Standard AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

Department of Environmental Quality
Northwest Region
Cascade Kelly Holdings, LLC
dba Columbia Pacific Bio-Refinery - Transloading Facility

Source Information:

SIC	5171, 5169, 4491
NAICS	424710, 424690, 488320

Source Categories (Table 1 Part, code)	B, 48 C, #4
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

FCE		Source test	X
Compliance schedule		COMS	
Unassigned emissions		CEMS	
Emission credits		PEMS	
Special Conditions		Ambient monitoring	

Reporting Requirements

Annual report (due date)	Feb 15th	Monthly report (due dates)	
Quarterly report (due dates)		Excess emissions report	Std
		Other (specify)	

Air Programs

Synthetic Minor (SM)		NSR	
SM -80		PSD	
NSPS (list subparts)	Kb	RACT	
NESHAP (list subparts)		TACT	X
Part 68 Risk Management		Other (specify)	
CFC			

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PERMITTING

PERMITTEE IDENTIFICATION

1. Cascade Kelley Holdings, LLC dba
Columbia Pacific Bio-Refinery - Transloading Facility
81200 Kallunki Rd.
Clatskanie, OR 97016-2244

PERMITTING ACTION

2. The proposed permit is a new permit for a new source.

OTHER PERMITS

3. Other permits issued or required by the Department of Environmental Quality for this source include:

General NPDES permit 1200-Z (storm water permit)
Water Pollution Control Facilities Permit 102666

ATTAINMENT STATUS

4. The proposed source is located in an area that is in attainment with the National Ambient Air Quality Standards for all pollutants.

5. The source is not located within 10 kilometers of a Class I Air Quality Protection Area.

SOURCE DESCRIPTION

OVERVIEW

6. The permittee, Cascade Kelly Holdings, LLC, dba Columbia Pacific Bio-Refinery, proposes to establish and operate a bulk organic liquid products storage and marine vessel loading operation at 81200 Kallunki Road, Clatskanie, Oregon. Bulk organic liquid products will be received by rail, transferred to storage tanks and then dispensed to marine vessels. Crude oil and ethanol will be the primary products stored and loaded by the facility.

The permittee owns an existing permitted ethanol manufacturing facility (permitted under Standard ACDP 05-0006-ST-01) at the location of this proposed new source. The ethanol facility was built in 2008 to conduct grain processing and ethanol manufacturing. Ethanol manufacturing is presently not being performed. The ethanol manufacturing

facility includes equipment and activities common to Marine Vessel Petroleum Loading and Unloading (e.g., bulk product storage tanks, barge loadout operations, associated emission controls). On June 26, 2012 DEQ approved a modification of the permit for the ethanol plant (ACDP 05-0006-ST-01) allowing the permittee to receive and transload 50,000,000 gallons of crude oil per year. DEQ approved this request because the action resulted in de minimis or insignificant emissions and could be performed with existing equipment and emission controls.

This review report is for a new permit that is now proposed because the permittee intends to significantly increase crude oil and/or ethanol storage and loading to as much as 1,839,600,000 gallons per year. This action will result in the permittee establishing and operating a new "major source" of air contaminant emissions for the activity "Marine Vessel Petroleum Loading and Unloading" (see Compliance discussion in Item 9, below). Marine Vessel Petroleum Loading and Unloading (SIC - 5171) is not a support activity of ethanol manufacturing (SIC - 2869) and is a unique source category referenced in Table 1 of OAR 340-216-0020; the two activities lie within different SIC major groups (51 and 28); therefore, pursuant to Oregon rules the permittee is establishing a new source and is required to obtain a new permit to operate and build out the facility*. If or when the ethanol manufacturing facility commences operation and following issuance of this permit, some equipment and activities (storage tanks TK6105 & TK6106, barge loadout operations, associated emission controls) will be shared by the two permitted facilities.

***Note: This new permit and review report identify multiple SIC codes (5171, 5169 and 4491) with the new transloading facility that are associated across different SIC major groups (51 and 44). This is for activity identification purposes only. Since the SIC 4491 activity is supporting of the SIC 5171 and 5169 activities the transloading facility is considered a single source under Oregon rules.**

PROCESS AND CONTROL DEVICES

7. Air contaminant sources at the facility will consist of the following:

Existing sources:

a. Two (2) – 3,800,000 gallon (TK6105 & TK6106) volatile organic liquid storage tanks, each with internal floating pan and liquid mounted primary seal to control emissions; constructed in 1976. These tanks will be shared with the existing ethanol manufacturing facility and at any time one or both may be in ethanol service in support of the ethanol manufacturing facility.
b. One (1) – Marine vessel loadout operation with emissions (VOC) controlled by one (1) – loadout vapor recovery unit (John Zink).
c. Fugitive emission sources:
    i. Equipment fugitives associated with product receipt (railcar off loading/tank farm).
    ii. Equipment fugitives associated with product loadout to marine vessels (VOC).

Future sources:

d. Four (4) - 4,500,000 gallon (TK6153 - TK6156) volatile organic liquid storage tanks, each with internal floating roof equipped with liquid mounted primary seal and rim mounted secondary to control emissions.

e. Two (2) - 36,000 gallon, high pressure, fixed roof Railcar Unloading Tanks (TK6151 and TK6152).

f. One (1) - Jordan CEB 4800 (CE01/EU02), 163.6 MMBtu/hr, propane fired Thermal Oxidizer with low NO_X/CO burner. The proposed control device will replace the existing John Zink Loadout vapor recovery unit. The oxidizer will have a design operating temperature of 2,200 ºF with an expected VOC destruction efficiency of 99.5%. The Jordan CEB 4800 consists of a group of four individual oxidizer units that are grouped together. The units can be scaled into operation from one to all four units depending on operational load providing the Jordan CEB 4800 a thermal capacity range of 4 to 163.6 MMBtu/hr.

CONTINUOUS MONITORING DEVICES

8. The facility will be required to continuously monitor and record the operating temperature of the Jordan CEB 4800 vapor combustion unit.

COMPLIANCE

9. On June 04, 2012, the permittee applied to DEQ to additionally receive and transload (rail to marine vessel) a maximum of 50,000,000 gallons of crude oil per year under the permit for its ethanol manufacturing facility (Standard ACDP 05-0006-ST-01). The proposed transloading activity would not require installation of new equipment and associated emissions would be less than DEQ's *de minimis* emission rate threshold (1 ton/yr). Based on the information stated in the application, DEQ's review deemed the transloading activity to be incidental, and DEQ approved the request in a permit modification issued on June 26, 2012. Afterward, DEQ found that beginning the month of March 2013, the permittee had engaged in crude oil transloading in quantities that significantly exceed the 50,000,000 gallons per year applied for and approved by DEQ. Under DEQ rules this action allegedly resulted in the permittee establishing and operating a new "major source" of air contaminant emissions for the activity Marine Vessel Petroleum Loading and Unloading. Since Marine Vessel Petroleum Loading and Unloading is not a support activity of ethanol manufacturing and is a unique source category referenced in Table 1 of OAR 340-216-0020, the permittee is required to obtain a new permit to operate at the elevated transloading levels prior to establishing the new major source. Operating a new major source without first obtaining the required permit is identified as a Class I violation in DEQ rules.

DEQ has commenced a formal enforcement action to address the alleged violation identified above (PEN No. PE-POR-AQ-2014-0001). The enforcement action, which is being contested, remains in process and had not been finalized at the time of this permit action.

10. The facility will be inspected by DEQ personnel to ensure compliance with permit conditions.

EMISSIONS

11. Proposed PSEL information:

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limits (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
$PM/PM_{10}/PM_{2.5}$	0	NA	0	NA	9	9
SO_2	0	NA	0	NA	39	39
NO_x	0	NA	0	NA	39	39
CO	0	NA	0	NA	99	99
VOC	0	NA	0	NA	78	78
GHG (CO_2e)	0	NA	0	NA	74,000	74,000

a. The proposed PSEL for each pollutant except VOC has been set equal to the respective Generic PSEL in accordance with OARs 340-216-0066(3)(b) and 340-222-0040.

b. The netting basis is zero for all pollutants in accordance with OAR 340-200-0020(76).

c. The VOC PSEL has been set at 78 tons per year which is 38 tons above the significant emission rate (SER) for that pollutant (see SER analysis in Item 12, below).

d. All particulate matter generated by the permittee's process is a residual product of the combustion process and is presumed to be $PM_{2.5}$. All PM will be presumed to be $PM_{2.5}$ unless the permittee performs testing to distinguish particle size distributions and test results demonstrate larger PM as a component of emissions.

e. Maximum pollutant emission rates were estimated based on an assumed maximum throughput of 25,000 barrels/hr marine vessel loading rate (1 barrel = 42 gallons: 25,000 barrels/hr = 1,050,000 gal/hr); 120,000 barrels per day (120,000 barrels per day = 1.84 billion gallons per year). The permittee may receive, store and transload a variety of volatile organic liquids; maximum

emission rates were established by assuming all product throughput to be crude oil with Reid vapor pressure (RVP) of 12.75 psi; a representative RVP of Bakken crude oil. Displaced organic vapors from marine vessel loading will be captured and combusted in a Vapor Combustion Unit for emissions control. The combustion process will result in the emission of pollutants that are the products of combustion. Based on these assumptions the facility's maximum emissions of criteria pollutants are estimated to be approximately: 4 tons $PM_{2.5}$/yr, 5 tons SO_2/yr, 12 tons NO_X/yr, 5 tons CO /yr and 78 tons VOC /yr.

f. The facility will emit GHGs above the de minimis emission level of 2,756 tons/year (2,500 metric tonnes/year), so the permit includes the Generic PSEL for GHG.

g. The emission rate for H_2S was estimated to be below the de minimis emission level, therefore a PSEL is not included in the permit for this pollutant.

h. This is a new permit; there have been no previous PSELs.

i. The PSEL is a federally enforceable limit on the potential to emit.

SIGNIFICANT EMISSION RATE ANALYSIS

12. For $PM_{2.5}$, SO_2, NO_X, CO, and GHG, the proposed Plant Site Emission Limits are less than the Netting Basis plus the significant emission rate, thus no further air quality analysis is required.

13. For VOC, an analysis of the proposed PSEL increase over the Netting Basis is shown in the following table.

Pollutant	SER (tons/yr)	Requested increase over netting basis (tons/yr)	Increase due to utilizing capacity that existed in baseline period (tons/yr)	Increase due to physical changes or changes in method of operation (tons/yr)	Increase due to changes to rules (i.e., change to Generic PSEL) (tons/yr)
VOC	40	78	NA	78	NA

14. The permittee requested a VOC PSEL of 78 tons per year which is greater than the 40 ton per year VOC significant emission rate (SER) defined in Table 2 of OAR 340-200-0020, "*General Air Quality Definitions*." Sources or facilities that emit, or have the "potential to emit", any regulated air pollutant at or above a Significant Emission Rate are defined in OAR 340-200-0020(72) to be a "major source" of air contaminant emissions in Oregon. Although a major source, the permittee's facility did not fall subject to the requirements of OAR 340-224, "*Major New Source Review* (NSR/PSD)," because it is located in an area that is in attainment with all National Ambient Air Quality Standards and the requested VOC PSEL is less than the Federal Major Source threshold of 100 tons per year.

Since the permittee's requested VOC PSEL is greater than the SER, in accordance with OAR 340-222-0041(b)(B) "*Criteria for Establishing Plant Site Emission Limits*" and the "*Air Quality Analysis Requirements"* of OAR 340-225-0090, the permittee was required to perform an Ozone Precursor Distance calculation [see OAR 340-225-0020(10)] to determine if the emissions from the proposed source could impact the Portland Vancouver Air Quality Maintenance Area, and so trigger the requirement for emission offsets. The Ozone Precursor Distance was determined to be 58.5 km. The permittee's facility is 61.2 km from the Portland Vancouver Ozone Maintenance Area, so emission offsets are not a requirement of this permit action.

TITLE V MAJOR SOURCE APPLICABILITY

CRITERIA POLLUTANTS

15. A major source for Title V Permit applicability is a facility that has the potential to emit 100 or more tons/yr of any criteria pollutant. The potential to emit for each criteria pollutant at this facility is less than 100 tons per year. This facility is not a major source of criteria pollutant emissions for Title V permitting purposes.

GHG POLLUTANTS

16. A major source for Title V Permit applicability is a facility that has the potential to emit 100,000 or more tons/yr of CO2e Greenhouse Gas emissions. The facility's annual throughput of volatile organic liquids is being limited to 1,839,600,000 gallons. At this throughput the permittee's potential to emit greenhouse gases (emission rate based on crude oil) is estimated to be 68,814 tons CO2e per year. This emission rate is based on the annual combustion of 1,012,457 MMBtu/yr (propane) in the vapor combustion unit and fugitive GHG sources (tanks, product loadout, equipment leaks) for an associated GHG emission factor of 12557.8 lb GHG/10^3 gallons of volatile organic liquid (VOL) loaded (factor determined in accordance with federal protocols of 40 CFR 98 Tables C-1 &C-2). The potential to emit CO2e at this facility is less than 100,000 tons per year. This facility is not a major source of GHG emissions.

HAZARDOUS AIR POLLUTANTS

17. A major source for hazardous air pollutants (HAP) is a facility that has the potential to emit 10 or more tons/year of any single HAP or 25 or more tons/year of combined HAPs. This source is not a major source of hazardous air pollutants. Provided below is a summary of the HAP emissions.

Hazardous Air Pollutant	Potential to Emit (tons/year)
Highest individual HAP – n-hexane	1.44 (only HAP > 1 ton/yr)
All other individual HAPs	< 1
Total HAPs (combined)	3.8

ADDITIONAL REQUIREMENTS

NSPS APPLICABILITY

18. 40 CFR Part 60, Subpart Kb – "*Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels for Which Construction, Reconstruction or Modification Commenced after July 23, 1984,"* is applicable at the proposed source because it will store volatile organic liquid products in storage vessels that are affected facilities under this federal standard. Tanks affected by this federal standard include TK6105 and TK6106 (based on previous applicability determination); and TK6153 through TK6156. The proposed Railcar Unloading Tanks TK6151 and TK6152 will not be subject to this standard because they will meet exemption criteria of the standard as they will serve as "process tanks" (surge control vessels) and will be pressure vessels designed to operate in excess of 204.9 kPa [29.7 psi] without emissions to the atmosphere.

19. 40 CFR Part 60, Subpart XX – "*Standards of Performance for Bulk Gasoline Terminals,"* is not applicable to the proposed source because the facility will not be in gasoline service and will therefore not function as an affected facility regulated by this federal standard.

20. 40 CFR Part 60, Subpart OOOO – *"Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution,"* is not applicable to the proposed source because it does not include any of the affected facilities regulated under this federal standard.

NESHAPS/MACT APPLICABILITY

21. There are no sources at this facility for which NESHAPs/MACT standards are applicable:

    a. 40 CFR Part 63, Subpart Y – "*National Emission Standards for Marine Tank Vessel Loading Operations,"* is not applicable to the proposed source because the facility does not meet the applicability criteria of the federal regulation to be

recognized as an affected facility. Subpart Y includes MACT standards that are applicable to major sources of hazardous air pollutants. Subpart Y also contains RACT standards that are applicable at facilities with actual annual throughput of ≥10 million barrels (420 million gallons) of gasoline or ≥200 million barrels (8.4 billion gallons) of crude oil. The proposed facility is an area source of hazardous air pollutants as a standalone facility or when HAP emissions from the transloading facility and the neighboring ethanol facility are combined. The proposed facility's annual crude oil throughput will be less than the RACT threshold of the federal regulation.

b. The facility will not be in gasoline service and will therefore not function as an affected facility regulated by any of the following federal standards associated with gasoline:

   i. 40 CFR Part 63, Subpart R – "*National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations).*" In addition, this standard is only applicable to major sources.

   ii. 40 CFR Part 63, Subpart BBBBBB – "*National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities.*"

c. 40 CFR Part 63, Subpart HH – "*National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities*" is not applicable to the proposed source because the facility is not an Oil or Natural Gas Production facility.

d. 40 CFR Part 63, Subpart EEEE – "*National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)*" is not applicable to the proposed source because the standard is only applicable to major sources (see discussion in Items 15-17, above).

RACT APPLICABILITY

22. The RACT rules are not applicable to this source because it is not in the Portland AQMA, Medford AQMA, or Salem SKATS.

TACT APPLICABILITY

23. The source will meet the State's TACT/Highest and Best Rules by conducting the following activities:

   a. Upon receipt, crude oil will be offloaded from railcars into high-pressure vessels to prevent volatilization before transfer into bulk storage tanks.
   b. VOC emissions that occur from vapor space displacement during marine vessel

loading will be captured by a vapor collection system and controlled with a vapor recovery unit or thermal oxidizer. The thermal oxidizer will operate with an operating temperature of 2,200˚F and rated control efficiency of 99.5%.

c. Although 40 CFR Part 60, Subpart XX – *"Standards of Performance for Bulk Gasoline Terminals,"* (a federal New Source Performance Standard with the regulatory intent of minimizing the emissions of VOC at bulk gasoline terminals through the application of best demonstrated technologies) is not applicable to the proposed source, the proposed facility incorporates similar vapor collection and control methodologies as those required in the federal standard. Therefore, the proposed facility is expected to achieve similar levels of VOC emissions reduction.

d. Although 40 CFR Part 63, Subpart Y – *"National Emission Standards for Marine Tank Vessel Loading Operations,"* is not applicable to the proposed source (see discussion in Item 21.a. above), all marine vessels loaded at the facility have and will meet the same vapor tightness requirements as specified in Subpart Y. The permittee will document and maintain records of vessel vapor tightness and/or negative pressure loading events.

SOURCE TESTING

PROPOSED TESTING

24. The John Zink vapor recovery unit may be tested at least once during the permit term for VOC and HAP emissions. The testing of the VRU is only required if the permittee should choose to delay installation of the Jordan CEB 4800 vapor combustion unit (VCU identified to be replacement for the VRU). Refer to the permit for the source testing schedule, methods and process/control device operating parameters that are to be followed and/or recorded during the tests.

25. Following its installation, the Jordan CEB 4800 vapor combustion unit will be tested annually during the permit term for NO_X, CO, and VOC emissions. Refer to the permit for the source testing schedule, methods and process/control device operating parameters that are to be followed and/or recorded during the tests.

PUBLIC NOTICE

26. Pursuant to OAR 340-216-0066(4)(a)(A), "Issuance Procedures for Standard Air Contaminant Discharge Permits," the Department is required to provide public notice in accordance with OAR 340-209-0030(3)(c) for this proposed permit action. Accordingly, the Department must provide public notice of this proposed permit action sufficient to allow a minimum of 35 days for interested persons to submit written comments on the proposed permit action. The public notice procedures also include criteria to allow interested persons to request a public hearing in which to submit oral or written comments. In this instance the permittee elected to proceed directly to a Public Hearing.

27. The public notice period for the proposed permit began on Feb. 28, 2014 and was originally scheduled to end on April 11, 2014. DEQ held a public hearing for the proposed permit on April 3, 2014 at Clatskanie High School in Clatskanie, Oregon. During the hearing, DEQ received multiple requests for an extension of the comment period. In consideration of the requests, DEQ extended the public comment period until 5 p.m. on Monday, May 5, 2014. During the comment period DEQ received comments from 1,400 parties. None of the comments that were submitted during the public review process identified applicable regulatory limitations that were omitted or design elements of the facility that would prevent it from complying with the air quality regulatory requirements that are in effect and enforceable by DEQ. DEQ intends to issue the Columbia Pacific Bio-Refinery permit with the following noted modifications:

    a. In a letter to DEQ dated May 21, 2014, Brien Flanagan, attorney for Columbia Pacific Bio-Refinery, provided the company's responses to the public comments submitted; as provided for by OAR 340-209-0080(3). DEQ revised Condition 2.3 of the permit based on statements made by the permittee in that letter. Condition 2.3 now includes the following language that limits approved volatile organic liquids transloaded at the facility: "volatile organic liquid products allowed under this permit are crude oil and ethanol."

    b. DEQ revised the language of Item 21.a of the review report to provide a more thorough explanation for the non-applicability determination for NESHAP Subpart Y.

    c. The permittee submitted a comment noting the $PM/PM_{10}/PM_{2.5}$ emission factor for the marine vessel loading emission unit in the proposed permit was stated in error. It has been corrected to read 0.001 $lbs/10^3$ gal loaded.

    d. Columbia Pacific Bio-Refinery is not an affected facility under NESHAP Subpart Y and is therefore not subject to that federal regulation. Consequently, DEQ did not include applicable requirements of Subpart Y in the proposed permit. Since Columbia Pacific Bio-Refinery inherently performs or experiences some elements of Subpart Y requirements as part of normal operations, specifically the receipt of vapor tight vessels for loading, DEQ reevaluated this issue. As allowed under Operating and Maintenance Requirements of OAR 340-226-0120, DEQ determined it was reasonable for the agency to require Columbia Pacific Bio-Refinery to perform the elements of Subpart Y that the company does or experiences under normal operation. DEQ modified the permit to include the requirements for Columbia Pacific Bio-Refinery to document and maintain records of vessel vapor tightness and/or negative pressure loading events. The added requirements are separate and not associated with Subpart Y; Subpart Y remains to be inapplicable to the facility.

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