2019c) (includes monitoring and inadvertent discovery plan)
• Green Apple Renewable Fuels Project Transportation Study (ERM 2019)
• Carbon Intensity Report (REG using California GREET model)
• Washington Department of Ecology Application for a Prevention of Significant Deterioration Applicability Determination
• Construction Stormwater Pollution Prevention Plan/Sheets (SWPPP) (Anvil and Worley 2019)
• Stormwater Site Plans (Anvil and Worley 2019)
• Draft Traffic Impact Analysis (AECOM 2019d)
• Geotechnical Investigation Report (GeoTest Services, pending)
• Environmental Site Assessment (Whatcom Environmental Services, pending)
• Biological Assessment and Essential Fish Habitat Assessment, Green Apple Renewable Fuels Project (AECOM, pending)
• Section 404(b)(1) Alternatives Analysis, Green Apple Renewable Fuels Project (AECOM, pending)
• Construction Stormwater Pollution Prevention Plan for offsite soil stockpile (Anvil, pending)
• Wetland Delineation and Critical Areas Report for mitigation sites (AECOM, pending)
• Cultural Resource Assessment for mitigation sites (AECOM, pending)

9 Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal?  
Yes ☒ No ☐ If yes, explain.

For the project’s natural gas supply, Cascade Natural Gas (“Cascade”)\(^1\) is planning to implement natural gas infrastructure upgrades outside the renewable diesel plant boundary, which would include an estimated 8 miles of new 20-inch-diameter pipeline within or near the existing Cascade right-of-way (the pipeline will terminate approximately 15 miles northeast of the Green Apple project). Green Apple would require approximately 15,000 MMBTU/D of natural gas which would be sourced from Canada. The pipeline maximum allowable operating pressure would be 800 psig. The pipeline would be “piggable” and equipped with emergency shut-down valves and blow-down stacks. The structural integrity of this new pipeline would be routinely assessed in accordance with a UTC-approved Integrity Management Plan. The anticipated routing for the natural gas infrastructure upgrades is provided in Figure 4 and includes two railroad crossings, three creek/river crossings and one highway crossing. This checklist for the State Environmental Policy Act (SEPA) review includes the Cascade infrastructure upgrades; however additional permitting for such infrastructure upgrades would be pursued separately from the Green Apple Renewable Fuels Project by Cascade.

For the project’s electricity supply, Public Utility District No. 1 of Whatcom County is planning to implement electrical infrastructure improvements to the existing 115-kilovolt electric supply system and the existing Phillips 66 substation. The Project GREET model conservatively utilizes the Northwest U.S. regional electricity generation mix (Region 4) however the electricity supply fuel mix is further defined in section A.11 of this checklist.

A transport company would apply for Whatcom County and Washington State Department of Fish and Wildlife (WDFW) permits (listed in Section 10 of this checklist) for off-loading up to four pieces of large process equipment by barge at the Gulf Road barge landing site. While the

\(^1\) Note: The full list of acronyms and a list of references can be found in Appendices B and C.
permits would be applied for by the transport company, the activity is included in this checklist for SEPA review. The Northwest Clean Air Agency (NWCAA) Notice of Construction (NOC) Air Permit Application provides additional description of construction emissions including GHG emissions associated with Barge Landings.

10 List any government approvals or permits that will be needed for your proposal, if known.

U.S. Army Corps of Engineers:
• Clean Water Act (CWA) Section 404 Individual Wetland Permit
• CWA Section 404 Nationwide Wetland Permit (for geotechnical investigation) – RECEIVED

Washington State Department of Ecology (Ecology):
• CWA Section 401 Water Quality Certification
• Coastal Zone Management Consistency Certification
• National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permits (one for project site and one for mitigation sites)
• NPDES Industrial Stormwater General Permit
• Potential Prevention of Significant Deterioration (PSD) Permit
• State Waste Discharge Permit

Northwest Clean Air Agency (NWCAA):
• Notice of Construction (NOC) Air Permit Application and Order of Approval

WDFW:
• Hydraulic Project Approval (HPA) for temporary barge landing (to facilitate off-loading of large, process equipment)
• HPA for work within ditches/streams at the proposed mitigation site

Washington Department of Natural Resources:
• Authorization that proposed activity is consistent with current aquatic lands lease

Whatcom County:
• Major Project Permit
• Natural Resources Notification of Activity (for geotechnical investigation) – RECEIVED
• SEPA Threshold Determination
• Land Disturbance Permit
• Commercial Building Permits (for Project site and temporary barge landing)
• Fire System Permit
• Solid Waste Handling Permit
• Revocable Encroachment Permits (for new road access point to Lake Terrell Road for facility temporary construction road access point off Lake Terrell Road, temporary construction access to off-site stockpiling site, and temporary barge landing)
• Shoreline Permit (for temporary barge landing)
• Moving Permit (for temporary barge landing)
11 Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Green Apple Renewable Fuels Project (“Green Apple”) would entail construction of a manufacturing facility designed to process renewable fats, renewable oils, and renewable greases (FOG) feedstocks of varying grades, such as used cooking oil, vegetable oils, and animal fats, to produce renewable diesel fuel. Green Apple would receive renewable FOG feedstocks via truck, rail, and water. The facility would be a stand-alone design but would be located adjacent to the Phillips 66 Ferndale Refinery (see Figure 1 following the checklist). Green Apple would utilize existing infrastructure within parts of the refinery to supply utilities and infrastructure, as well as provide waste management and logistics services for receiving renewable feedstocks and renewable product shipment. To operate, the facility would also depend on hydrogen supply from an external source, which would require construction of a new hydrogen plant that would be owned and operated by a third party (see Figures 1 and 2 following the checklist for location). The Green Apple plant components (buildings, piping, storage tanks, and roads) would occur within approximately 40 acres of developed and undeveloped land within the Phillips 66 Ferndale Refinery property.
Green Apple would primarily produce renewable diesel fuel (with minor co-products of renewable propane, renewable naphtha, and optionally renewable jet fuel). Renewable diesel fuel may be blended up to 100% with petroleum diesel for fuel handling and engine performance (it meets the D975 American Society for Testing and Materials Standard for diesel fuel). Renewable diesel has significant environmental benefits and therefore is in high demand to help meet environmental goals for private, local, state, and international fleets.

Green Apple would address federal and state directives to reduce the use of fossil fuels and encourage use of cleaner burning fuels with lower greenhouse gas (GHG) emissions. At the federal level, the Energy Policy Act of 1992 aims to reduce U.S. dependence on petroleum and improve air quality by encouraging the use of alternative fuels through both regulatory and voluntary activities. State laws and incentives for alternative fuels in Washington, Oregon, and California are as follows:

- **Washington**: Alternative Fuel Use Requirement and Biodiesel Use Requirement for state and local agencies; Renewable Fuel Standard requiring at least 2 percent of all diesel fuel sold in the state to be biodiesel or renewable diesel; state emission reduction requirements for GHG emissions. The Washington Legislature is actively pursuing a Clean Fuel Standard. HB 1110 was approved in 2019 by the full Washington House of Representatives and is still eligible for the 2020 session. Additionally, the Puget Sound Clean Air Agency (PSCAA) is proposing a regional Clean Fuel Standard for King, Kitsap, Pierce, and Snohomish counties. These four counties are home to more than 4.1 million people, over half the state’s population.
- **Oregon**: Clean Fuel Program; Renewable Fuels Mandate requiring all diesel fuel sold in the state to be blended with at least 5 percent biodiesel; state emission reductions requirements for GHG.
- **California**: Low Carbon Fuel Standard Program; State Agency Low Carbon Fuel Use Requirement for transportation fuel purchased by state government; state emission reductions requirements for GHG.

Green Apple would in no way increase the currently permitted annual crude throughput of the existing Phillips 66 Ferndale Refinery. As stated above, the sole purpose of Green Apple is to construct a new facility that would process renewable FOG feedstocks to produce renewable fuels. The project does not include new or expanded facilities that would facilitate increased shipment of petroleum feedstocks or processing of fossil fuels at Cherry Point.

Environmental benefits of renewable diesel compared to petroleum derived ultra-low sulfur diesel (ULSD) include the following:

- Up to 80 percent reduction in life-cycle GHG emissions based on California GREET model used for CARB Low Carbon Fuel Standard
- Up to 40 percent reduction in particulate matter (PM) emissions
- Up to 25 percent reduction in carbon monoxide (CO) emissions
- Up to 15 percent reduction in nitrogen oxides (NOx) emissions
- Up to 12 percent reduction in total hydrocarbon emissions
- Negligible level of sulfur and therefore sulfur dioxide (SO\(_2\)) emissions
- Negligible level of aromatic and poly-aromatic compounds (benzene, etc.)

Note that the above emission estimates are derived from data for a 2006 Cummins ISM 370 on Federal Test Procedure driving cycle, as reported in Durbin et al. (2011). Comparisons with Federal ULSD were conducted based on a linear comparison with CARB ULSD data.
The main project elements include the following, which are shown on Figures 1, 2 and 3:

- A new renewable fuel production facility
- A new on-site hydrogen plant, adjacent to the renewable diesel production facility, which would be operated by a third party. The hydrogen plant and associated impacts are addressed within this SEPA Checklist.
- A new gated entrance to the renewable fuel production facility off Lake Terrell Road and a new paved road leading to the processing facility, including a new security guard shack and associated parking spaces.
- Additions and modifications to the Phillip 66 Ferndale Refinery’s existing rail and truck facilities to support renewable FOG and renewable product logistics. No additions or modifications to the Phillip 66 Ferndale Refinery’s existing marine facilities are required to support renewable FOG and renewable diesel product logistics.
- New, separate renewable FOG and renewable product storage tanks, to be located in various existing tank containment areas within the refinery
- New renewable FOG and renewable product internal pipelines or tie-ins between existing pipelines to carry feedstock and production materials (renewable diesel, renewable propane, renewable jet fuel, and renewable naphtha). Renewable feedstocks and renewable fuels will be kept separate from fossil fuels materials to ensure compliance with renewable fuel programs that incentivize use of renewable products
- Whatcom County Public Utility District (PUD) No. 1 electrical substation upgrades
  Note: Currently, 99% of PUD electricity mix is supplied by low carbon energy sources. Whatcom PUD purchases 100% of its power supply from the Bonneville Power Administration and files their power supply fuel mix annually with the State of Washington Department of Commerce. Nearly 90% of the PUD’s supply is from hydro generation with some additional small amount of biomass energy. Therefore, the current supply is dominated by low carbon, renewable energy sources. Green Apple is in the process of securing power for the facility and is working toward securing low carbon power. Using low carbon electricity is economically incentivized by the CalGreet model CI scoring. Conservatively, the Project GREET model utilizes the Northwest U.S. regional electricity generation mix (Region 4).
- Cascade Natural Gas upgrades to natural gas supply. Reference Section A.9 for further definition of required upgrades and volume of natural gas. Details of the Cascade Natural Gas upgrades are included in this SEPA Checklist.

The renewable fuel production facility would receive shipments of renewable FOG feedstocks and transport renewable fuels products via rail, marine vessel, or truck. New piping and pumps would be required in association with receiving or shipping materials.

**Feedstock Receiving/Unloading**

Marine: Water-borne feedstock would be received at the Ferndale Refinery dock and would use an existing pipeline from the dock to new renewable feedstocks tanks connected to the new renewable diesel plant. No modifications to the existing dock are required. No piping modifications are required within 200 feet of the shoreline. New piping would be added between the existing pipeline and the new renewable feedstock storage tanks on land. All new “transfer pipelines” [as defined by WAC 173-180-025(40)] will be designed and constructed in accordance with WAC 173-180-340 and will be equipped with an emergency shut down system designed and operated in accordance with WAC 173-180-250. All “transfer pipelines” will be routinely inspected, maintained, and repaired in accordance with API 570. The vessel delivering the feedstock would provide the pump for unloading the material.
Rail: Feedstock rail receiving facilities would be located adjacent to the existing rail facility on the northwest side of the P66 Ferndale Refinery. The new renewable feedstock unloading infrastructure would consist of approximately 34 rail unloading spots and new unloading pumps. New dedicated renewable feedstock piping would also be required.

Truck: A single truck rack renewable feedstock receiving facility would be constructed adjacent to the new renewable diesel production facility. There would also be an adjacent renewable feedstock flexi-bag and iso-container (which are both containers for shipping bulk liquids via cargo ships; renewable feedstock would arrive via cargo ship and then be transported to the facility by truck) steaming and unloading spot. A new pump would be required.

**Shipping/Loading**

Marine: Renewable diesel would be shipped using existing marine facilities. No new pumps or pipes, or other modifications to the existing dock, are required.

Rail: Up to two new renewable diesel rail loading spots and up to four new renewable propane loading spots would be added to the existing product loadout racks in the northwest corner of the Phillips 66 Ferndale Refinery. A new pump would be required (also used for truck loading).

Truck: Two new renewable diesel truck loading spots would be added to the existing diesel loadout rack in the northwest corner of the Ferndale Refinery. Renewable naphtha would be loaded out over the existing gasoline load-out rack and controlled by the existing incinerator.

**New Piping**

As part of the renewable diesel project, new aboveground piping runs would be constructed for renewable diesel product, renewable FOG feedstock, renewable propane, renewable naphtha, and renewable jet fuel (future) as shown on Figure 1.

**Storage Tanks**

Dedicated tanks would be provided for storing renewable FOG feedstock, renewable diesel, renewable naphtha, renewable propane, and renewable jet fuel (future) products.

All new “storage tanks” [as defined by WAC 173-180-025(36)] will be designed & constructed in accordance with WAC 173-180-330. All new “storage tanks” will be equipped with a secondary containment structure designed & constructed in accordance with WAC 173-180-320. All “storage tanks” will be must be routinely inspected, maintained, and repaired in accordance with API 653.

Storage tanks associated with the project include the following:

- Raw feed storage (four, ~400 kilobarrels [kbbl] total)
- Feedstock feed (one tank, ~25,000 barrels [bbl])
- Treated feed (two tanks, ~20,000 bbl each)
- Renewable Diesel storage (three tanks, ~300 kbbl total)
- Renewable naphtha off-spec (one tank, ~2,800 bbl working volume, with floating roof)
- Renewable diesel off-spec (one tank, ~36,000 bbl working volume)
- Renewable propane (five tanks, ~95,000 gallon horizontal each)
- Aqueous waste storage (two tanks, ~160,000 gallons each)
- 50 percent citric acid storage (one tank, 40,000 gallons)
- 25 percent sodium hydroxide storage (one tank, 20,000 gallons)
- 100 percent dimethyl disulfide storage (one tank, 10,000 gallons)
• ULSD tank for blending with renewable diesel (one tank, ~5,000 gallons)

**Buildings and Fencing**

The majority of the Green Apple process equipment would be located outdoors, with the exception of FOG pre-treatment equipment. Laboratory and indoor maintenance space required by the project would be provided by the refinery’s existing facilities. New buildings that would be constructed as part of the project include the following:

• A 14,000-square-foot (sf) addition to existing administration building
• A 6,000 sf addition to an existing warehouse
• Potentially a 1,200 sf addition to the existing laboratory
• A 7,500 sf Power Distribution Center
• A 1,200 sf field operating shelter
• A 9,000 sf FOG pretreatment building
• A 180 sf guard house
• Security fencing separating the renewable fuels production facility from the refinery

**Utilities**

Refer to descriptions in Section B.16 of this document.

**Construction**

The project would include approximately 350,000 sf for temporary laydown areas for process equipment and bulk material storage/vendor areas, construction trailers/contractor field offices and facilities, and construction parking. Construction may also include temporary on-site or nearby off-site soils and materials stockpiling.

**Barge Landings**

The project includes marine shoreline barge landings to deliver oversized equipment. The equipment would be driven onto (roll on) barges and remain on the road transport equipment to facilitate a drive off (roll off) at Gulf Road. The equipment would then be transported north from the landing site, and then east/southeast to the Project site at the Ferndale Refinery. To facilitate delivery, the landings would include use of a tug, heavy equipment and construction of a temporary ramp system to off-load equipment from the barges. The Northwest Clean Air Agency (NWCAA) Notice of Construction (NOC) Air Permit Application provides additional description of construction emissions including GHG emissions associated with Barge Landings.

12 **Location of the proposal.** Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The Phillips 66 Ferndale Refinery property is at 3901 Unick Road in Ferndale, Washington, in Whatcom County, approximately 6 miles west of Interstate 5 (I-5) and 20 miles south of the United States–Canada border. The proposed project is located entirely within the north half of the existing 817-acre refinery property. The project area is located within Sections 32 and 33 of Township 39 North, Range 1 East, Willamette Meridian, on Whatcom County Assessor parcel number 390133-197340. Figure 1 shows the location of the proposed project elements within the Ferndale Refinery property.
The proposed barge landing site is located northwest of the refinery at the southern terminus of Gulf Road along the shoreline of the Strait of Georgia, within Section 19, Township 39 North, Range 1 East, W.M., Assessor tax parcels 390119-438360 and 390119-388424. The proposed location has previously been utilized for multiple barge off-loads of over-sized equipment for nearby industrial complexes.

B Environmental Elements

1 Earth

   a. General description of the site:

      ☒ Flat
      ☐ Rolling
      ☐ Hilly
      ☐ Steep
      ☐ Slopes
      ☐ Mountainous
      ☐ Other

   b. What is the steepest slope on the site (approximate percent slope)?
      
The steepest slope is approximately 5 percent.

   c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

      The Natural Resources Conservation Service Web Soil Survey has mapped most of the undeveloped project area as Whitehorn silt loam (unit No. 184). Portions of the project site within existing developed areas are identified as Urban land (unit No. 171). Whatcom County has not designated any agricultural lands of long-term commercial significance within the perimeter of the Phillips 66 Ferndale Refinery or the greater Cherry Point Urban Growth Area.

      The Gulf Road barge landing site contains cobbles and small boulders that cover the entire beach. Sediments under the cobbles are primarily pebble size or larger with sand; clays and silts are virtually nonexistent. The beach has been modified by historic fill associated with construction of Gulf Road (Whatcom County road) and former residential/commercial development. Wave action has eroded the seaward edge of the road, which is loosely armored with riprap and concrete rubble.

   d. Are there surface indications or history of unstable soils in the immediate vicinity? Yes ☐ No ☒

      If so, describe.

      There are no surface indications or history of unstable soils in the immediate vicinity of the project site.
e. Describe the purpose, type, total area, approximate quantities, and total affected area of any filling, excavation or grading proposed.

Approximately 22 acres of grass-dominated fields would be permanently cleared for construction of the completed project. Another 10 acres of current impervious surface would be redeveloped. Approximately 8 acres would be cleared for temporary construction storage, laydown areas, construction operations, and access. Temporary construction areas would be restored to preconstruction conditions following project completion. Total grading quantities would include approximately 174,000 cubic yards (cy) of site stripping and excavation and approximately 210,000 cy of fill.

Temporary fill may be used at Gulf Road to facilitate the temporary barge landing activities. Clean temporary fill from an agency-approved source may be placed on top of geotextile fabric, landward of mean higher high water (MHHW = 9.15 feet above mean lower low water [MLLW]) to establish a base for construction of temporary ramp supports and/or to level and stabilize the Gulf Road shoulder. The specific amount and area of temporary fill, if any, would be determined based on site-specific conditions prior to submittal of barge landing permit applications. There would be no permanent re-grading of the barge landing site. All fill, geotextile fabric, and ramp supports would be removed upon completion of the barge landings.

Indicate source of fill.

On-site excavated material would be used as backfill as much as possible pending geotechnical soil-boring findings. Any imported fill materials would be obtained from an agency-approved source.

Indicate where excavation material is going.

Excavated material and scraped topsoil would be stored on-site as much as possible. Any excavated materials that may require removal from the project area would be exported to an agency-permitted disposal facility.

f. Could erosion occur as a result of clearing, construction, or use? Yes ☒ No ☐ If so, generally describe.

Soils exposed during construction could be subject to erosion. Ground-disturbance activities associated with site clearing and installation of foundations could result in erosion. However, erosion potential would be minimized during site preparation and construction through implementation of Best Management Practices (BMPs). Refer to Section B.1.h for additional detail.

The Green Apple construction site would be permanently stabilized upon completion. Operation of the project would not create the potential for erosion.

No beach grading is proposed at the Gulf Road site. Barge off-loads would also occur during high tide cycles to avoid grounding and prevent prop scour of the bed.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The completed project would result in a total of approximately 732,000 sf of new impervious surfaces and approximately a total of 446,000 sf of redeveloped impervious surfaces. An
additional 571,000 sf will be temporarily impervious during construction and restored to grass fields after the project is complete.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Measures to reduce or control erosion, or other impacts to earth at the site, would be implemented during the construction process in accordance with Ecology’s NPDES Construction Stormwater General Permit, Whatcom County’s Stormwater and Drainage Ordinance, and Construction SWPPPs that have been prepared for the project. BMPs would include the following measures:

- A Washington State-certified erosion & sediment control lead (CESCL) will be utilized during the construction phase of this project
- Protect cut slopes during construction, and any soil stockpiled on the site or at a nearby offsite location, by placing plastic sheeting on exposed cut slopes and stockpiled soil.
- Limit the maximum duration of open excavation to the shortest time possible.
- Stabilize disturbed soils that are exposed to surface water runoff.
- Install temporary construction erosion and sediment control measures prior to any site grading activities, which may include erosion control fencing, straw wattles, mulch berms, silt dikes, check dams, catch basin inserts, outlet protection, temporary sediment ponds, stabilized construction entrances, and/or other applicable measures.
- Restore temporary construction areas to preconstruction conditions following project completion.

Refer to Anvil and Worley construction SWPPP documents for additional information.

Permanent site stabilization measures would be implemented, such as re-vegetating or permanently stabilizing (e.g., pavement, gravel) any exposed soils that are susceptible to erosion within 30 days of project completion.

A facility SWPPP would be prepared and implemented for the completed project.

2 Air

a. What types of emissions to the air would result from the proposal during construction, operation and maintenance when the project is completed?

The use of construction equipment during project construction would result in temporary dust, vehicle exhaust, and other construction-related emissions resulting from excavation, grading, small and heavy equipment, and marine barge landing operations. Emissions associated with construction would be short term, lasting the length of the construction period, and are not expected to result in air quality impacts.

Emissions during normal operation would include combustion emissions such as PM (including fine particulate with hydraulic diameter less than 10 microns [PM$_{10}$] and less than 2.5 microns [PM$_{2.5}$]), SO$_2$, NO$_x$, VOC, CO, GHG and trace amounts of lead (Pb) and federal hazardous air pollutants (HAP).

Emissions during normal operation would also include VOC emissions from storage tanks for organic liquids; VOC fugitive emissions from process equipment; PM and VOC emissions from cooling towers, including PM$_{10}$ and PM$_{2.5}$; PM emissions from solids handling, also including PM$_{10}$ and PM$_{2.5}$; and PM emissions from on-site vehicle traffic, also including PM$_{10}$ and PM$_{2.5}$.
In addition to these emissions from the proposed renewable diesel facility, some air emissions within current air permit representations and limits would occur at the Phillips 66 Ferndale Refinery. It is expected that the renewable diesel facility’s use of certain services from the Phillips 66 Ferndale Refinery will not require any increases in already permitted limits. Nor will the use of services by the facility, or purchase of hydrogen by Phillips 66, increase the Phillips 66 Ferndale Refinery’s capacity for processing crude oil.

Certain increases within the Phillips 66 Ferndale Refinery’s currently permitted emissions include new or modified equipment to load renewable naphtha via Phillips 66’s existing truck rack. Loading renewable naphtha via the truck rack allows VOC emissions from renewable naphtha loading to be captured and controlled. The project includes construction of a new tank to store renewable naphtha and to blend it with Phillips 66 petroleum gasoline. The project also includes addition of loading arms to the truck rack for loading blended renewable naphtha. VOC emissions from the renewable naphtha blend tank will be controlled with an internal floating roof design. VOC emissions from loading the blended renewable naphtha will be controlled by vapor capture and combustion equipment already in place on the truck rack. Finally, the project includes addition of a number of pumps, valves, and connectors to serve the renewable naphtha blending process. VOC emissions from this equipment will be controlled using a Leak Detection and Repair (LDAR) program.

Other increases within the Phillips 66 Ferndale Refinery’s current permit limits occur at existing equipment this is not physically or operationally modified as part of the project. These emissions result from loading renewable fuels products at the Phillips 66 Ferndale Refinery’s rail and marine equipment and propane truck loading equipment; vapor destruction from loading blended renewable naphtha; and Phillips 66’s provision of sulfur treatment and wastewater treatment services to the renewable diesel facility. Renewable product loading emissions contain the same pollutants (VOC) as liquid storage. Product loading of renewable naphtha through the Phillips 66 Ferndale Refinery’s truck loading rack also generates combustion emissions from the truck loading rack’s vapor combustion unit control device. Sulfur treatment services result in SO\textsubscript{2} emissions and sulfur recovery exhaust vapor treatment emissions (similar to combustion emissions); wastewater treatment services result in VOC emissions. Both sulfur and wastewater treatment services generate small emission increases relative to the Phillips 66 Ferndale Refinery’s existing capacity, as the renewable diesel facility contributes low quantities of sulfur gas and of wastewater organic content vis-à-vis the refinery.

Speciated HAP and state toxic air pollutants (TAP) from the renewable diesel facility include combustion emissions from gaseous combustion, ammonia from the hydrogen plant’s deaerator vent, and speciated HAP and TAP in the VOC emission sources above. A non-negligible fraction of renewable naphtha product is n-hexane, which is the HAP and TAP species with the highest estimated emission rate. Fugitive emissions of HAP and TAP will be addressed through a Leak Detection & Repair (LDAR) program as required by 40 CFR 60, Subpart VVa. Other speciated HAP or TAP include crystalline silica from material handling, which is below the Small Quantity Emissions Rate.

Maintenance emissions from planned shutdowns of the renewable diesel facility are included in the emissions estimates and would result from equipment and units being depressurized, cleaned, and opened for inspection, catalyst changeout, and repair. The additional potential emissions added to the Phillips 66 utility systems (other than flaring, which is included in the Green Apple emissions estimates) have been included in the Phillips 66 associated emissions and are within the expected operational and permitted capacities.

Details on emission calculation methods and results can be found in the air permit application materials for the proposed renewable diesel facility.
If any, generally describe and give approximate quantities if known.

The nameplate capacity of the proposed facility is 250 million gallons of renewable fuels production per year, which considers some annual downtime and realistic expectations of equipment performance. The project team considered emission estimates at the production rate of 325 million gallons per year for potential-to-emit reflecting maximum equipment performance at 8,760 hours per year.

Approximate emission estimates for the renewable fuels facility are as follows:

- Approximately 8 tons per year (tpy) of PM, PM_{10}, and PM_{2.5}
- Approximately 4 tpy of SO\textsubscript{2}
- Approximately 27 tpy of NO\textsubscript{x}
- Approximately 34 tpy of VOC
- Approximately 32 tpy of CO
- A negligible amount of Pb
- Approximately 4 tpy of a single HAP (n-hexane)
- Approximately 400,000 tpy of GHG as CO\textsubscript{2}e

The emission calculation tables provide a breakdown of operational emissions by source, as prepared for the NWCAA NOC air permit application (Appendix A) and the PSD applicability determination (Appendix A).

As context for the GHG emissions estimates, the renewable diesel project’s life-cycle effect on GHG in the atmosphere is a significant reduction. Estimated using the Cal-GREET model for life-cycle GHG emissions from fuels, the project would reduce GHG emissions by approximately 2 million metric tonnes of CO\textsubscript{2}e per year, equivalent to a 60-70% reduction in GHG emissions compared to petroleum derived ultra-low sulfur diesel. The life-cycle reduction exceeds the direct GHG emissions of the process by a factor of over 5 times. The GREET model summary table and Fuel Pathway Report are included as an Attachment.

The construction-phase GHG emissions are from non-stationary large and small engines on-site that would be used for multiple purposes, transport of the heavy equipment from manufacturers, mobile sources on-site, and transportation of construction workforce. These emissions are based on 50-hour work week for all engines, which is highly conservative.

Approximate emission estimates for the construction of the renewable fuels facility from non-stationary large and small engines are as follows:

- Approximately 0.5 tpy of PM, PM_{10}, and PM_{2.5}
- Approximately 0.2 tpy of SO\textsubscript{2}
- Approximately 11 tpy of NO\textsubscript{x}
- Approximately 5 tpy of VOC
- Approximately 121 tpy of CO

### Construction Phase GHG Emissions

<table>
<thead>
<tr>
<th>Source</th>
<th>GHG Emissions (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engines</td>
<td>15,600</td>
</tr>
<tr>
<td>Heavy Equipment Transport</td>
<td>500</td>
</tr>
<tr>
<td>Mobile Sources and Workforce Transit</td>
<td>2,800</td>
</tr>
<tr>
<td>Total</td>
<td>18,900</td>
</tr>
</tbody>
</table>
Expected actual emissions increases have also been considered for existing Phillips 66 sources such as tanks and logistics equipment. These expected emissions are within the current Phillips 66 Ferndale Refinery permit:

- Approximately 1 tpy of PM, PM\(_{10}\), and PM\(_{2.5}\)
- Approximately 1 tpy of SO\(_2\)
- Approximately 10 tpy of NOx
- Approximately 5 tpy of VOC
- Approximately 3 tpy of CO
- Approximately 9,000 tpy GHG as CO\(_2\)e

b. Are there any off-site sources of emissions or odor that may affect your proposal?  

- Yes ☐  
- No ☒

If so, generally describe.

The project is located in an industrial area and would not be affected by off-site sources of emissions or regional air quality limitations.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Green Apple will produce renewable fuel products with significant life-cycle emission reductions when used as transportation fuel. Efficiency of production of renewable fuels is highly valued, adding value to the finished renewable fuel products. The energy efficiency of the production facility and the logistics to receive renewable feedstock and deliver renewable product to market has been maximized to minimize air emissions to the environment and to maximize the value of the product. Green Apple would be 3.5 times the size of the REG Geismar, Louisiana production facility, which is an earlier design renewable diesel production facility. Green Apple criteria pollutant emissions would be substantially less than Geismar. The goal is to have Green Apple fuel be the lowest Carbon Intensity liquid fuel available in the market.

The proposed renewable diesel facility would implement Best Available Control Technology (BACT) for all pollutants subject to air permitting. At this time, BACT is expected to include the following:

- A Selective Catalytic Reduction system for the hydrogen plant process heater
- Use of gaseous fuels for furnace and process heater combustion
- Use of natural gas for fired heaters (a low-sulfur fuel)
- Fuel gas low sulfur content limit average of <50 parts per million by volume (ppmv) sulfur
- Use of gaseous fuels with a low sulfur content (<50 ppmv for the hydrogen plant process heater)
- Use of a natural gas pilot for flaring, along with good combustion practices, compliance with Code of Federal Regulations (CFR), Title 40, Part 63.11, and flaring minimization practices
- Floating roofs for renewable naphtha volatile organic liquid storage (vapor pressure >1.1 pounds per square inch [psi])
• Implementation of a Leak Detection and Repair program equivalent to the Hazardous Organics National Emission Standards for Hazardous Air Pollutants (NSPS and NESHAP) for renewable diesel plan process equipment fugitive losses
• Use of drift eliminators on the renewable diesel plant cooling tower
• Vent filters for solids handling at the renewable diesel plant.
• Use of existing truck vapor combustor for truck renewable product loading
• Unreacted hydrogen would be recycled, utilizing multiple technologies, to minimize the energy consumed in hydrogen production.
• Lower value heat would be recovered as steam and integrated with the neighboring refinery steam systems to ensure minimal overall boiler firing of fuel.
• Advanced heat exchanger optimization would be utilized throughout the production facility to minimize fuel firing rate.

Washington State toxics associated with the renewable diesel plant would also be controlled using these BACT methodologies. The Northwest Clean Air Agency (NWCAA) Notice of Construction (NOC) Air Permit Application provides additional description of controlling toxic emissions.

3 Water

a. Surface:

(1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)?** Yes ☒ No ☐

If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Wetlands
Seven wetlands are present within or immediately adjacent to the renewable diesel plant project footprint and listed in Table 1. Detailed wetland descriptions are available in the Wetland Delineation and Critical Areas Assessment Report (AECOM 2019a).

Table 1. Wetlands

<table>
<thead>
<tr>
<th>Wetland Name</th>
<th>Size (acres)</th>
<th>Cowardin Class</th>
<th>Category</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5.8</td>
<td>Emergent</td>
<td>IV</td>
<td>Rail Unloading</td>
</tr>
<tr>
<td>C</td>
<td>1.1</td>
<td>Emergent</td>
<td>IV</td>
<td>Rail Unloading</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>Emergent</td>
<td>IV</td>
<td>Rail Unloading</td>
</tr>
<tr>
<td>E</td>
<td>15</td>
<td>Forested</td>
<td>III</td>
<td>West of Rail Unloading</td>
</tr>
<tr>
<td>F</td>
<td>16.4</td>
<td>Emergent</td>
<td>IV</td>
<td>Renewable Diesel Facility</td>
</tr>
<tr>
<td>L</td>
<td>3.1</td>
<td>Emergent</td>
<td>IV</td>
<td>Staging Area</td>
</tr>
<tr>
<td>RR</td>
<td>9.9</td>
<td>Emergent</td>
<td>IV</td>
<td>Substation</td>
</tr>
</tbody>
</table>

The natural gas supply infrastructure improvements include approximately 14 wetlands currently mapped by Whatcom County along the pipeline route. Biologists are scheduled to survey the pipeline routing to further identify and describe wetlands along the route.
Ditches
Several ditches are within the renewable diesel plant project site. The 4th Street ditch parallels the north side of 4th Street and adjacent pipelines and receives surface flow from Wetland F. Water flows into a culvert under 4th Street, then into another ditch that runs south along “D” Street. This ditch then discharges into a large wetland complex outside the project area that is connected to Lummi Bay via an unnamed, seasonal stream. The ditch is approximately 2 feet wide and 4 inches deep.

The 2nd Street ditch parallels north side of 2nd Street and receives surface flow from both Wetlands A and D. Water flows west across “M” Street into a large wetland complex (Wetland E) outside the project area that ultimately discharges to Lummi Bay (Strait of Georgia) via a series of steep ravines. The ditch is approximately 3 feet wide and 4 inches deep.

The Lake Terrell Road ditch parallels the west side of Lake Terrell Road and receives runoff from the road. Water flows south into a stream, sometimes referred to as Onion Creek, which continues through a large wetland complex and flows into the refinery outfall structure above Slater Road. Water leaves the outfall through a culvert under Slater Road and discharges into Lummi Bay. The ditch is approximately 2 feet wide and lined with rock.

None of these ditches is fish bearing.

The natural gas supply infrastructure improvements include approximately nine drainage/irrigation ditches adjacent to roadways along the pipeline route. Biologists are scheduled to survey the pipeline routing to further evaluate identified ditches along the route.

Streams
The natural gas supply infrastructure improvements includes crossing of the Sumas River and crossing approximately six streams. Three of these water bodies are regulated under Whatcom County’s Shoreline Management Program – Fishtrap Creek, Johnson Creek, and the Sumas River.

Marine
The Strait of Georgia is located over 1 mile west of the project site. Barge landings would happen on a segment of marine shoreline at the Gulf Road site along the Strait of Georgia. Two wetland complexes are located to the east and west of Powder Plant Road just north of the shoreline; however, the proposed barge landing activities would not occur in nor result in any disturbance of these features. A cobble backshore dune covered with driftwood logs and other large woody debris, concrete barriers, and Gulf Road separate the wetland areas from the beach. The backshore dune has been heavily disturbed by informal trails and beach visitor use.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? Yes ☒ No ☐

If yes, please describe and attach available plans.

Marine
No permanent construction would occur within 200 feet of the Strait of Georgia. There would be no permanent in-water work, shading over adjacent shore areas, or work below the ordinary high water mark.
Barge landings at the Gulf Road landing site may require temporary work along the shoreline to facilitate delivery of oversize equipment. The proposed work area would be located between the marine barges and Gulf Road. Any temporary fill, if required, would be placed above MHHW (9.15 feet above MLLW) and any temporary ramp support structures would be constructed above mean high water (MHW; 8.32 feet above MLLW). Construction of a temporary ramp system would generally consist of a gravity-bearing pier support (e.g., stacked pre-cast concrete blocks, timber cribbing, timber crane mats) that would support a series of steel flange ramps with tapered ends. The ramps would be laid from the barge to the edge of Gulf Road. Once the cargo has been off-loaded, the ramp system would be removed, and the area would be returned as close as practicable to its pre-landing condition. It is anticipated that any modification of the barge landing site that might occur due to the proposed activities would be minor and temporary in nature.

Streams
Directional drilling is planned for the installation of natural gas supply infrastructure to minimize impacts to water bodies regulated under Whatcom County’s Shoreline Management Program.

Wetlands
The project would require approximately 13.28 acres of direct and indirect permanent wetland impact (from excavation and fill) and approximately 5.16 acres of long-term temporary impact (from staging and laydown areas). Impacts for each wetland are listed in Table 2. More detail on the wetland impacts can be found in the Conceptual Wetland Mitigation Plan (AECOM 2019b).

<table>
<thead>
<tr>
<th>Wetland Name</th>
<th>Permanent Impact (acres)</th>
<th>Temporary Impact (acres)</th>
<th>Permanent Buffer Impact (acres)</th>
<th>Temporary Buffer Impact (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.78</td>
<td>0.12</td>
<td>1.41</td>
<td>0.10</td>
</tr>
<tr>
<td>C</td>
<td>0.06</td>
<td>0.02</td>
<td>0.12</td>
<td>0.34</td>
</tr>
<tr>
<td>D</td>
<td>0.03</td>
<td>0.09</td>
<td>0.13</td>
<td>0.40</td>
</tr>
<tr>
<td>E</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>11.41</td>
<td>4.93</td>
<td>2.08</td>
<td>2.45</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13.28</strong></td>
<td><strong>5.16</strong></td>
<td><strong>3.74</strong></td>
<td><strong>3.29</strong></td>
</tr>
</tbody>
</table>

The renewable diesel plant project has been designed to avoid and minimize wetland and environmental impacts to the maximum extent feasible. The substation location was moved to avoid impact to Wetland RR. Staging areas were designed to avoid impact to Wetland L and its buffer. Associated facilities (like the administration office addition) are located in previously developed areas. The design of the rail unloading facility was designed to allow for water to continue to drain to Wetland E from the project area. Due to the predominance of wetlands in the project area, permanent wetland impacts are unavoidable. However, high-quality forested wetlands at the Ferndale Refinery would be avoided. Most work would be done in low-quality wetlands.
Jurisdictional Ditches
The 4th Street ditch would be modified for the project and likely enhanced to carry more volume. It would remain in the same location and would drain to the same approximate area.

The 2nd Street ditch would be moved to the north side of the proposed new railroad track. The ditch would still collect water from Wetlands A, C, and D and drain to the same outlet to the west.

The only change to the Lake Terrell Road ditch would be the installation of culverts under the two new access roads. One access road will be temporary and removed after construction is complete. The inputs to and flows in the ditch are not anticipated to change.

More details on wetland and ditch impacts can be found in the Conceptual Wetland Mitigation Plan (AECOM 2019b).

Details on wetland, ditch and stream impacts of the natural gas supply infrastructure improvements will be further defined upon completion of the biological survey of the Cascade Natural Gas pipeline route.

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected.

Approximately 95,034 cy of fill would be placed in wetlands at the project site. Approximately 35,704 cy would be excavated from wetlands.

Ramp supports associated with the proposed barge landing would temporarily occupy approximately 400 sf of beach area. If required for temporary construction, approximately 100 cy of temporary fill would be placed on top of geotextile fabric to establish a base for constructing the temporary ramp support system. All fill, geotextile fabric, and ramp supports would be removed upon completion of the barge landing.

Indicate the source of fill material.

Imported fill material for construction would consist of clean gravel and a clean standard structural fill mix. All fill materials would be obtained from an approved local supplier. Any excavated materials that may require removal from the project area would be transported to an approved disposal facility.

(4) Will the proposal require surface water withdrawals or diversions?
   Yes ☐ No ☒

Give general description, purpose, and approximate quantities if known.

The proposed renewable diesel plant project does not include surface water withdrawals or diversions. The renewable diesel plant project’s water needs (boiler feed water, cooling water, firewater) would be provided by the PUD and fall within the existing service contract for the Phillips 66 Ferndale Refinery.

(5) Does the proposal lie within a 100-year floodplain?
   Yes ☐ No ☒ If so, note location on the site plan.
Other than temporary barge landings, the proposed renewable diesel plant project would be constructed outside any designated 100-year floodplain, based on the Whatcom County map of Frequently Flooded Areas and Federal Emergency Management Agency maps.

(6) Does the proposal involve any discharges of waste materials to surface waters?
Yes ☐ No ☒

If so, describe the type of waste and anticipated volume of discharge

Pollutants will primarily consist of BOD (Biological Oxygen Demand) and TSS (Total Suspended Solids). The proposed renewable diesel plant project would pretreat the process wastewater and discharge approximately 300,000 gallons per day into the Phillips 66 wastewater treatment plant (WWTP) (NPDES Permit #WA0002984), which would perform additional treatment and then discharge the treated wastewater through the existing Phillips 66 diffuser into the Strait of Georgia.

b. Ground Water:

(1) Will groundwater be withdrawn from a well for drinking water or other purposes? Yes ☐ No ☒

If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

Not applicable.

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems; the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material would be discharged into the ground. Wastewater generated by the renewable diesel plant project would be reused, pretreated at the proposed anaerobic or aerobic digester, and/or treated at the refinery WWTP. Sanitary waste from new sources would be routed to the existing refinery sanitary treatment system.

c. Water runoff (including stormwater):

(1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known).

Construction of the renewable diesel production facility with associated tankage, transportation facilities, buildings and accessory improvements would result in an approximate total of 732,000 sf of new impervious surfaces and an approximate total of 446,000 sf of redeveloped surfaces at the site. Upon project completion, stormwater generated by the renewable diesel process area facilities would be routed to the Phillips
66 Ferndale Refinery’s existing stormwater system and the existing WWTP for processing. Non-process area stormwater runoff from the new facilities would be directed to a new on-site stormwater management system for detention and treatment. The new stormwater system has been designed in accordance with Whatcom County Development Standards and the 2014 Washington Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW) (Worley 2019) and would be located immediately adjacent to the renewable diesel production facility. (Note: Whatcom County has not adopted the 2019 SWMMWW). Stormwater runoff from new associated project elements within existing developed areas of the Phillips 66 Ferndale Refinery would use existing refinery drainage conveyance systems or would be re-routed to the WWTP.

**Where will this water flow?**

Stormwater from the renewable diesel production facility site, as well as from storage tank locations (i.e. stormwater that could potentially contain contaminants), would flow to the Phillips 66 Ferndale Refinery’s WWTP. Surface water from areas utilizing the existing WWTP would be routed to an existing stormwater sewer that runs parallel to 4th Street immediately south of the proposed Green Apple renewable diesel plant site. The Green Apple stormwater sewer connector would include a high flow bypass to prevent overwhelming the Phillips 66 Ferndale Refinery’s sewer system. This high flow bypass would be routed to the Green Apple stormwater detention pond.

Production facility site stormwater that would not be routed to the WWTP or other existing treatment structure (i.e. stormwater with a low potential to contain contaminants) would be routed to the new on-site stormwater management system which would include a stormwater detention and treatment pond. The Green Apple stormwater detention pond would include discharge valving to allow for routing of contaminated stormwater to the WWTP.

The stormwater from the rail area would be split with the undeveloped flow continuing in the existing ditch along 2nd Street (which would be moved north of the new rail alignment), while the improved area for the rail unloading facility will be directed to the WWTP.

For the new tanks installed in existing tank containments within the Phillips 66 Ferndale Refinery, the stormwater would continue to be directed to the Phillips 66 Ferndale Refinery’s WWTP.

The Phillips 66 Ferndale Refinery’s existing NPDES discharge permit (#WA0002984) would be revised to account for the additional stormwater.

**Will this water flow into other waters? Yes ☒ No ☐**

**If so, describe.**

The treated stormwater from the Phillips 66 Ferndale Refinery’s WWTP facility eventually flows into the Strait of Georgia in accordance with the Phillips 66 Ferndale Refinery NPDES discharge permit. It is anticipated that treated stormwater discharge from the new stormwater pond would discharge to the existing refinery ditch system that crosses 4th Street and follow current flowpaths to the large wetland complex outside the renewable diesel plant project area that is connected to Lummi Bay via an unnamed, seasonal stream. The stormwater will be monitored prior to discharge in accordance with NPDES requirements.
(2) Could waste materials enter ground or surface waters?
   Yes ☐ No ☒

If so, generally describe.

The renewable diesel plant project would be designed to capture and/or control all potential wastes or spills and preclude such materials from reaching ground or surface waters. The Oil Spill Prevention, Control, and Countermeasure Plan and Integrated Contingency Plan would be implemented during project operation.

Waste materials are not expected to enter the ground or surface waters. New tanks and rail areas for renewable feedstocks, renewable products, and to support renewable fuel processing would be installed in new or existing containment areas with capacity to contain the largest tank or rail car, respectively, plus a 6-inch allowance for a storm event in compliance with National Fire Protection Association 30 requirements. The containment would consist of a concrete or covered bentonite clay membrane liner designed and approved by a registered State of Washington Geotechnical Engineer. All tanks would be monitored for leaks using electronic leak detection devices. The collection sump would also be monitored continuously by conductivity meters or other devices to determine if product is collecting in the sump. The tank farm storage tanks would be on grade-level or elevated foundations (no below-grade tanks or piping), within bermed areas constructed of an impervious material.

New tanks will be installed in existing tank containments within the Phillips 66 Ferndale Refinery. The majority of the facility is underlain by a regionally continuous stratigraphic unit known as glaciomarine drift, or diamicton. The diamicton is a clayey silt with sand and gravel and is predominantly dry to slightly moist in the uppermost weathered portions of the unit. The upper surface of the diamicton generally occurs at 2-6 feet below grade at the facility. The diamicton acts as an aquitard, impeding the vertical migration of water and released contaminants. Precipitation percolates through surficial deposits and imported fill material and becomes perched on the relatively impermeable diamicton. The fining-downward grain-size distribution, the increasing bulk density with depth, and the decreasing vertical conductivity with depth all support the conclusion that the diamicton acts as a sufficient aquitard to inhibit the downward migration of precipitation and accidentally spilled petroleum products, renewable feedstock and renewable products.

New tanks will be installed in the Green Apple renewable diesel production facility. These tanks would utilize concrete containment.

Truck and rail car renewable product loading and renewable feedstock unloading would be conducted in bermed, walled, or sloped areas capable of containing the maximum volume of any single compartment of a tank car. Truck and rail loading and unloading would utilize concrete containment. In the event of a rail spill, the collection sump(s) for the rail containment area(s) would be pumped to the tank farm oil/water separator or emptied by tank truck for off-site disposal at an approved facility.
(3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site: Yes ☒ No ☐

If so, describe.

One ditch segment in the center of Wetland F currently drains water from the wetland south to the 4th Street ditch then into another ditch that runs south along “D” Street. This ditch then discharges into a large wetland complex outside the project area that is connected to Lummi Bay via an unnamed, seasonal stream. This ditch would be removed for project construction. The remaining areas of Wetland F outside the permanent project footprint would still drain via the same pathway after construction is complete.

Indirect impacts to the hydrology of forested wetlands south of the project would be avoided by the facility stormwater system design, which is anticipated to allow the same amount of flow from Wetland F to reach these wetlands after the project is built.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The renewable diesel plant project would be designed to comply with all federal, state, and local regulations, controlling potential risks to water resources through project planning, design, and the application of required BMPs. With these risks controlled, no operational or construction-related adverse impacts on water resources are expected. The renewable diesel plant project would be designed to capture and/or control all potential wastes or spills and preclude such materials from reaching ground or surface waters. All new tanks to support the renewable diesel plant would be constructed either within existing, impervious containment or within new, impervious containment. All new tanks would be monitored for leaks using electronic leak detection devices. Tank high level alarms would be included. New tanks will not include cathodic protection; the Phillips 66 Ferndale Refinery utilizes a foundation design that mitigates the need for cathodic protection. The collection sump would also be monitored continuously by conductivity meters or other devices to determine if product is collecting in the sump.

During construction, risks would be controlled through stormwater management BMPs that would be applied following the requirements of the construction SWPPP. These BMPs would include the use of silt fences, temporary stormwater sediment ponds, and/or other appropriate methods. Refer to Section B.1.h of this checklist and the Anvil and Worley construction SWPPP documents for additional information.

During operation, the renewable diesel facility would control risks by following the Industrial SWPPP and SPCC Plan to prevent liquid products from leaving the containment areas. Spill kits would be placed in strategic and easily accessible locations for use if small spills occur, and the ICP would be followed. If an uncontained spill should occur, the operator would notify Ecology and other agencies of the situation as required by law. More information can be found in Section B.7 of this checklist.

Stormwater generated by the renewable diesel facilities would be routed to the Phillips 66 Ferndale Refinery stormwater system and the existing WWTP via existing conveyance systems. The existing stormwater sewer would be used. The existing wastewater NPDES permit #WA0002984 would be revised.

Permanent on-site stormwater detention and treatment facilities would be constructed per Whatcom County Development Standards and 2014 Ecology SWMMWW. Refer to the Anvil and Worley Stormwater Site Plans for additional information.
Renewable diesel plant process wastewater would be pretreated at the proposed new anaerobic or aerobic digester and discharged to the Phillips 66 Ferndale Refinery WWTP (NPDES Permit #WA0002984), which would perform additional treatment and discharge the treated wastewater through the existing Phillips 66 diffuser into the Strait of Georgia. Air emissions associated with waste water treatment are detailed in the NWCAA NOC application. Green Apple feedstocks such as fats and used cooking oil will have residual proteins, sugars, and other organics which are removed from the FOG feedstock by the pretreatment process. These biogenic (carbon withdrawn from the atmosphere by photosynthesis of growing plants) materials generate the BOD load to be treated as waste water.

Mitigation for unavoidable wetland impacts is addressed in the Conceptual Wetland Mitigation Plan (AECOM 2019b). Temporary wetland impacts would be restored by decompacting the soil, restoring areas to original grades, and reseeding with herbaceous species. Permanent impacts would be compensated with a combination of wetland rehabilitation and wetland enhancement at two nearby sites. One site is adjacent to an existing mitigation site at Wetland NN in the southwest corner of the Phillips 66 Ferndale Refinery, which would provide a larger block of restored habitat. The second site is northeast of the intersection of Unick Road and Lake Terrell Road (known as the Barci Parcels), which would improve headwater wetlands in the Lummi River watershed.

The goal of wetland rehabilitation for this project is to repair the historical wetland functions at the mitigation sites that were lost through clearing, grading, and drainage for agriculture. This goal would primarily be met at the Barci Parcels mitigation site, where intensive agriculture, grazing, and drainage have continued until the present time. Opportunities for rehabilitation at Wetland NN may also be possible, as there are remnant drainage ditches on this site. To accomplish the goals, drainage ditches would be plugged or filled-in entirely. Historical fill material from sidecasting of ditch spoils would be removed from the site or utilized for buffer restoration. Historical flow paths would be re-established where possible. Wetland and buffers would be enhanced by planting native species, controlling invasive species, and installing habitat features such as snags, large woody debris, and brush/rock piles. More details on the mitigation can be found in the Conceptual Wetland Mitigation Plan (AECOM 2019b).

Marine barge landing activities for delivery of large pieces of equipment would be temporary, and the barge landing site would be restored to pre-landing conditions upon completion.

4 Plants

a. **Check types of vegetation found on the site:**

- Deciduous tree: alder, maple, aspen, other
- Evergreen tree: fir, cedar, pine, other
- Grass
- Pasture
- Crop or grain
- Orchards, vineyards or other permanent crops
- Wet soil plants: reed canarygrass, cattail, buttercup, bulrush, skunk cabbage
- Water plants: water lily, eelgrass, milfoil, other
- Other types of vegetation
b. What kind and amount of vegetation will be removed or altered?

Approximately 22 acres of wetland and upland fields dominated by non-native grasses would be permanently impacted, and approximately 8 additional acres of similar vegetation would be temporarily impacted for project construction making the total impacted area approximately 30 acres.

No vegetation removal or alteration is proposed or anticipated in association with barge landing activities.

c. List threatened and endangered species known to be on or near the site.

No threatened or endangered plant species are known to be on or near the site, and none was identified during wetland delineations of the proposed project area.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

A preliminary landscape buffer plan has been developed in accordance with WCC 20.80.300 and WCC 20.68.551. Temporary vegetation impacts from laydown and staging areas would be restored by decompacting the soil, restoring areas to original grades, and reseeding with herbaceous species.

e. List all noxious weeds and invasive species known to be on or near the site.

The renewable diesel plant project site contains the following noxious weed species: reed canarygrass (*Phalaris arundinacea*), St. Johnswort (*Hypericum perforatum*), hairy cat’s-ear (*Hypochaeris radicata*), Himalayan blackberry (*Rubus armeniacus*), ox-eye daisy (*Leucanthemum vulgare*), Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*).

5 Animals

a. Check any birds and other animals, which have been observed on or near the site or are known to be on or near the site:

Birds:
- Hawk
- Eagle
- Other: Shorebirds, waterfowl
- Heron
- Songbirds

Mammals:
- Deer
- Elk
- Other: coyote, bats, marine mammals
- Bear
- Beaver

Fish:
- Bass
- Trout
- Shellfish
- Salmon
- Herring
- Other: surf smelt
b. **List any threatened and endangered species known to be on or near the site.**

There are no threatened or endangered species documented on the terrestrial portion of the renewable diesel plant project site. In addition, no suitable habitat for these species exists on the terrestrial portion of the project site.

Table 3 lists threatened or endangered species and/or designated critical habitat known to occur nearby in the Strait of Georgia.

**Table 3. Threatened or Endangered Species and Designated Critical Habitat in the Strait of Georgia**

<table>
<thead>
<tr>
<th>Species Under USFWS Jurisdiction</th>
<th>ESA Status</th>
<th>Critical Habitat Designated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull Trout <em>Salvelinus confluens</em></td>
<td>Threatened</td>
<td>Designated in Action Area</td>
</tr>
<tr>
<td>Marbled Murrelet <em>Brachyramphus marmoratus</em></td>
<td>Threatened</td>
<td>Not Designated in Action Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species Under NMFS Jurisdiction</th>
<th>ESA Status</th>
<th>Critical Habitat Designated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bocaccio (Puget Sound/Georgia Basin DPS) <em>Sebastes paucispinis</em></td>
<td>Endangered</td>
<td>Designated in Action Area</td>
</tr>
<tr>
<td>Chinook Salmon (Puget Sound ESU) <em>Oncorhynchus tshawytscha</em></td>
<td>Threatened</td>
<td>Designated in Action Area</td>
</tr>
<tr>
<td>North American Green Sturgeon (Southern DPS) <em>Acipenser medirostris</em></td>
<td>Threatened</td>
<td>Not Designated in Action Area</td>
</tr>
<tr>
<td>Pacific Eulachon (Columbia River Smelt) (Southern DPS) <em>Thaleichthys pacificus</em></td>
<td>Threatened</td>
<td>Not Designated in Action Area</td>
</tr>
<tr>
<td>Steelhead (Puget Sound DPS) <em>Oncorhynchus mykiss</em></td>
<td>Threatened</td>
<td>Not Designated in Action Area</td>
</tr>
<tr>
<td>Yelloweye Rockfish (Puget Sound/Georgia Basin DPS) <em>Sebastes ruberrimus</em></td>
<td>Threatened</td>
<td>Not Designated in Action Area</td>
</tr>
<tr>
<td>Humpback Whale (Mexico DPS, Central America DPS) <em>Megaptera novaeangliae</em></td>
<td>Endangered Threatened</td>
<td>Not Designated</td>
</tr>
<tr>
<td>Killer Whale (Southern Resident DPS) <em>Orcinus orca</em></td>
<td>Endangered</td>
<td>Designated in Action Area</td>
</tr>
</tbody>
</table>

Sources: NMFS 2019; USFWS 2019

DPS = Distinct Population Segment; ESA = Endangered Species Act; ESU = Evolutionarily Significant Unit; NMFS = National Marine Fisheries Service; USFWS = U.S. Fish and Wildlife Service

Nearshore aquatic habitat near the temporary barge landing site provides migration and rearing habitat for juvenile salmonid species including, but not limited to, Chinook salmon.
and bull trout. However, it is important to note that proposed barge landings would occur within the WDFW construction window for juvenile salmon and bull trout. Therefore, direct impacts to threatened or endangered species are anticipated to be extremely unlikely for this portion of the project.

c. **Is the site part of a migration route?** Yes ☒ No ☐

If so, explain.

While the renewable diesel plant project site is not part of a specific known migration route, it is located within the migratory route of many bird species and is part of the Pacific Flyway, which stretches almost the entire width from the Pacific Ocean to the Cascade Range foothills and is a major north-south route of travel for migratory birds in the Americas extending from Alaska to Patagonia. WDFW has mapped biodiversity areas and corridors north of the refinery along the coast (WDFW 2019).

The proposed renewable diesel plant project would not affect the use of known migratory bird routes through the area.

d. **Proposed measures to preserve or enhance wildlife, if any:**

Barge landings: Work would be conducted within agency-approved work windows, and a surf smelt survey would be conducted no more than 72 hours prior to the first landing to verify presence or absence of surf smelt spawning.

Refer to Section 7.a for proposed spill preventative measures. Refer to Section 7.b.(3) for proposed underwater noise preventative measures and vessel speed mitigations.

The renewable diesel plant project commits to a blended transportation approach described in Section 14 that utilizes marine vessels, manifest trains, and trucks. This blended transportation scenario reduces the potential vessel traffic, which minimizes the potential impacts on Endangered Species Act (ESA)-listed marine organisms, including the Southern Resident killer whale (SRKW), from project-related vessel traffic by minimizing vessel traffic through south Rosario Strait.

e. **List any invasive species known to be on or near site.**

No invasive animal species are known to be on or near the site.

### 6 Energy and Natural Resources

a. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project’s energy needs? Describe whether it will be used for heating, manufacturing, etc.**

Natural gas would be used as feed and fuel for the hydrogen plant and renewable diesel facility. A portion of the natural gas would be supplied by biogas generated onsite as part of the waste water treatment process, incremental natural gas would be sourced from commodity natural gas suppliers available to the grid in Whatcom County, the majority of which is sourced from Canada. Fuel gas may be used as a supplemental fuel to the new hydrogen plant and renewable diesel facility and would be supplied from Phillips 66 Ferndale Refinery systems.
Hydrogen would be used for the renewable diesel plant reaction process. A third-party hydrogen plant would be constructed as part of the renewable diesel plan project. Green Apple proposes to install a hydrogen reformer with a capacity of 45 million standard cubic feet per day. If there is excess hydrogen, Green Apple may choose to sell it to the Phillips 66 Ferndale Refinery as available. The potential-to-emit emissions for the new hydrogen plant are included in the Green Apple air permit application.

Steam generated by the Green Apple renewable diesel plant would be used for process heating for the renewable diesel plant. Excess steam would be exported to the Phillips 66 Ferndale Refinery to increase the efficiency of both processing facilities.

Electricity would be used to drive rotating equipment and may be used for freeze-protection heating. The processing facility would provide its own Power Distribution Center, which would be separate from the rest of the refinery.

The Whatcom County PUD has identified several existing and potential new sources of new renewable power (hydroelectric, electricity from local digesters, solar), which may be available for purchase by Green Apple. Additional definition regarding the source of existing electricity supply is provided in section A.11. Green Apple is interested in sourcing its power needs from these renewable sources as a means to further reduce the renewable diesel plant’s carbon intensity. However, such discussions are preliminary and will require further diligence before the Green Apple team is able to incorporate them into the project plan.

b. Would your project affect the potential use of solar energy by adjacent properties?  Yes ☐  No ☒

If so, generally describe.

The project would not shade adjacent properties or affect the potential use of solar energy on adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The renewable diesel facility would be built with the same approach that has resulted in the Ferndale Refinery achieving Energy Star status (one of five refineries in the country).

All pumps, motors, and electrical equipment would be high efficiency, and all renewable diesel plant process technology equipment would include the most energy efficient systems for proficient operations. The facility is designed to recover process heat to minimize natural gas usage.

Heated storage tanks and piping would be insulated for energy conservation.

Integration with the existing Phillips 66 Ferndale Refinery utility systems creates opportunities for increased energy efficiency. Steam systems would be integrated to reduce venting of low-pressure steam. Integration of amine and sulfur recovery provides energy and resource-efficient conversion of sulfur to a useful byproduct instead of a waste material that requires landfill disposal. See Section B.2.c for additional description of measures to improve energy efficiency and reduce air emissions.

Logistical planning would be optimized to minimize the number of trips and third-party impacts.
In construction, materials would be sourced locally when practical.

7 Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? Yes ☒ No ☐

The renewable fuel feedstocks are combustible FOG materials, and the renewable fuel products have vapor pressures in the range of 0.005 to 6 psia. These renewable fuels are produced in controlled processes, but the risk of spill and fire exist in the transportation of these materials. The renewable propane has a vapor pressure similar to traditional petroleum propane and is transported in rated railcars or trucks. This section will be supplemented with information from the Transportation Study focused on marine and rail transport of renewable feedstocks and renewable fuel products.

There are no typical hazardous waste streams associated with the proposed renewable diesel facility. During annual maintenance shutdowns, depleted catalysts from the renewable diesel plant containing heavy metals would be recycled for metal recovery.

The only HAP associated with the renewable diesel facility is n-hexane, which is emitted in low concentrations as a fugitive air emission from storage tanks and piping components. The majority of the n-hexane is a renewable naphtha impurity and sent out with that product.

Marine diesel fuel and renewable diesel are not viscous or sticky like crude oil. A large fraction of such a spill onshore would evaporate, while the remainder would wash off the shoreline due to wave action and would be flushed out during low tides. Some renewable diesel or marine diesel stranded on shorelines could penetrate between the pore spaces of sediments, where it would degrade over time.

FOG is generally a thick viscous liquid or a gel, practically insoluble, chemically stable, with no hazardous ingredients that may dissolvo into the environment. There are typically no acute health effects (eye, inhalation, skin, or ingestion) associated with a FOG release. It is capable of burning and requires foam, dry chemical, or carbon dioxide to extinguish if on fire. A large spill in a waterbody could be a source of oxygen demand during decomposition. While FOG compounds will biodegrade, they can also persist congealed on the water surface or solid surfaces, and bioremediation can accelerate the natural breakdown of these substances. While both renewable diesel and marine diesel would evaporate into the atmosphere, renewable diesel is safer in terms of ignitability, having a higher flashpoint (a minimum of 60°C – “combustible” according to DOT regulations rather than “flammable”), thereby requiring a higher temperature before potentially igniting.

See Appendix D for example Safety Data Sheets for renewable diesel, renewable naphtha, renewable propane, and renewable jet fuel.

If so, describe.

Risk of exposure to potentially toxic chemicals present in some of the bulk liquids would require compliance with current health, safety, and operational requirements that would limit potential impacts and provide for adequate analysis and mitigation of potential adverse impacts in accordance with the Revised Code of Washington (RCW) 43.21C.240. Toxic BACT are applied to any sources of state TAPs listed in Washington Administrative Code (WAC) 173-460. Most of the new TAPs emissions are from new combustion and storage tank sources associated with the renewable diesel plant project; these emissions are below the acceptable
Small Quantity Emissions Rate and should not have adverse impacts beyond the facility fence line.

The risk of fire and explosion would be addressed by compliance with standards of the International Fire Code that would limit impacts and provide for adequate analysis and mitigation of potential adverse impacts in accordance with RCW 43.21C.240. Some of the bulk liquids are flammable. If these substances are involved in a spill, there is a potential to ignite. Fire would most likely be restrained to the site. The Phillips 66 Ferndale Refinery would provide firefighting and emergency response for Green Apple. The renewable diesel project site would be designed for emergency vehicle access.

Spill prevention plans for all materials would be implemented. Marine and rail shipping would require oversight by trained personnel during product transfer. All Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act health and safety requirements would be followed. On-site equipment-specific training would be required for applicable employees.

All storage tanks and land product transfer areas would be contained. If a spill occurs, the product would be contained on-site.

Specific railroad safety requirements related to the carriage of hazardous materials are outlined in 49 CFR 171-174 and 178-180. These regulations address specific actions that must be taken by railroads, including emergency response and railroad tank car design. They also include incident reporting requirements and preventative measures, such as the manner in which hazardous materials are contained, the manner in which employees are trained, and the way in which railcars must be handled.

In addition, 49 CFR Parts 200-299 regulate the operation of trains, identify minimum safety standards for track and equipment (and set higher minimum standards for tracks over which hazardous materials are transported), and identify reporting requirements (in addition to the reporting requirements in 49 CFR Parts 171-180). The potential for rupture of railroad tank cars is dependent on both the design/construction of the cars and the speed at which they operate. The speeds on the Burlington Northern Santa Fe (BNSF) Railroad are within the range in which head and shell impacts from derailment are less likely to result in rupture (Tyrell 2007). If a spill would occur during rail transit, the railroads must notify the National Response Center, the State Emergency Management Division, and the appropriate regional office of Ecology.

According to the Association of American Railroads (2008), 99.998 percent of rail shipments involving hazardous materials are completed without a release caused by a train accident. According to the American Petroleum Institute (API 2009) only 0.73 percent of the annual U.S. oil spillage between 1998 and 2007 is attributed to railroads. Rail cars carrying renewable diesel and other refined products that are involved in train accidents do not necessarily spill their contents. A study of rail spills in Washington State found that, since 1975, about 21 percent of collisions, derailments, and other accidents involving trains carrying hazardous materials resulted in a spill. Between 2005 and 2015, only 19 percent of such accidents resulted in spills (Etkin et al. 2017). Project-related rail activity would represent an incremental increase in overall rail activity in the project area. Overall, the risk of spill of renewable feedstock, renewable diesel, or other materials associated with the renewable diesel plant during rail transit that could occur due to this proposal is relatively low.

The rail line to the proposed Green Apple renewable diesel plant crosses numerous streams and wetlands on fill, bridges, and trestles. Bridges and trestles are addressed by management programs under the Rail Safety Improvement Act of 2008 that include inspection and
maintenance programs. Spills at locations where water resources may be affected are subject to higher inspection and maintenance requirements and may be considered somewhat less likely than on other portions of the rail line.

If a spill occurs during over-water transfers of feedstock or product, the ICP would be followed, which would limit impacts and provide for adequate analysis and mitigation of potential adverse impacts in accordance with RCW 43.21C.240. Ecology and the USCG would be notified to oversee and assist with containment. Phillips 66 has prepared spill modeling for existing products from the Phillip 66 Ferndale Refinery. If is determined that Green Apple is a new stand-alone company that is deemed a “Class 1 facility” [as defined by WAC 173-180-025(8)], a facility-specific ICP would be developed in accordance with Ecology and EPA requirements. Also, a facility-specific Oil Spill Prevention Plan and an Operations Manual would be developed in accordance with Ecology and EPA requirements. Lastly, a written Training and Certification Program that addresses all oil-handling personnel and Persons-in-Charge (PICs) at the facility/dock would be developed in accordance with Ecology requirements. If it is determined that Green Apple will be deemed an expansion of the existing Phillips 66 Ferndale Refinery (which is already operating as a Class 1 facility) and not a new stand-alone company, the Phillips 66 Ferndale Refinery would revise their already approved ICP, Oil Spill Prevention Plan, Operations Manual, and written Training & Certification Program.

Table 4 summarizes the 2016 Vessel Traffic Risk Assessment study for the region. This study evaluated the likelihood of four size categories of spill events from vessels based on historical spill data from 1990 to 2015. The study’s “base case,” as summarized in Table 4, projects future spill likelihoods with no additional marine vessel traffic (i.e., from the proposed project or other proposed projects in the region).

**Table 4. Vessel Spill Risk for Various Spill Volumes**

<table>
<thead>
<tr>
<th>Spill Volume Category (barrels)</th>
<th>Average Spill Size in Category (barrels)</th>
<th>Likelihood of at Least One Spill (all tankships)</th>
<th>In the next 25 years</th>
<th>In the next 10 years</th>
<th>In any single year</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 15,725</td>
<td>42,758</td>
<td></td>
<td>1.2</td>
<td>0.5</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>6,290 – 15,725</td>
<td>10,183</td>
<td></td>
<td>1.5</td>
<td>0.6</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>6.3 – 6,290</td>
<td>295</td>
<td></td>
<td>85.8</td>
<td>54.20</td>
<td>7.5</td>
</tr>
<tr>
<td>&lt; 6.3</td>
<td>0.05</td>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>98.7</td>
</tr>
</tbody>
</table>

Source: Vessel Traffic Risk Assessment study (Merrick and van Dorp 2016)

Changes in marine spill risk are directly correlated to changes in vessel traffic. The proposed project would add less than one vessel movement per day to the northern Salish Sea, compared to dozens of existing large vessel trips per day in the same waterways. These additional project-related trips would result in an incremental increase in spill risk; however, the overall likelihood of a spill—particularly the >15,725 bbl spill category listed in Table 4—would remain low (i.e., less than a 0.1 percent chance of occurring in any single year), for any vessel in the Salish Sea, including project and non-project vessel.

Since the 1970s, federal laws and international conventions have resulted in safer vessel designs (use of multiple independent tanks within the tankship, rather than one single large tank, double hulls, improved navigation systems), improved oil spill readiness and response, and coordinated vessel traffic management (see 33 CFR 161) in congested areas such as Puget Sound. These regulatory changes tend to reduce overall spill likelihood and minimize the
impacts associated with spills. For example, mandatory use of double hulls in tankships (following major U.S. regulatory changes in the 1990s) has been shown to decrease the size of spills from tankers and tank barges (Merrick and van Dorp, 2016). Other safety improvements and technological advances help prevent or reduce the frequency of marine accidents (e.g., events that could cause spills in the first place). These include safer ship designs, improved navigation systems, vessel traffic systems, and double pilotage (33 CFR 161).

Response to vessel spills in Washington State is coordinated by the Ecology Spill Prevention, Preparedness, and Response Program, which includes a number of elements, including the following (Ecology 2019):

- Review and approval of spill contingency plans maintained by operators to assure that plan holders and spill response contractors maintain their readiness through scheduled and unannounced drills
- Partnerships with other agencies to maintain a regional contingency plan that guides how spills are managed in the Northwest
- Development and update of Geographic Response Plans (GRPs) in consultation with other natural resource experts and communities
- Inspection of facilities, vessels, and oil-handling facility transfers
- Rapid response to and cleaning up oil and hazardous material spills
- Restoration of public natural resources damaged by oil spills

The GRP is intended to help the first responders to a spill and serves as the federal and state on-scene coordinators “orders” during a spill.

All response strategies fall into one of three major categories that may be used either individually or in combination: use of dispersants, in-situ burning, and mechanical recovery and protection.

In the event of a release of marine diesel fuel or renewable diesel that requires spill response, it is unlikely that conditions would be appropriate for dispersants or in situ burning. When in situ burning or dispersants are not appropriate, key mechanical recovery strategies are skimming and use of collection, diversion, or exclusion booming to contain and recover the feedstock or product. These measures prevent the materials from entering areas with sensitive wildlife and fisheries resources. Specific skimming strategies are not listed in the maps and matrices, but skimming would be used whenever possible and necessary, and is often the primary means of recovering products and protecting resources, especially when booming is not possible or feasible.

The GRP identifies geographic areas where spills are likely to occur; identifies sensitive resources that would likely be affected within the initial hours of the spill; and identifies booming strategies for each of the “Potential Spill Origins” based on the sensitivity of resources, feasibility, etc. Control and containment at the source are the number one priority of any response (Ecology 2019).

Because marine diesel fuel and renewable diesel would generally evaporate and degrade on its own (as described above), renewable diesel or marine diesel fuel contacting shorelines may not require a cleanup response. However, as applicable, spills would be addressed through application of absorbent material and/or sorbent booms, and booming may be used to protect sensitive areas from contact or divert spilled material towards a collection point.

As described above (see Table 4 and associated discussion), the overall risk of spill of marine diesel fuel or renewable diesel from Project vessels is relatively low. Compliance with the
programs for spill avoidance administered by the USCG, USEPA, and Ecology would limit impacts and provide for adequate analysis and mitigation of potential adverse impacts in accordance with RCW 43.21C.240. Through the implementation of an SPCC Plan and Integrated Contingency Plan (ICP), the Project would address the risks of potential spills during the loading and unloading process.

The existing Phillips 66 Ferndale Refinery maintains an ICP that incorporates the requirements in the following regulations:

- USCG Facility Response Plan requirements, 33 CFR 154
- USEPA’s Oil Pollution Prevention, 40 CFR 112.7(d) and 112.20-.21
- USEPA’s RCRA Contingency Planning requirements, 40 CFR Part 265, Part D
- Ecology Oil Spill Prevention and Contingency Planning requirements, WAC 173-182
- Ecology Dangerous Waste Regulation, WAC 173-303-145

The existing Phillips 66 ICP would be updated, or a new Green Apple ICP would be developed, to maintain compliance with the regulations listed above, as applicable, and reflect the largest tank storage proposed for the new renewable diesel facility (164,000 bbl) and the resultant on-water storage required (approximately 16,400 bbl for the 6- and 12-hour timeframe). In addition, Green Apple would contract with local and national spill response companies to provide the required 20,000 bbl and 26,800 bbl (24- and 48-hour timeframe respectively) on-water storage. It is important to note that all inbound and outbound vessels would be covered by the Washington State Maritime Cooperative (WSMC) Oil Spill Contingency Plan.

In addition, Green Apple would follow the Facility Transfer Operations Manual and/or BMPs before, during, and after the transfer of material, including the following actions:

- Notify WSMC and Ecology of any vessels arriving as soon as the vessel is confirmed. Vessels calling on the Phillips 66 Ferndale Refinery must be enrolled with WSMC or have a state-approved contingency plan.
- Identify the worst-case discharge volume of the vessel and communicate it to WSMC, the spill response contractor, and Ecology.
- Maintain a response vessel on-site. An on-site response vessel is available at the Ferndale Refinery dock at all times.
- Arrange for third party to provide a skimmer vessel (oil spill response vessel) positioned at the dock during transfer.
- Implement pre-booming if it is safe and effective per Ecology-approved Safe and Effective threshold determination criteria, or arrange for a third party to provide a boom boat positioned at the dock during transfer.
- During the entire transfer operation, ensure that a Terminal Person in Charge would be in attendance at the dock, and a required Vessel Person in Charge would be in attendance at the vessel.

The largest vessel expected to be loaded or unloaded at the facility is a Panamax class vessel (60,000 to 80,000 deadweight tons) and 300,000 to 350,000 bbl of cargo capacity. Ocean-going barges would also be loaded with capacities of up to 330,000 bbl. These ships and barges are subject to USCG, state, and federal design, construction, and operation regulations. Oil tankers must be double hulled at ports/terminals. General tankage layouts tend to be one to six port-and-starboard cargo tanks with slops port-and-starboard used in some cases to hold cargo. General engineering, cargo handling, and navigation systems are regulated in the U.S. by the USCG. Class societies such as the American Bureau of Shipping and Det Norske
Veritas, Ship Owners Policy, Flag State Requirements, and various state and governmental agencies also establish standards and certify vessel adherence to these standards.

In addition, Green Apple would follow the recently enacted regulations under House Bill 1578 (revised RCW 88.16.190 per Engrossed Substitute House Bill [ESHB] 1578) requiring tug escort for transits through Rosario Strait. Oil tankers of certain sizes are already required to have a tug escort. All renewable feedstock or renewable fuel tankers between 40,000 and 125,000 deadweight tons, possessing specified equipment and characteristics (such as double hulls), must be escorted through Puget Sound, Haro Strait, Boundary Pass, and portions of the Strait of Georgia by a tug or tugs with combined horsepower of, or equivalent to, at least 5 percent of the deadweight tonnage of the escorted tanker (RCW 88.16.190). In addition, the recently enacted ESHB 1578 requires tug escort in Rosario Strait and connected waterways to the east for laden oil tankers of between 5,000 and 40,000 deadweight tons and for articulated tug-barges and certain towed waterborne vessels of at least 5,000 deadweight tons, beginning in 2020.

(1) Describe any known or possible contamination at the site from present or past uses.

A historical review as part of an Environmental Site Assessment has been completed for the affected areas. There are known and suspected contaminants on portions of the proposed site. Additional soil samples would be taken during geotechnical boring activities to further define site contamination.

(2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are known underground liquid and gas transmission pipelines at the site. Site design would protect these during construction and future use.

(3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project’s development or construction, or at any time during the operating life of the project.

During renewable diesel facility operation, the processing facility would generate renewable diesel, renewable naphtha, renewable propane and (future) renewable jet fuel products, and waste products consisting of sour water and spent filter medium (diatomaceous earth, sand, and FOG). The process would store, use, or produce the toxic and hazardous substances listed below. The process, as designed, does not produce hazardous waste. Green Apple anticipates being a Small Quantity Generator (SQG) of hazardous waste for irregular disposal of unused materials below if they become unfit for purpose.

- dimethyl disulfide
- Hydrogen sulfide (reaction byproduct)
- Citric acid solutions
- Phosphoric and/or nitric acid (chemical cleaning) solutions
- Caustic solutions
- Fuel additives
- Lean and rich amine
- Hydrogen
- Fuel gas
- Petroleum diesel
- Catalysts (oxide form and spent form) that contain nickel, molybdenum, iron sulfide, platinum, and palladium, plus other compounds from waste oils (e.g., sodium, calcium, magnesium, and phosphorus, etc.)
- Oxygen/acetylene for torches during construction

The renewable diesel product is “combustible” (flash point 60 to 94°Celsius [C]). The renewable naphtha, renewable jet fuel, and renewable propane are “flammable” (flash point < 60°C). The renewable fuel products are not toxic by any regulatory standard but do have an aspiration hazard by OSHA definition (similar to vegetable oil).

All toxic and hazardous chemicals stored, used, or produced would be subject to applicable laws and regulations such as Emergency Planning & Community Right-to-Know Act (EPCRA) requiring reporting of hazardous materials to local emergency planning agencies. Under the OSHA Process Safety Management of Highly Hazardous Chemicals standard, a comprehensive management program for hazardous materials would be implemented and followed to protect worker safety. In accordance with the Risk Management Plan Rule (Section 112(r) of the 1990 Clean Air Act amendments), the Green Apple facility would develop an RMP for submittal to USEPA that identifies the potential effects of a chemical accident, identifies steps the facility is taking to prevent the accident, and spells out emergency response procedures should an accident occur. This plan would be revised and resubmitted to USEPA every 5 years during the facility operation. Transport of hazardous materials on highways and other roadways would follow all applicable federal, state, and local regulations.

The solid waste products are considered non-hazardous waste and would be disposed of accordingly. The spent filter medium would be stored in an on-site dumpster and then transported off-site to a facility approved for handling non-hazardous industrial waste. Similar solid waste from the REG Grays Harbor facility is currently disposed of at an Oregon landfill. The Green Apple facility’s solid wastes would be disposed of at a non-hazardous, industrial waste landfill in Oregon or Washington.

Wastewater would be routed to the Phillip 66’s Ferndale Refinery WWTP after pretreatment by the renewable diesel facility’s anaerobic or aerobic digester.

(4) Describe special emergency services that might be required.

No new emergency services would be required.

If fire, ambulance, and emergency medical services are required, these services will be contracted and provided by trained on-site Phillips 66 Ferndale Refinery personnel who are prepared and available to provide emergency services within the proposed project area. The Phillips 66 Ferndale Refinery would provide firefighting, emergency response, and firewater for the new renewable diesel facility. If necessary, Whatcom County Fire District Seven has stations in Ferndale with personnel who would respond as needed. The nearest station (Station 42) is approximately 5 miles east of the proposed Green Apple project.
(5) Proposed measure to reduce or control environmental health hazards, if any:

Industry standard or established safe work practices and policies would be followed to reduce or control environmental health hazards. Industry standard health, safety, and environmental management policies would be implemented and followed to reduce hazards.

Specific plans related to spill prevention and stormwater management would be developed specifically for the proposed Green Apple project.

Green Apple would have significant procedures and engineering controls in place to prevent releases of renewable raw materials and renewable products that would be loaded and unloaded. The bulk tank farm would be constructed to API 650 standards with impervious containment to capture the largest tank and accumulated precipitation. See section B.3.c for additional description of tank secondary containment. Tanks would be equipped with over-pressure protection, high-level alarms, and emergency overflows into the containment area. Tanks would be inspected and repaired in accordance with the most recent revision of API 653. Rail car loading and unloading would be conducted only in contained areas.

The pipelines would be of welded steel, constructed per the American Society of Mechanical Engineers (ASME) B31 Code for Pressure Piping, and tested per applicable regulations including API 570 piping inspection requirements.

Unloading operations would be continuously staffed during all transfer operations. The loading/unloading operations would be in compliance with the U.S. Oil Pollution Control Act and in conformance with a SPCC Plan certified by a Registered Professional Engineer.

The Green Apple project would be designed to meet building setbacks for renewable fuel storage, collection vents, and flame arrestors on tanks and would not allow open flames on-site.

The renewable naphtha storage tank risks would be mitigated with full tank containment, foam blanketing fire suppression, and suppression (floating roof) of vent gases.

b. These measures would limit impacts and provide for adequate analysis and mitigation of potential adverse impacts in accordance with RCW 43.21C.240.

(1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The Green Apple project would occur in an active industrial and shipping area. Noise from existing vehicle traffic on adjacent roads and rail traffic on the BNSF Custer spur as well as low-level industrial operations and construction noise from other areas within the adjacent Phillips 66 Ferndale Refinery complex may be detected from the Green Apple project site; however, such noise would not adversely affect the Green Apple project.

(2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.
Airborne Noise
During construction, temporary noise increases would be associated with construction activities. Construction activities are expected to occur during daylight hours. Whatcom County Code (WCC) 20.68.705, Noise, references WAC 173-60, Maximum Environmental Noise Levels. WAC Section 173-60-050, Exemptions, states that sounds from temporary construction site activities are exempt between the hours of 7:00 a.m. and 10:00 p.m.

Construction activities and equipment, including dump trucks, excavation haul trucks, and other diesel trucks, backhoes, concrete mixers, terrestrial pile drivers, rock drills, forklifts, cranes, and excavators have maximum noise levels that range from 85 decibels on the A-weighted scale (dBA) to 105 dBA at 50 feet away. Noise levels decrease with increasing distance from the construction site; at a distance of 1,600 feet, noise levels drop by approximately 30 dBA. Refer to Section 7.b.3 for mitigation measures during construction.

Noise associated with temporary marine barge landings at Gulf Road may include short-term heavy equipment use for construction of a temporary barge ramp system, as well as tug and/or winch trucks for barge maneuvering and stabilization. Noise levels are expected to be consistent with or less than construction-related noise at the project site.

Noise associated with Green Apple facility operation would include pumps, compressors, cooling towers, and other typical sounds of a renewable diesel production facility. Green Apple equipment would be smaller than existing Phillips 66 equipment. The noise level during Green Apple operation is expected to be unchanged from current operations at the existing Phillips 66 Ferndale Refinery.

Underwater Noise
Underwater noise sources from the project would be limited to operation of marine vessels and can vary by hour, day, and month. Operation of the proposed Green Apple project would result in an increase in three types of marine vessels (tankers, tug-barges, and assist tugs), all of which are comparable to those currently found in waterways within the project area. Noise generated from marine vessels associated with the Green Apple project would be intermittent, with only temporary exposures at any given location along the variety of vessel routes based on existing vessel traffic. Green Apple project-related vessel movements would represent small increases in large vessel activity in project area waterways.

(3) Proposed measures to reduce or control noise impacts, if any:

Airborne Noise
Equipment at the site would be installed with thermal insulation to maximize energy efficiency. Thermal insulation would reduce noise. Specific noise reduction measures have not been considered.

Construction noise is expected to be relatively short term and temporary in nature. However, noise mitigation measures including, but not limited to, the following may be implemented as applicable:

- Compliance with applicable local and state regulatory provisions related to noise
- Incorporation of industry best management practices into construction plans and contractor specifications
• Use of standard manufacturer’s equipment (e.g., mufflers on engines, intake silencers, engine enclosures)
• Use of quieter equipment or construction practices
• Turning off construction equipment when not in use
• Limiting noisier construction activities to hours between 7 a.m. and 10 p.m.

**Underwater Noise**

Vessel noise (including vessels and tugs) is expected to be intermittent, with only temporary exposures at any given location along the vessel route. Vessel traffic noise impacts on the SRKW would be reduced by following recently enacted regulations in Washington and Canada and by implementing the following mitigation measures when navigationally safe to do so:

- In U.S. waters, where applicable and as required under 2SSB 5577 (revised RCW 77.15.740): reduce vessel speed to 7 knots, when navigationally safe to do so, within 0.5 nautical mile (nm; 1,013 yards) of SRKW; maintain distance of 300 yards or greater from a SRKW; and maintain distance of 400 yards or greater behind or in the path of a SRKW. Note that vessels within a VTS area that are following a TSS or complying with a vessel traffic service measure of direction are exempt from these requirements.

- In Canadian waters in the study area, as required under Canada’s revised marine mammal protection measures: reduce vessel speed to 7 knots when navigationally safe to do so, within 1,000 meters (0.54 nm) of SRKW; maintain distance of 400 meters (437 yards) or greater from a SRKW; and turn off echo sounders and turn engines to neutral when within 400 meters (437 yards) of SRKW.

- In U.S. and Canadian waters of Haro Strait and Boundary Pass: adhere to voluntary vessel slowdown procedures during the summer months of June through October, including maintaining 11.5 knots or less, when navigationally safe to do so, as recommended by the Enhancing Cetacean Habitat and Observation (ECHO) Study Program led by the Vancouver Fraser Port Authority since 2017.

- In U.S. waters of Rosario Strait: adhere to the voluntary Puget Sound Harbor Safety Committee (PSHSC) published “Standards of Care” recommendations for a vessel speed not exceed 10 knots when transiting Rosario Strait.

Like all terminal operators in the Salish Sea, Green Apple has no regulatory authority over the speed, navigation, or technology used aboard vessels at sea. As a result, Green Apple cannot require or enforce compliance with regulatory requirements or mitigations described above. However, Green Apple would cooperate with regional efforts to implement a voluntary underwater noise mitigation strategy for vessels (including Project-contracted vessels) to document noise sources and consider common technologies and measures to reduce the amount of underwater-radiated noise.

**8 Land and Shoreline Use**

**a. What is the current use of the site and adjacent properties?**

The proposed Green Apple project is within the boundaries of the Phillips 66 Ferndale Refinery property, which is associated with heavy industrial uses. Most of the property has been developed, although the southern portion, south of 6th Street, is largely undeveloped. Properties to the north of the proposed Green Apple project site include an aluminum smelter owned and operated by Alcoa and liquefied petroleum gas operations owned and operated by Petrogas, which are both heavy industrial uses. Properties to the south of the Phillips 66
Ferndale Refinery include single-family residential on larger lots, single-family residential developments, and vacant land. The nearest single-family residence is approximately 800 feet from the proposed project, and the majority of single-family properties are approximately 1,600 feet southwest of the proposed project. Properties to the east are associated with light industrial and residential uses.

**Will the proposal affect current land uses on nearby or adjacent properties?**
- Yes ☑
- No ☐

If so, describe.

Not applicable.

b. **Has the project site been used as working farmlands or working forest lands?**
- Yes ☑
- No ☐

If so, describe.

The site was used as working farmland in the first half of the twentieth century. Since the refinery’s construction in 1954, the site has not been used for agricultural purposes.

**How much agriculture or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any?**

None. No agricultural or forest lands of long-term commercial significance have been designated by Whatcom County within the existing perimeter of the Phillips 66 Ferndale Refinery.

**If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to non-farm or non-forest use?**

None.

(1) **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling and harvesting?**

- Yes ☐
- No ☑

If so, how:

No surrounding working farm or forest land would affect or be affected by the proposal.

c. **Describe any structures on the site.**

The site where the Green Apple facilities would be constructed is currently a vacant field with no structures, located adjacent to the Phillips 66 Ferndale Refinery. However, the new tanks, pipelines, and other project components will be located among existing Phillips 66 Ferndale Refinery infrastructure in order to minimize disturbance of land that would be associated with duplicating such infrastructure within the main Green Apple renewable diesel facility footprint. In addition, the Puget Sound Energy Ferndale Generating Station is a 270-megawatt plant that is directly south of the proposed Green Apple facility.

d. **Will any structures be demolished?**
- Yes ☐
- No ☑

If so, what?

No structures within the project area would be demolished.
e. **What is the current zoning classification of the site?**

The Whatcom County Zoning Designations map indicates that the site is zoned as Heavy Impact Industrial (HII).

f. **What is the current comprehensive plan designation of the site?**

The Whatcom County Comprehensive Plan designation for the site is Major Port/Industrial Urban Growth Area. The site is located within the Cherry Point Urban Growth Area.

g. **If applicable, what is the current shoreline master program designation of the site?**

The proposed permanent Green Apple project components would be constructed outside the jurisdiction of the Whatcom County Shoreline Management Program (WCC Title 23). Temporary barge landings would occur within the Cherry Point Management Area shoreline designation.

h. **Has any part of the site been classified as a critical area by the city or county?** Yes ☒ No ☐

**If so, specify.**

Geologically Hazardous Areas (marine landslide hazard areas) are within the Phillips 66 Ferndale Refinery boundary, but they do not overlap project construction areas.

The Green Apple project area includes a high-susceptibility, 10-year travel time wellhead protection zone and also includes areas where the aquifer susceptibility is unassessed.

Mapped Habitat Conservation Areas (HCAs) are associated with the western portion of the Phillips 66 Ferndale Refinery property, and a riparian area in the southeast corner of the Phillips 66 Ferndale Refinery property. Neither of these HCAs overlaps proposed Green Apple project areas.

Wetlands are identified on the Whatcom County Critical Areas Ordinance map. Wetlands have been delineated in the Green Apple project footprint and are discussed in Section B.3.a.

i. **Approximately how many people would reside or work in the completed project?**

No one resides on the site or would reside on the site during project construction or operation. The proposed Green Apple project would require approximately 100 new full-time workers.

**Approximately how many people would the completed project displace?**

None.

j. **Approximately how many people would the completed project displace?**

None.

k. **Proposed measures to avoid or reduce displacement impacts, if any:**

Not applicable.
I. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed Green Apple project is located within the Cherry Point Major Port/Industrial Urban Growth Area, and is zoned as Heavy Impact Industrial. The proposed Green Apple project is a permitted use in this zone based on the Whatcom County Zoning Ordinance (WCC Chapter 20.68) and would be developed in accordance with applicable land use plans, codes and regulations.

The Green Apple project would comply with the Cherry Point interim moratorium:

- The project would not increase the currently permitted annual crude petroleum throughput of the existing Phillips 66 Ferndale Refinery.
- The project’s purpose is to construct a renewable diesel production facility that would process renewable FOG feedstocks into renewable fuels. The Green Apple project does not include new or expanded facilities that would facilitate increased shipment of unrefined fossil fuels not to be processed or consumed at Cherry Point.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any?

Not applicable. There are no nearby agricultural or forest lands of commercial long-term significance that the proposed project could affect.

9 Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units would be provided as part of the proposed project.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units would be eliminated as part of the proposed project.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable, as the proposed project would not affect housing.

10 Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Other than the Green Apple flare stack, the tallest structure would be the hydrogen plant heater stack, at approximately 100 feet tall. This stack would be shorter than most heater stacks and the flare stack at the Phillips 66 Ferndale Refinery.

Green Apple is premised to have a dedicated flare stack that would be less than 198 feet tall and shorter than the existing flare stack at the Phillips 66 Ferndale Refinery.
b. What views in the immediate vicinity would be altered or obstructed?

The site is located within an industrially zoned area. There are no known views in the immediate vicinity that would be altered or obstructed as a result of the project. The project site is located within the existing perimeter of the Phillips 66 Ferndale Refinery, and the site is surrounded by operating refinery process units, tankage, and the Puget Sound Energy Ferndale Generating Station. Therefore, the proposed Green Apple project is not expected to alter views in the immediate vicinity.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None required other than landscaping described in Section B.4.d of this checklist.

11 Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Construction would require temporary lighting, including equipment lights and portable lighting structures during the fall and winter when daylight is shorter. New lighting associated with the Green Apple project would be installed as needed for worker safety and operations. Lights on the completed renewable diesel facility would be operated at night.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light or glare from the finished Green Apple project would not be a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

Existing off-site sources of light or glare would not affect this proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:

During construction and operation of the Green Apple plant, lighting along the access road from Lake Terrell Road would be directed downward into the site to the extent possible to minimize effects.

The Green Apple facility would use a Flare Gas Recovery System. The flare would only be used for emergency events or planned shutdowns. Green Apple will utilize a Flare Management Plan and plan shutdown and maintenance activities to minimize flare events.

12 Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The nearest recreational facility is privately owned and maintained by Phillips 66 for employees and their families. The employee park is located west of the proposed project area and is accessed through a locked gate along Slater Road.
Other recreational facilities and opportunities in the vicinity include the following:

- WDFW Intalco Unit. Located north of Unick Road, the Intalco Unit consists of 1,000 acres leased by WDFW for public hunting and fishing.
- Strait of Georgia. Boating and fishing opportunities are located approximately 1,300 feet west of the project area. No public boat ramps are nearby.
- Lake Terrell Road. Identified as a bike route by Whatcom County.

**b. Would the proposed project displace any existing recreational uses? If so, describe.**

The project would not displace any existing recreational uses.

**c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

Access to the shoreline near the Gulf Road landing site would be temporarily closed to the public for safety purposes during project staging and off-loading. However, this closure would be short term and would not significantly impact the public’s ability to access the shoreline.

No long-term impacts to existing on-site or off-site recreational opportunities are anticipated due to the project. Therefore, no measures are proposed.

**13 Historic and Cultural Preservation**

**a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state or local preservation registers?  Yes ☐  No ☒**

**If so, specifically describe.**

A literature review and records search of the Department of Archaeology and Historic Preservation’s (DAHP) restricted-access Washington Information System for Architectural and Archaeological Records Data (WISAARD) online geographic information system (GIS) map/database was conducted to identify previous cultural resources investigations and documented register properties, historic and archaeological resources, cemeteries, and traditional cultural places within the Green Apple project and 1-mile radius. Three previous cultural resources investigations overlap portions of the project area. No previously recorded cultural resources on file at the DAHP were identified within the project area; the closest is over 0.25 mile to the south.

A Cultural Resources Assessment has been prepared for undeveloped portions of the Green Apple project that included background research, an intensive pedestrian survey, and exploratory subsurface testing (AECOM 2019c). One historic archaeological site, the Byers Farmstead, was identified within the project area. The site consists of a low-density scatter of fragmented historic debris (brick, metal, glass, ceramic) associated with the former Byers farmstead (ca. 1900s-1950s). The farmstead originally included a house, barn, and storage building that were razed in the 1950s during construction of the Phillips 66 Ferndale Refinery. Twenty-five shovel probes were excavated to delineate site boundaries and characterize below-ground materials. Seven shovel probes contained 24 fragments of historic materials, including glass vessel and window fragments, brick fragments, a ceramic fragment, and wire nails. Overall density of the deposit is low, with little integrity due to prior demolition activities. The cultural resource report recommends that the Byers Farmstead site is not eligible for the
b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries.

Yes ☑  No ☐

Are there any material evidence, artifacts, or areas of cultural importance on or near the site?  Yes ☑  No ☐

Please list any professional studies conducted at the site to identify such resources.

An intensive pedestrian survey and exploratory subsurface testing was conducted for undeveloped portions of the Green Apple project. No pre-contact era resources were identified within the Green Apple project area. One historic archaeological site, the Byers Farmstead, was identified within the project area (AECOM 2019c). AECOM recommended the site as not eligible for the National Register of Historic Places or state register.

Green Apple has engaged in preliminary conversations with local organizations early in the project planning stage, and the Lummi Nation Business Council shared that the area is an important cultural resource to the Lummi people.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the Department of Archeology and Historic Preservation, archaeological surveys, historic maps, GIS data, etc.

The Cultural Resources Assessment prepared for the Green Apple project describes background research, an intensive pedestrian survey, and exploratory subsurface testing conducted at the project site (AECOM 2019c).

Green Apple has engaged in preliminary conversations with local organizations early in project planning stage. The USACE, as part of the Section 106 review and government-to-government consultation process, will initiate contact with the tribes, DAHP, and other consulting parties who may have concerns for cultural resources and sites of traditional and religious significance in the Project.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Pending agency concurrence with the recommendation of the Byers Farmstead archaeological site as not eligible for the state or national registers, no further management such as avoidance measures would be required.

Archaeological monitoring during major ground-disturbing construction is recommended due to the general sensitivity of the project area. An Archaeological Resources Monitoring and Inadvertent Discovery Plan (IDP) has been prepared and would be implemented during construction of the Green Apple project. The IDP provides guidance if archaeological resources or human remains are encountered during construction and provides procedures to support proper identification and appropriate treatment in accordance with state and federal laws. In the event of an inadvertent discovery of cultural resources, all ground disturbance within the discovery area would cease, the site would be secured, the applicable agencies and
tribes would be contacted for consultation per the notification protocols outlined in the IDP. Construction would not resume at the discovery location until Green Apple receives written authorization.

Green Apple will continue to work with the federal and state agencies with permitting authority to address potential cultural resources impacts of the Project to traditional resources based upon their government-to-government consultation with consulting parties.

14 Transportation

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plan, if any.

Public roads that access the Phillips 66 Ferndale Refinery property include Unick Road to the north, Lake Terrell Road to the east, and Slater Road to the south. I-5 is located 6 miles to the east, with an interchange providing access to Slater Road. Unick Road is the main access point for the Phillips 66 Ferndale Refinery (see Figure 1). Once operational, direct access to the Green Apple site would be provided via one new facility entrance/exit driveway on the west side of Lake Terrell Road, approximately 0.25 mile south of Unick Road.

During construction, Green Apple site access would be provided via one new facility entrance (which will remain as the permanent entrance) and one temporary facility exit driveway on the west side of Lake Terrell Road. There may also be one temporary access point off of Unick Road for temporary off-site construction stockpiling. Spacing between access points would meet Whatcom County 300-foot separation requirements. The new permanent facility access point is included in the Traffic Impact Analysis (AECOM 2019d).

Transportation of over-size equipment to the Project site would be contracted to a heavy haul contractor who would perform a detailed route study, barge offloading plan, road transport plan, and obtain applicable agency permits and approvals. A route study would include an assessment of overhead obstructions and temporary clearance requirements (e.g., overhead utilities, tree branches) to identify specific locations where such obstructions could be avoided, where coordination with utility purveyors may be required to temporarily move overhead utilities, and/or where tree branches may require additional property owner and Whatcom County notifications or approvals. The route study would also assess existing road conditions to identify locations where temporary road stabilization measures (e.g., steel plates, bridging) may be required to protect existing culvert crossings or improve turn radii for haul maneuvers. Barge offloads would occur at the southern terminus of Gulf Road and may include transport on Powder Plant Road, Henry Road, Rainbow Road, and Lake Terrell Road.

b. Is site or affected geographic area currently served by public transit? If so, generally describe. Yes ☐ No ☒

If not, what is the approximate distance to the nearest transit stop?

No public transportation is available to the proposed project area. A commercial taxi service operates in the area. However, the nearest transit stops, served by the Whatcom Transit Authority, are approximately 4 miles northeast of the project site and approximately 5 miles southeast of the project site.
c. **How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?**

Approximately 50 new parking spots would be provided for Green Apple and 20 parking spots would be eliminated with construction of the administration building. After completion, the project would result in a net gain of 30 parking spots. The additional parking spots will be accommodated on land within the existing refinery perimeter, near the existing administration building, which is currently being used for office trailers. The existing office trailers will be replaced by the new administration building addition and the new parking spots will be installed in their place.

d. **Will the proposal require any new, or improvements to existing, roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? Yes ☒ No ☐**

If so, generally describe (indicate whether public or private).

Once operational, the Green Apple project would include a new private road within the existing perimeter of the refinery property and a new driveway entrance/exit, leading from Lake Terrell Road to the new processing facility. A new northbound left turn lane to the new facility driveway entrance/exit may also be constructed on Lake Terrell Road. During construction, Green Apple site access would be provided via one new facility entrance and one temporary facility exit driveway on the west side of Lake Terrell Road. The temporary construction road/exit driveway would be removed and restored to pre-construction conditions following project completion.

A Traffic Impact Analysis (AECOM 2019d) has been prepared in accordance with guidance provided from Whatcom County Public Works and Washington State Department of Transportation to study PM peak hour traffic at the following intersections for both operation and construction traffic:

- Lake Terrell Road @ the new facility access location
- Lake Terrell Road @ Unick Road
- Slater Road @ Lake Terrell Road
- Slater Road @ Haxton Way
- Slater Road @ Rural Avenue
- Slater Road @ I-5 South Ramp
- Slater Road @ I-5 North Ramp

e. **Will the project or proposal use (or occur in the immediate vicinity of) Water, Rail, or Air transportation?**

If so, generally describe.

The Green Apple facility would be designed to receive renewable FOG feedstocks from a wide variety of transportation modes, including water, rail, or truck. These feedstocks will be used to make a variety of renewable products. Renewable diesel would also be distributed by water, rail, truck, or pipeline. Renewable propane would be distributed by rail. Renewable naphtha would be distributed as a component of finished gasoline. The incremental volume of finished
gasoline would be distributed by truck or rail. Renewable jet fuel that may be produced in a future phase of this project would be distributed by pipeline, rail, or truck. The Green Apple project would have a less than significant impact on marine and rail transportation capacity or safety (see the Green Apple Renewable Fuels Project Transportation Study [ERM 2019]).

The existing Phillips 66 Ferndale Refinery dock would receive waterborne renewable feedstock for the Green Apple renewable diesel facility and would load renewable diesel from the Green Apple renewable diesel facility onto outgoing vessels. (A future project phase may be developed to load-out renewable naphtha over the dock. This future project is not associated with this SEPA checklist and would require a separate permit process.) The Green Apple project would include an expanded renewable feedstock unloading and renewable product rail loading facilities, adjacent to the existing rail facility on the north side of the Phillips 66 Ferndale Refinery. This expansion would consist of approximately 34 rail renewable feedstock unloading spots, up to two new renewable diesel rail loading spots, and up to four new renewable propane loading spots. Sufficient track for logistical movement of rail cars, along with new renewable diesel loading and renewable feedstock unloading pumps and dedicated piping, would be added. The Green Apple project would not use the existing crude rail unloading facility for loading or unloading FOG feedstocks or finished renewable products.

Rail activity would use the existing private rail track owned by the Phillips 66 Ferndale Refinery that connects to BNSF’s Custer railroad spur line at Unick Road. This track is separate from the Phillips 66 Ferndale Refinery’s crude rail unloading facility’s dedicated track and facility. Renewable FOG would be delivered from the east (Intermountain and Central United States) by rail. Rail connections are provided by the BNSF Railway. BNSF provides access to the rest of the U.S. rail network via multiple routes. No additional train trips are anticipated. Rail shipments are projected to be incorporated one existing outgoing and one existing incoming manifest train per day. (Manifest trains are an accumulation of multiple types of railcars from various shippers. Unit trains are dedicated to one particular product and shipper.) The renewable fuel products and renewable feedstocks associated with the Green Apple facility would not be shipped by unit trains. Analysis of potential impacts from the additional Green Apple rail cars on the Custer Spur is included in the Traffic Impact Analysis.

To evaluate the Green Apple project’s vessel and rail transportation impacts resulting from the Green Apple project, Green Apple evaluated several potential transportation scenarios and decided upon the following basis for the associated Green Apple marine vessel and rail potential risks:

- A mix of transportation modes for both renewable feedstock and renewable diesel. Forty-one percent of the renewable feedstock would be delivered to the project site by vessel, while the remaining 59 percent would be delivered by rail; 74 percent of renewable product shipments would occur by vessel, while the remaining 26 percent would be delivered by rail.

- A nominal 5 percent of renewable feedstocks and 3 percent of renewable products would be transported by tanker truck, and all renewable propane would be transported by rail.

- Vessel deliveries of renewable feedstock were assumed to use nominal 80,000-barrel-capacity barges, while vessel shipments of renewable products were assumed to use nominal 150,000-barrel-capacity barges or vessels.

The assumptions above reflect typical annual activity and the expected average vessel capacities. Actual vessel capacities may vary from 30,000-barrel local delivery barges up to Panamax-size tankers (350,000-barrel capacity) inbound with renewable feedstock.
Air emissions for renewable feedstock and renewable products transportation are quantified in the GREET model summary table and Fuel Pathway Report which are provided as an attachment.

Table 5 describes vessel and rail trips associated with the Green Apple Project.

### Table 5. Vessel and Rail Trip Generation Summary

<table>
<thead>
<tr>
<th>Transportation Activity</th>
<th>Annual</th>
<th>Avg. Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedstock vessel trips a</td>
<td>76</td>
<td>0.2</td>
</tr>
<tr>
<td>Product vessel trips</td>
<td>68</td>
<td>0.2</td>
</tr>
<tr>
<td>Total vessel trips</td>
<td>144</td>
<td>0.4</td>
</tr>
<tr>
<td>Feedstock rail cars</td>
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<tr>
<td>Total rail cars</td>
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<td>55</td>
</tr>
<tr>
<td>Total daily train trips b</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes:

a Each movement to the project or from the project is counted as an individual trip. The 76 annual feedstock vessel trips reflect 38 loaded barges arriving at the existing dock, unloading feedstock, and departing the dock for other destinations.

b Assumes that all inbound and outbound rail cars would be consolidated into up to one manifest train inbound and outbound trip (two total trips) per day.

Based on these estimates, Green Apple would result in less than one vessel trip (either inbound or outbound) per day and inclusion of product railcars in up to two existing train trips (i.e., one train round-trip) per day, with no new trips required. These trips would not constitute a significant impact on transportation capacity or safety. Additional characterization of potential risks is provided in the Green Apple Renewable Fuels Project Transportation Study (ERM 2019) which is provided as an attachment.

**f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-passenger vehicles). What data or transportation models were used to make these estimates?**

The projected increase of up to 100 new full-time workers associated with the proposed Green Apple project would result in an increase in vehicular trips by personal vehicles. Based on alternating work shifts that can span over a weekend, and assuming all new workers drive alone, up to 80 new personal vehicle round trips each weekday would be generated during operation of the renewable diesel facility. Peak volumes would occur during maintenance turnarounds. These estimates are based on the likely number of new employees associated with the project.

Delivery of renewable feedstock and shipment of renewable fuels during operation of the Green Apple project would result in increased vehicular trips by commercial trucks resulting in a projected average of five loaded trucks per day, assuming 9,000 gallons per truck. Truck traffic associated with other minor chemical deliveries, hauling of waste materials, and renewable product transport would result in an additional five to six loaded trucks per day on average.
g. Will the proposal interfere with or be affected by the movement of agricultural and forest products on roads or streets in the area? If so generally describe.

The Green Apple project will not interfere with or be affected by the movement of agricultural or forest products in the area. The general project area is not a source of raw materials for forest products nor are forest products manufactured in the area. The immediate vicinity does contain agricultural uses, but no major disruption of movement of agricultural goods on local roads is anticipated.

h. Proposed measures to reduce or control transportation impacts, if any:

Construction Traffic

Potential mitigation measures for construction traffic may include one or a combination of the following, as needed:

- Shift construction traffic outside of peak hours. A staggered construction work day would allow adjacent Phillips 66 Ferndale Refinery employees to leave at their standard time and put all other traffic associated with construction activities into a different period, thus spreading traffic out over a longer span of time.
- Provide construction flaggers at intersections during periods of peak construction traffic.
- Identify construction haul route(s) that minimize or avoid use of heavily traveled roadways.
- Provide buses or vanpools to/from a Park-and-Ride or dedicated parking stop to reduce the total number of construction vehicle trips to the Green Apple project site.

A Moving Permit will be obtained from the Whatcom County Department of Public Works for transport of over-size loads from the Gulf Road barge landing site. The width of the haul loads may require temporary closure of Gulf Road to public traffic during transport. As applicable, the heavy haul contractor will use escort pilot cars and coordinate with the Whatcom County Sheriff’s Office for traffic control. Prior to commencement of hauls, road closure signs would be placed at applicable road intersections along the haul route.

Operational Road Traffic

Potential mitigation measures for operational road traffic may include one or a combination of the following, as needed:

- Implement a Smart Trips program (e.g., ride share, vanpool).
- Implement a staggered shift change to move operational traffic outside peak traffic hours.

Operational Vessel and Rail Traffic

The following measures are proposed to reduce or control transportation impacts:

- Update the existing Phillips 66 Ferndale Refinery ICP. In addition, Green Apple would contract with local and national spill response companies to provide the required 20,000 bbl and 26,800 bbl (24- and 48-hour timeframe respectively) on-water storage. It is important to note that all inbound and outbound vessels would be covered by the Washington State Maritime Cooperative (WSMC) Oil Spill Contingency Plan.
- Follow the Facility Transfer Operations Manual and/or BMPs before, during, and after the transfer of material.
- Continue to participate in the Cooperative Vessel Traffic Systems, including adhering to established traffic separation schemes and regulated navigation areas, and following pilot and tug escort requirements.
• Update Phillips 66 ICP to reflect Green Apple vessel and rail transportation activities.
• Notify WSMC and Ecology of Green Apple vessels arriving once vessel is confirmed. Vessels calling on Phillips 66 Ferndale Refinery must be enrolled with WSMC or have a state-approved contingency plan.
• Identify the worst-case discharge volume of the vessel and communicate it to WSMC, the spill response contractor, and Ecology.
• Maintain an on-site response vessel available at the Phillips 66 Ferndale Refinery dock at all times.
• Arrange for a third party to provide a skimmer vessel (oil spill response vessel) positioned at the dock during transfer.
• Implement pre-booming if it is safe and effective according to Ecology’s approved Safe and Effective threshold determination criteria, or arrange for a third party to provide a boom boat positioned at the terminal during transfer.
• During the entire transfer operation, ensure that a Terminal Person in Charge would be in attendance at the dock, and a required Vessel Person in Charge would be in attendance at the vessel.
• Update the Phillips 66 Ferndale Refinery existing emergency response plans for rail transportation.

15 Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)?

   Yes □ No □

If so, generally describe.

The Green Apple project would not result in an increased need for public services. The existing Phillips 66 Ferndale Refinery fire and emergency medical services would be provided to Green Apple via contract with Phillips 66 to support the new workers at the renewable fuel production facility. There would be no increase in the need for fire and emergency medical services provided by Whatcom County (District No. 7).

b. Proposed measures to reduce or control direct impacts on public services, if any.

   No measures are proposed. Existing fire and emergency medical services would be provided via contract with Phillips 66 to support the new renewable fuels production facility.

16 Utilities

a. Check utilities currently available at the site:

   ✔ Electricity            ✔ Natural gas
   ✔ Water                 ✔ Refuse service
   ✔ Telephone             ✔ Sanitary sewer
   ☐ Septic system         ✔ Other
b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The Green Apple project would use the following public utilities:

- Natural gas – The renewable fuel production facility would have natural gas supplied from the local utility, Cascade. An aboveground pipeline would be installed from the main Cascade line near the property line to the new renewable diesel processing units.
- Electricity – The renewable fuel production facility would have electricity supplied from the PUD, featuring redundant transformers and supply connections from both PSE and BPA. Emergency backup power would be supplied by batteries. The processing facility would have its own Power Distribution Center that would be constructed on-site near the new facility. Low hanging pre-existing electrical power lines parallel to Lake Terrell Road would be relocated to avoid conflicts during construction and operation.
- Sanitary sewer – Sanitary waste from the new sources would be routed to the existing Phillips 66 Ferndale Refinery sanitary treatment system. New interconnecting lines would be constructed.
- Raw water – Water from the PUD would supply the renewable fuels production facility via the Phillips 66 Ferndale Refinery. The water would be used to generate steam, as a feedstock for hydrogen production, and for the process. The project would also include construction of a new cooling tower for the production facility. Cooling tower makeup water would come from the raw water supply. Cooling tower blow down would return to the process sewer. New interconnecting lines would be constructed.

The Green Apple project would use the following utilities supplied by nearby private facilities:

- Fuel gas – To maximize the efficiency and reliability of both the Phillips 66 Ferndale Refinery and the renewable fuel production facility, the new Green Apple facility would be connected to the refinery fuel gas system. An aboveground pipeline would be installed from the Phillips 66 Ferndale Refinery to the new renewable diesel processing units.
- Steam – To maximize the efficiency and reliability of both the Phillips 66 Ferndale Refinery and the renewable fuels production facility, the new renewable diesel facility would be connected to the Phillips 66 Ferndale Refinery’s steam systems. Steam pipelines would be installed from the Phillips 66 Ferndale Refinery to the new renewable diesel processing units.
- Boiler feed water – To maximize the efficiency and reliability of both the Phillips 66 Ferndale Refinery and the renewable fuels production facility, the new Green Apple facility would be connected to the Phillips 66 Ferndale Refinery boiler feed water system. A new pipeline would connect the Phillips 66 Ferndale Refinery to the new renewable diesel processing units.
- Hydrogen – Hydrogen would be used in the reaction process of the renewable fuels production facility. A third-party hydrogen plant would be constructed as part of the Green Apple project, with associated interconnecting piping.
- Stormwater and process water sewers – Stormwater from the Green Apple project site would be routed to the Phillips 66 Ferndale Refinery systems. Process sewers would be routed to the Phillips 66 Ferndale Refinery WWTP. Process sour water generated by the Green Apple project would be routed to the Phillips 66 Ferndale Refinery sour water treatment facilities. Construction would include interconnecting lines from the new renewable diesel facility to the existing Phillips 66 Ferndale Refinery systems and upgrades to the Phillips 66 Ferndale Refinery sour water treatment facility to accommodate the incremental volume.
• Wastewater – Process contact wastewater is a byproduct of the renewable diesel production process. An anaerobic digestion pretreatment facility for this water stream would be constructed. The treated water from the pretreatment facility would be routed to the process sewer in the renewable fuel production facility, where it would be routed to the Phillips 66 Ferndale Refinery WWTP.

• Potable water – Potable water would be provided by the Phillips 66 Ferndale Refinery potable water system with metering. New interconnecting lines would be constructed.

• Firewater – Firewater would be provided by the Phillips 66 Ferndale Refinery system. The on-site portion of the firewater system would be looped to ensure robust supply if needed. New interconnecting lines would be constructed.

• Plant air and instrument air – Plant and instrument air would be supplied by one or more dedicated compressors on the renewable fuel production facility site. To maximize the efficiency and reliability of both the Phillips 66 Ferndale Refinery and the renewable fuel production facility, the new Green Apple facility would be connected to the refinery air systems. New interconnecting lines would be constructed.

• Flare headers – Green Apple is premised to build a new flare stack capable of receiving full safety load from the Green Apple facility and will have the ability to isolate the new Green Apple facility from the Phillips 66 Ferndale Refinery.

• Rich and lean methyl-diethyl amine (MDEA) – The Phillips 66 Ferndale Refinery MDEA system would process the hydrogen sulfide/CO₂-rich offgases produced by the renewable diesel production facility. New interconnecting lines would be constructed.

• Nitrogen – Nitrogen would be provided by the Phillips 66 Ferndale Refinery nitrogen system with metering. Provisions would be made to bring in outside nitrogen for startup, shutdown, and turnaround requirements above normal uses. A new interconnecting line would be constructed.
C Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: [Signature]

Date Submitted: Dec. 19, 2019

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Reviewed by Whatcom County Planning & Development Services Staff

Staff Signature _______________ Date _______________
Figure 1: Green Apple Overall Plot Plan
Figure 2: Green Apple Renewable Diesel Production Facility
Figure 4: Proposed Cascade Natural Gas Infrastructure Upgrade for Green Apple Project

- Proposed new 20" N Whatcom Pipeline Loop alignment for Green Apple Project (approx 43,000 ft)
- Existing 16" N Whatcom Gas Transmission Pipeline

Notes:
This map is a user-generated static output from the GIS Web Viewer mapping website and is for reference only. It is not to be relied upon for construction purposes. It is provided for planning purposes only.
FIELD LOCATES ARE REQUIRED FOR LOCATION OF UTILITY FACILITIES
### Appendix A: Operational air emission tables by source, as prepared for the NWCAA NOC air permit application and the PSD applicability determination

#### Table C.1A NWCAA NOC Applicability - Potential Emissions

<table>
<thead>
<tr>
<th>Pollutant (All Rates Given in tpy)</th>
<th>PM10</th>
<th>PM2.5</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
<th>SO</th>
<th>H2S</th>
<th>H2SO4</th>
<th>TAP</th>
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<td><strong>Green Apple New Emissions Units, PTE</strong></td>
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<tr>
<td>Hydrogen Plant Process Heater</td>
<td>6.13</td>
<td>6.13</td>
<td>6.13</td>
<td>6.07</td>
<td>11.43</td>
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<td>Fired Heaters</td>
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<td>0.42</td>
<td>0.42</td>
<td>0.16</td>
<td>2.11</td>
<td>0.50</td>
<td>1.81</td>
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<td>Heater - 53 MMBtu/hr</td>
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<td>0.63</td>
<td>0.63</td>
<td>0.24</td>
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<td>0.63</td>
<td>0.63</td>
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<td>3.16</td>
<td>0.46</td>
<td>2.71</td>
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<td>Non-continuous Emissions (via Green Apple N2 Plant Flare)</td>
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<td>0.23</td>
<td>0.09</td>
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<td>Vehicle Fugitive Dust</td>
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<td><strong>Comparison</strong></td>
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<tr>
<td>Green Apple Total Potential to Emit²</td>
<td>8.92</td>
<td>8.89</td>
<td>8.78</td>
<td>4.80</td>
<td>22.70</td>
<td>26.83</td>
<td>56.16</td>
<td>0.00</td>
<td>0.05</td>
<td>0.80</td>
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<tr>
<td>NWCAA de minimis Emission Rate³</td>
<td>1.25</td>
<td>0.75</td>
<td>0.5</td>
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<td>2</td>
<td>2</td>
<td>5</td>
<td>5.00E-03</td>
<td>See Table C.19</td>
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<tr>
<td>Pollutant Subject to NWCAA ROCC</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

#### Phillips 66 New Emission Units, PTE³

- Phillips 66 Renewable Nashtah Gasoline Blend Tank | 2.86 |     |     |     |     |     |     |
- Phillips 66 Modified Emission Units, PTE³
  - Product Loading (Naphtha via VCU Stack) | 1.13 |     |     |     |     |     |     |
  - Product Loading (Naphtha, Truck Fugitive) | 0.99 |     |     |     |     |     |     |
  - Refinery Fugitive Equipment Additions | 2.88 |     |     |     |     |     |     |

#### Phillips 66 Fenceline Refinery Emission Increase⁷

| Phillips 66 Fenceline Refinery Emission Increase⁷ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.86 | 0.00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phillips 66 Fenceline Refinery Emission Increase⁷ | 1.25 | 0.75 | 0.5 | 2 | 2 | 2 | 5 | 5.00E-03 | See Table C.19 |

List of Reviewed by initials

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### Table C-1b. PSD Applicability

| Pollutant (All Rates Given in ppm) | PM | PM$_{10}$ | PM$_{2.5}$ | SO$_2$ | NO$_x$ | VOC | CO | Pb | H$_2$S | H$_2$SO$_4$ | Single HAP | Total HAP | GHG |
|-----------------------------------|----|-----------|-----------|-------|-------|-----|----|----|-------|----------|------------|-----------|--------|-----|
| New Emission Units at Green Apple, PTE$^1$ | 6.13 | 6.13 | 6.13 | 4.07 | 11.43 | 7.75 | 13.32 | 2.61E-03 | 0.04 | 0.75 | 1.95E-03 | 0.19 | 356,716 |
| Hydrogen Plant Process Heater | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fired Heaters | 1.68 | 1.68 | 1.68 | 0.64 | 8.43 | 1.22 | 7.23 | 1.11E-04 | 6.89E-03 | 0.06 | 1.09E-03 | 0.04 | 28,299 |
| Deasorber Vent | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5.4 |
| Nonroutine Events (via Green Apple H2 Plant Flare) | 0.23 | 0.23 | 0.23 | 0.09 | 2.23 | 2.23 | 15.41 | -- | 9.51E-04 | 8.25E-05 | 1.33E-03 | 0.13 | 1,699 |
| Tank Farm (Excl. New Blend Tank) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Equipment Fugitives | -- | -- | -- | -- | 5.41 | -- | -- | -- | -- | -- | -- | 0.04 | -- |
| Cooling Tower | 0.39 | 0.39 | 0.39 | -- | 0.74 | -- | -- | -- | -- | -- | -- | 0.18 | 0.19 |
| Solids Handling | 0.30 | 0.30 | 0.30 | -- | -- | -- | -- | -- | -- | -- | -- | 0.06E+00 | -- |
| Vehicle Fugitive Dust | 0.18 | 0.14 | 0.04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PTE of Green Apple Facility$^2$ | 8.92 | 8.89 | 8.78 | 4.80 | 22.70 | 25.83 | 36.16 | 2.73E-03 | 0.05 | 0.90 | 2.47 | 28.6 | 386,629 |

<table>
<thead>
<tr>
<th>Comparison to PSD Major Source Thresholds</th>
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<tr>
<td>PTE of Green Apple Facility$^3$</td>
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<tr>
<td>PSD / Title V Major Source Threshold$^4$</td>
</tr>
<tr>
<td>Major Source Threshold Reached$^5$</td>
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</table>

### Phillips 66 New Emission Units, PTE$^1$,$^2$

| Renewables Naphtha Gasoline Blend Tank | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.13 | 0.26 |

### Phillips 66 Modified Emission Units, PTE$^1$,$^2$

| Product Loading (Naphtha via VCU Stack) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.28 | 0.28 |
| Product Loading (Naphtha, Truck Fugitives) | -- | -- | -- | -- | -- | 0.99 | -- | -- | -- | -- | -- | 0.25 | 0.25 |
| Refinery Fugitive Equipment Additions | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.05 | 0.05 |

### Project Emission Increase, Phillips 66 New/Modified

| -- | -- | -- | -- | -- | 7.86 | -- | -- | -- | -- | -- | 0.71 | 0.84 | 0.00E+00 |

### Associated Emission Increases at Refinery Equipment$^1$,$^2$

| Product Loading (Diesel, Jet) | 2.53 | -- | -- | -- | -- | N/A | N/A |
| Product Loading (Renewable Propane) | 0.10 | -- | -- | -- | -- | N/A | N/A |
| Product Loading (VCU Combustion) | 0.02 | 0.02 | 0.02 | 0.00 | 0.45 | 0.22 | 0.25 | 1.26E-06 | 0.00 | 0.00 | N/A | N/A | 414,53 |
| Refinery Combustion Units, FCCU | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | N/A | N/A | 0.00 |
| Diesel Storage from Hydrogen Use | -- | -- | -- | -- | -- | -- | -- | 0.01 | -- | -- | N/A | N/A |
| Refinery Sulfur Treatment | 0.00 | 0.00 | 0.00 | 0.18 | 0.04 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | N/A | N/A | 56.72 |
| Refinery Wastewater Services | -- | -- | -- | -- | -- | -- | 0.08 | -- | -- | -- | N/A | N/A |

### Associated Emission Increases at Phillips 66

| 0.03 | 0.03 | 0.03 | 0.18 | 1.49 | 0.84 | 2.07 | 1.26E-06 | 0.00 | 0.03 | 0.00 | 0.00 | 471 |

### Comparison

| Green Apple Project, Plus Affected P66 Equipment$^7$ | 8.95 | 8.91 | 8.81 | 4.98 | 23.19 | 38.52 | 36.43 | 2.72E-03 | 0.05 | 0.83 | 5.18 | 3.70 | 387,100 |
| PSD Significant Emission Rate (SER)$^8$ | 25 | 15 | 10 | 40 | 40 | 100 | 0.6 | 10 | 7 | N/A | N/A | 75,000 |
| PSD Major Modification Threshold Reached$^9$ | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |

Alongside the project’s direct GHG emissions, the project will result in a long-term indirect reduction of GHG emissions along its products’ life cycle. Life-cycle product GHG reductions using the Cal-GREET model are approximately 1.0 million metric tons CO$_2$-eq. The Cal-GREET model considers feedstock production, transportation, and the processing GHG emissions calculated above. Therefore, the project will result in an indirect GHG reduction. As a rough (under) approximation and heuristic, the reduction amount will be approximately 5 times greater than its direct emissions as a very rough approximation.
Notes to Table C-3b:

1. Emission rates shown in this table are calculated in the tables that follow.

2. As described in the main text of the application report, the Green Apple project is not considered an aggregate stationary source with the Phillips 66 Ferndale Refinery. The Green Apple total facility PTE is compared with the PSD applicability threshold for each PSD pollutant. As the Green Apple facility belongs to SIC code 2809, its PSD applicability threshold for pollutants is 100 tpy.

3. The PSD major source thresholds are established in the definition of "Major Stationary Source" 40 CFR 51.21. The Title V major source thresholds are established in the definition of "Major Source," 40 CFR 70.2. As the Green Apple facility belongs to SIC code 2809, its PSD applicability threshold for most pollutants is 100 tpy. The 100,000 tpy GHG Tailoring Rule threshold is shown as well. However, a source must be a PSD major source for at least one PSD pollutant (not GHG) in order for its GHG emissions to be renewable in the PSD program.

4. As described in Appendix F, this report discloses emissions from new emission units and modified emission units at the Phillips 66 Ferndale Refinery, such as addition of piping and valves, connectors, and other equipment. These emission increases shall be permitted separately via an NOC application from Phillips 66.

5. While the Green Apple project is not considered an aggregate stationary source with the Phillips 66 Ferndale Refinery, this application nonetheless discloses emissions from the Phillips 66 Ferndale Refinery that could be emitted from the refinery, attributable to services provided by either Green Apple or Phillips 66 to the other. These emissions are estimated in order to demonstrate that for a hypothetical aggregate source containing both Green Apple and the Phillips 66 Ferndale Refinery, the Green Apple project would not be a major modification subject to PSD review.

6. Green Apple generates two streams of wastewater. Both streams are ultimately treated in the Phillips 66 Ferndale Refinery’s aerobic digester equipment prior to discharge, as a service from Phillips 66 to Green Apple. The Green Apple wastewater’s organic content is made up of very heavy organic molecules. The VOC total includes tank emissions from storage of the wastewater and emissions from the oil/water separation unit. Tank emissions were modeled according to the wastewater slop tanks at Phillips 66 with the wastewater conservatively modeled as a recovered oil/water mixture. The AP-42 factor for emissions from an oil/water separator was scaled based on the TVP of the FOC vs. the TVP of wastewater, to account for the actual vapor pressure contribution of Green Apple’s wastewater stream.

7. This row represents the sum of the PTE of the Green Apple project, plus emission increases from new and modified emission units at the Phillips 66 Ferndale refinery, plus associated emission increases at unmodified Phillips 66 Ferndale Refinery equipment.

8. The PSD significant emission rates (SERs) are established in 40 CFR 51.21 under the definition of "Significant." The 75,000 tpy GHG Tailoring Rule threshold is shown as well. However, a source must be a PSD major source for at least one PSD pollutant (not GHG) in order for its GHG emissions to be renewable in the PSD program.
## Appendix B: Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<td>American Bureau of Shipping</td>
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<tr>
<td>API</td>
<td>American Petroleum Institute</td>
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<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<td>BACT</td>
<td>Best Available Control Technology</td>
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<tr>
<td>BMPs</td>
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<td>CO2e</td>
<td>carbon dioxide equivalent</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>DAHP</td>
<td>Washington State Department of Archaeology and Historic Preservation</td>
</tr>
<tr>
<td>dBA</td>
<td>decibels on the A-weighted scale</td>
</tr>
<tr>
<td>DNV</td>
<td>Det Norske Veritas</td>
</tr>
<tr>
<td>Ecology</td>
<td>Washington Department of Ecology</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
</tr>
<tr>
<td>ESHB</td>
<td>Engrossed Substitute House Bill</td>
</tr>
<tr>
<td>ESU</td>
<td>Evolutionarily Significant Unit</td>
</tr>
<tr>
<td>FOG</td>
<td>fats, oils, and greases</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gas</td>
</tr>
<tr>
<td>GIS</td>
<td>geographic information system</td>
</tr>
<tr>
<td>Green Apple</td>
<td>Green Apple Renewable Fuels Project</td>
</tr>
<tr>
<td>GRP</td>
<td>Geographic Response Plans</td>
</tr>
<tr>
<td>HAP</td>
<td>hazardous air pollutant</td>
</tr>
<tr>
<td>HCA</td>
<td>Habitat Conservation Area</td>
</tr>
<tr>
<td>HII</td>
<td>Heavy Impact Industrial</td>
</tr>
<tr>
<td>HPA</td>
<td>Hydraulic Project Approval</td>
</tr>
<tr>
<td>ICP</td>
<td>Integrated Contingency Plan</td>
</tr>
<tr>
<td>IDP</td>
<td>Inadvertent Discovery Plan</td>
</tr>
<tr>
<td>kbbl</td>
<td>kilo (thousand) barrels</td>
</tr>
<tr>
<td>LCFS</td>
<td>Low Carbon Fuel Standard</td>
</tr>
<tr>
<td>Marex</td>
<td>Marine Exchange of Puget Sound</td>
</tr>
<tr>
<td>MDEA</td>
<td>methyl-diethyl amine</td>
</tr>
<tr>
<td>NESHAP</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>nm</td>
<td>nautical mile</td>
</tr>
<tr>
<td>NMFS</td>
<td>National Marine Fisheries Service</td>
</tr>
<tr>
<td>NOC</td>
<td>Notice of Construction</td>
</tr>
<tr>
<td>NOx</td>
<td>nitrogen oxides</td>
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<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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</tbody>
</table>
Appendix C: References


Appendix D. Product Safety Data Sheets
### Safety Data Sheet (SDS)

**Section 1 – Chemical Product and Company Identification**

- **Product identifier:** Renewable Diesel
- **Synonyms:** REG - 9000™ / RHD, Renewable Diesel, Renewable Synthetic Diesel Fuel, Renewable Diesel Fuel, Bio-Derived Diesel, Biomass-Based Diesel, Diesel Fuel No. 2, R98.9 Diesel Fuel, odorless mineral spirits, paraffinic middle distillate, RD975, REG RDBS, hydrotreated esters and fatty acids, HFA, HVO, HDRD, HRD, R99.9, RD, paraffinic middle distillate, RHD, Renewable Hydrocarbon Diesel, R100

**Recommended use:** Fuel for use in compression ignition engines, in other combustion applications, a solvent, or an industrial blendstock

**Restrictions on use:** Not intended for direct human consumption

**Supplier information:** REG Marketing & Logistics Group, LLC 416 S. Bell Ave Ames, IA 50010 (888) 734-8686

**Emergency phone number:** For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident call CHEMTREC Day or Night: +1 703-741-5970 / 1-800-424-9300

**Section 2 – Hazard(s) Identification**

**Classification (in accordance with 29 CFR 1910.1200)**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Route of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration Hazard</td>
<td>Category 1</td>
<td>Ingestion then aspiration</td>
</tr>
<tr>
<td>Skin Irritation</td>
<td>Category 2</td>
<td>Absorption / Dermal Contact</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Category 2A</td>
<td>Absorption / Eye Contact</td>
</tr>
<tr>
<td>Flammable Liquid</td>
<td>Category 4</td>
<td>Ignition Source</td>
</tr>
</tbody>
</table>

**Signal word:** DANGER

**Pictograms:**

- [Image of pictograms]

**Hazard Statements:**
- H304 May be fatal if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- EUH066 Repeated contact may cause skin dryness or cracking

**Hazards not otherwise specified:** Static Accumulator (50 picosiemens or less). This product can accumulate static charge by flow or agitation, and a static discharge could cause this product to ignite.

**Precautionary statements**

**Prevention:**
- Wear appropriate protective gloves, protective garments, and eye protection. Avoid breathing mists and sprays. Wash all affected skin thoroughly after handling.
- Keep container tightly closed. Keep away from heat, sparks, open flames, hot surfaces, and other potential ignition sources. Ground / bond container and receiving equipment and take precautionary measures

---

Product Identifier: Renewable Diesel (SDS 402-US) Version #: 20190507
Safety Data Sheet (SDS)

Section 1 – Chemical Product and Company Identification

Product identifier: Renewable Naphtha

Other means of identification


Recommended use: Motor fuel, industrial feedstock, industrial blendstock

Restrictions on use: Not intended for direct human consumption

Supplier information: REG Marketing & Logistics Group, LLC
416 S. Bell Ave
Ames, IA 50010
(888) 734-8686

Emergency phone number: For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident call CHEMTREC Day or Night: +1 703-741-5970 / 1-800-424-9300

Section 2 – Hazard(s) Identification

Classification (in accordance with 29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Route of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration Hazard</td>
<td>Category 1</td>
<td>Ingestion / Aspiration</td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td>Category 1</td>
<td>Ignition Sources</td>
</tr>
<tr>
<td>Skin Irritation</td>
<td>Category 2</td>
<td>Absorption / Skin Contact</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Category 2A</td>
<td>Absorption / Eye Contact</td>
</tr>
<tr>
<td>Specific Organ Toxicity – Single Exposure</td>
<td>Category 3</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Acute Aquatic Toxicity</td>
<td>Category 2</td>
<td>Release to Water</td>
</tr>
<tr>
<td>Chronic Aquatic Toxicity</td>
<td>Category 2</td>
<td>Release to Water</td>
</tr>
</tbody>
</table>

Signal word: Danger

Pictograms:

Hazard Statements:
- H304 May be fatal if swallowed and enters airways
- H224 Extremely flammable liquid and vapor
- H336 May cause drowsiness or dizziness
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H401 Toxic to aquatic life
- H411 Toxic to aquatic life with long lasting effects

Hazards not otherwise specified: Static Accumulator (50 picosiemens or less). This product can accumulate static charge by flow or agitation, and a static discharge could cause this product to ignite.

Ingredient(s) with unknown acute toxicity (if ≥ 1%): This product is not classified based on testing of the mixture as a whole. 100% of this mixture contains ingredients of unknown acute toxicity.

Precautionary statements:

Product Identifier: Renewable Naphtha (SDS 420-US) Version #: 20190624

Page 1 of 10
Safety Data Sheet (SDS)

Section 1 – Chemical Product and Company Identification

Product identifier: REG Renewable Propane (Non-odorized)

Other means of identification

Synonyms: Bio-Derived LPG, Propane-Butane Mixture, Renewable Liquefied Petroleum Gas, Renewable LPG (non-odorized), Renewable Autogas, LPG, Renewable Propane

Recommended use: Burner fuel, fuel for combustion engines, industrial feedstock, industrial blendstock

Restrictions on use: Not intended for direct human consumption

Supplier information: REG Marketing & Logistics Group, LLC
416 S. Bell Ave.
Ames, IA 50010
(888) 734-8686

Emergency phone number: For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident call CHEMTREC Day or Night: +1 703-741-5970 / 1-800-424-9300

Section 2 – Hazard(s) Identification

Classification (in accordance with 29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Route of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Gases</td>
<td>Category 1</td>
<td>Ignition sources</td>
</tr>
<tr>
<td>Gases Under Pressure</td>
<td>Liquefied Gas</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Simple Asphyxiants</td>
<td>None</td>
<td>Inhalation</td>
</tr>
</tbody>
</table>

Signal word: Danger

Pictograms:

Hazard Statements:

H220 Extremely flammable gas, which may form explosive mixtures with air.
H280 Contains gas under pressure; may explode if heated.
      May displace oxygen and cause rapid suffocation

Hazards not otherwise specified: Contact with liquid may cause cold burns or frostbite.

Precautionary statements

Prevention: Keep away from heat, sparks, open flames, hot surfaces, and other potential ignition sources. No smoking. Ground / bond container and receiving equipment and take precautionary measures against static discharge – including the use of non-sparking tools and explosion-proof equipment. Wear appropriate protective gloves, protective garments, and eye protection. Avoid breathing mists and sprays.

Response: Leaking gas fire: Do not extinguish, unless leak can be safely stopped. Eliminate all ignition sources if safe to do so.

Storage: Protect from sunlight. Store in well-ventilated place.
### Safety Data Sheet (SDS)

**Section 1 – Chemical Product and Company Identification**

**Product identifier:** R-8 Renewable Jet Fuel

**Other means of identification**

**Synonyms:** R-8, renewable jet fuel, hydrotreated renewable jet fuel, HRI, HR-J8, synthetic paraffinic kerosene, bio-SPK, HEFA SPK, hydroprocessed esters and fatty acids synthetic paraffinic kerosene, Dynamic Fuels™ R-8 renewable jet fuel

**Recommended use:** Fuel for jet engines, internal combustion engine fuel

**Restrictions on use:** Not intended for direct human consumption

**Supplier information:** REG Marketing & Logistics Group, LLC
416 S. Bell Ave
Ames, IA 50010
(888) 734-8686

**Emergency phone number:** Chemtrec: (800) 424-9300

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### Section 2 – Hazard(s) Identification

**Classification (in accordance with 29 CFR 1910.1200)**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Route of Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration Hazard</td>
<td>Category 1</td>
<td>Ingestion then aspiration</td>
</tr>
<tr>
<td>Flammable Liquid</td>
<td>Category 3</td>
<td>NA</td>
</tr>
<tr>
<td>Skin Irritation</td>
<td>Category 2</td>
<td>Absorption / dermal contact</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Category 2A</td>
<td>Absorption / eye contact</td>
</tr>
</tbody>
</table>

**Signal word:** DANGER

**Pictograms:**

- [Icon]
- [Icon]
- [Icon]
- [Icon]

**Hazard Statements:**

- May be fatal if swallowed and enters airways
- Flammable liquid and vapor
- Causes skin and serious eye irritation
- Repeated contact may cause skin dryness or cracking

**Hazards not otherwise specified:**

- Static Accumulator (50 picosiemens or less). This product can accumulate static charge by flow or agitation, and a static discharge could cause this product to ignite.

**Ingredient(s) with unknown acute toxicity (if ≥ 1%):**

- This product is not classified based on testing of the mixture as a whole.
- 100% of this mixture contains ingredients of unknown acute toxicity.

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*Product identifier: R-8 Renewable Jet Fuel (SDS 440-US)  Version #: 20150727*

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