

## WASTE DISCHARGE PERMIT NO. SC-100010-VSA

**Pursuant to:**

Greater Vancouver Sewerage & Drainage District Sewer Use Bylaw No. 299, 2007 (as amended)  
and the BC Environmental Management Act, S.B.C. 2003, c.53

**Issued to:**

Parkland Refining (B.C.) Ltd.  
(the "Permittee")

**To Authorize:**

the discharge of Wastewater to Sewer from  
a petroleum refinery

**Located at**

5201 Penzance Drive, Burnaby, BC V5C 1L7

**Effective Period:**

The terms and conditions set out in the Permit apply to the existing or planned works on  
June 11, 2019

All previous versions of this Waste Discharge Permit are hereby rescinded and rendered null and void.

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Issued: July 31, 1995  
Amended: June 11, 2019

  
Grant McGillivray  
Deputy Sewage Control Manager

**GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT**

**SCHEDULE A**

This Schedule sets out requirements for the quantity and quality of the discharge to Sewer.

**1. AUTHORIZED RATE OF DISCHARGE**

The Permittee shall not exceed the following:

**Sample Point: 1**

- Maximum daily discharge flow rate: **2592.00 m<sup>3</sup>/d**
- Maximum instantaneous peak flow rate: **30.00 L/s**

**2. AUTHORIZED DISCHARGE CRITERIA**

- a) The Permittee shall not discharge Restricted Waste or other Waste, as defined in the Bylaw, including but not limited to the following (regardless of sample type):

Parameter	Authorized Limit	Notes
Benzene	0.1 mg/L	
Phenols	1 mg/L	
Polycyclic Aromatic Hydrocarbons	0.05 mg/L	
Total BETX	1 mg/L	
Lead - total	1 mg/L	

- b) The Permittee shall not discharge Restricted Waste or other Waste, as defined in the Bylaw, with the following exceptions (regardless of sample type):

Parameter	Authorized Limit	Notes
pH	6 - 10.5 pH Units	
Biochemical Oxygen Demand	100 mg/L	
Total Suspended Solids	100 mg/L	October 1 – March 31
Total Suspended Solids	60 mg/L	April 1 – September 30
Total Suspended Solids	40 mg/L	Average concentration/month
Oil & Grease Hydrocarbon	20 mg/L	
Oil & Grease Hydrocarbon	10 mg/L	Average concentration/month
Ammonia as N	20 mg/L	

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**SCHEDULE A**

Ammonia as N	10 mg/L	Average concentration/month
Chlorine (free)	5 mg/L	
Cyanide	0.3 mg/L	
Cyanide	0.1 mg/L	Average concentration/month
Sulphide	0.7 mg/L	
Sulphide	0.3 mg/L	Average concentration/month
Temperature	50 degrees Celsius	
Toxicity (96 hr LC50 Rainbow Trout)*	100 %	
Phenols	0.5 mg/L	Average concentration/month
Chromium - total	0.3 mg/L	
Zinc - total	1 mg/L	

- c) The Permittee shall not discharge Prohibited Waste, Storm Water or Uncontaminated Water, as defined in the Bylaw, with the exception of storm water collected within the process area collection system or contaminated storm water from outside the process area.
- d) The Permittee shall not discharge Hazardous Waste, or effluent from the treatment of Hazardous Waste which exceeds the Effluent Standards for Hazardous Waste Facilities, as stipulated in Schedule 1.2, Column 3, of the BC Environmental Management Act Hazardous Waste Regulation.

\* Toxicity (96 hr LC50 Rainbow Trout): Refer to Schedule D for monitoring program requirements.

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**GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT**

**SCHEDULE B**

This Schedule sets out requirements and locations for the approved sample points, waste sources, and works and procedures to treat and/or control the discharges to Sewer.

**1. SAMPLE POINTS, WASTE SOURCES, WORKS & PROCEDURES**

**SAMPLE POINT: 1**

This sample point is considered to be a point of discharge to Sewer. The approved sample point location is described and is illustrated in the photo(s) below.

**Description:** 1(a) Grab samples, with the exception of Fish Toxicity: The effluent discharge line downstream of the sodium hypochlorite injection system.

1(b) Fish Toxicity samples: The effluent discharge line upstream of the sodium hypochlorite injection system.

1 (c) Composite samples: The effluent discharge line downstream of the secondary wastewater treatment system (deep shaft), sodium hypochlorite injection system and the wastewater pumps. Samples are obtained from the sample line located in the composite sampler cabinet stored next to the wastewater pumps.

**Source: All Plant Sources**

Process area  
Process area storm water collection  
Tank water bottoms  
Oily water returns  
Contaminated storm water from outside the process area  
Waste treatment bio beds  
Reformer catalyst regeneration  
Sodium hypochlorite injection  
Remote Impound Basins (RIB Cells A, B, C)

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**SCHEDULE B**

Type: Continuous

<b>Works and Procedures</b>	<b>Completion Date</b>
Sour water stripper (may not be in continuous operation)	Completed
API forebay and separator	Completed
Retention ponds # 1, 2 & 3 (may not be in continuous operation)	Completed
Dissolved air flotation units	Completed
Carbon adsorption (reformer catalyst regeneration only)	Completed
Continuous monitoring of the discharge temperature, recorded and logged once every 4 hours during discharge to sewer	Completed
Secondary wastewater treatment system (deep shaft)	Completed
Sodium hypochlorite injection system (notification to Metro Vancouver if maintenance required)	Completed
Continuous flow monitoring and recording	Completed
Continuous pH monitoring and recording	Completed
RIB Cells A, B & C (may not be in continuous operation)	Completed
Good operating practices	Completed

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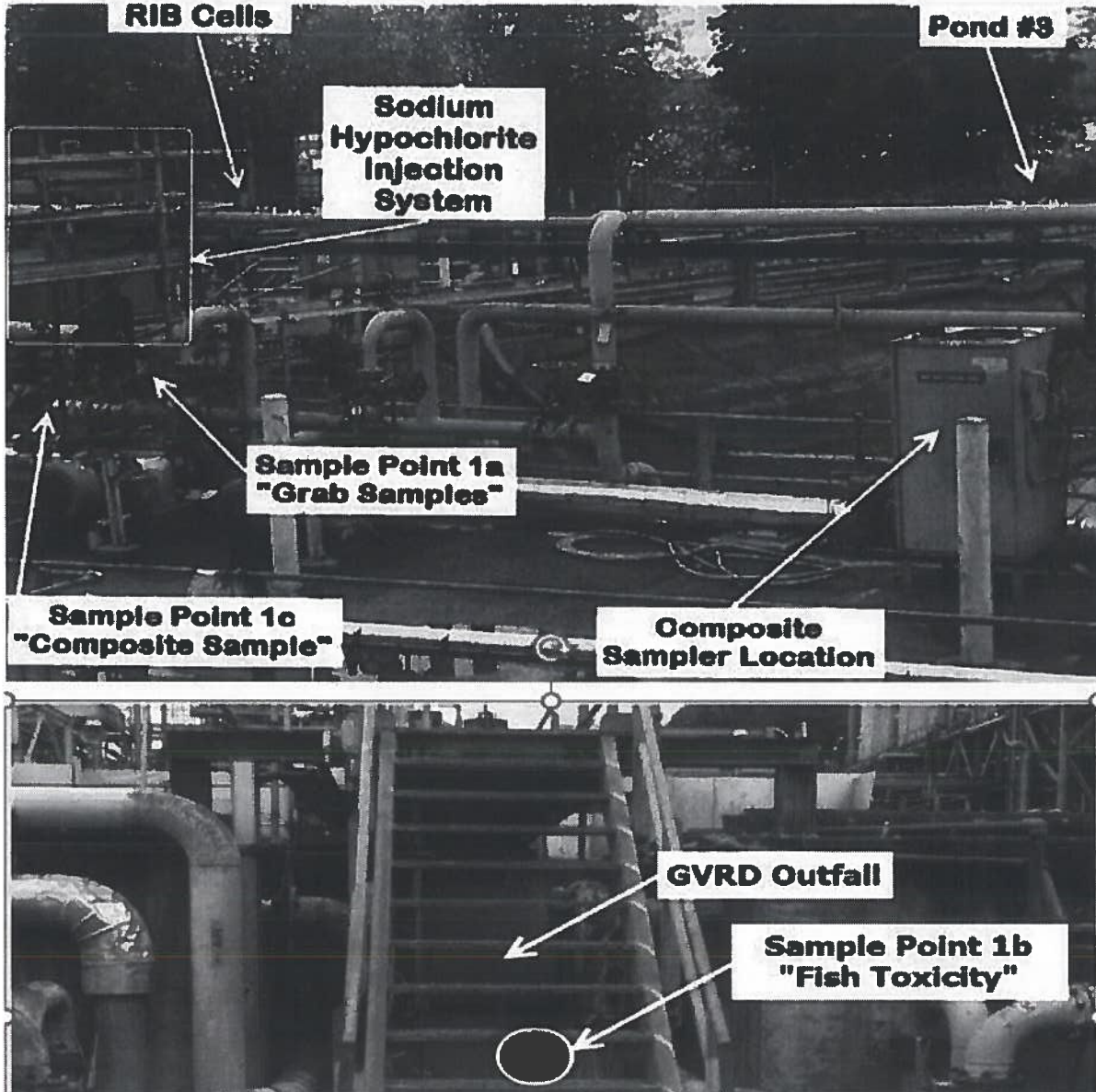
  
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Waste Discharge Permit No. SC-100010-VSA

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**SCHEDULE B**

**Photograph of Sample Point 1:**



Issued: July 31, 1995  
Amended: June 11, 2019

Waste Discharge Permit No. SC-100010-VSA

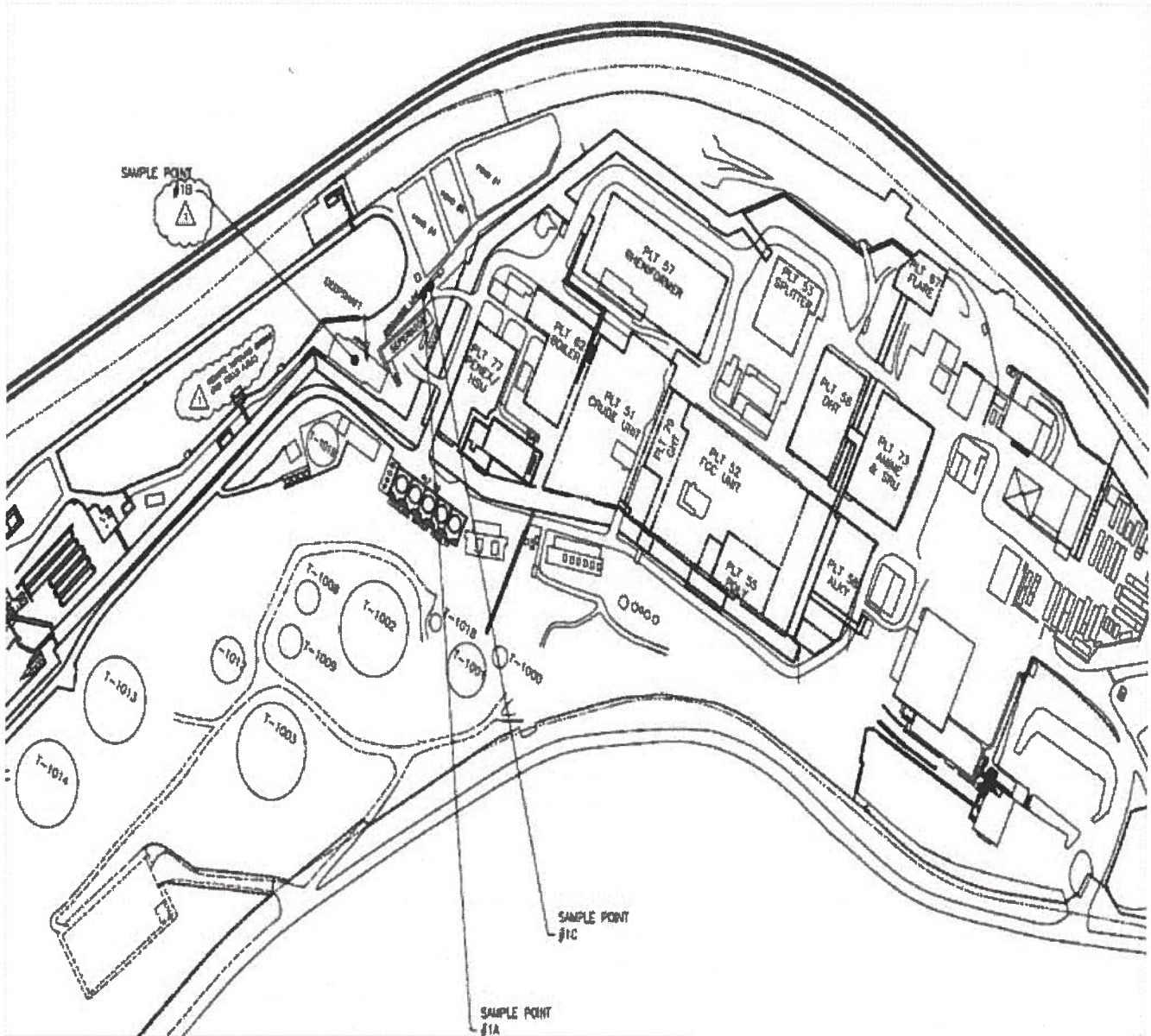
  
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**GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT**

**SCHEDULE B**

**2. SITE PLAN(S)**



Issued: July 31, 1995  
Amended: June 11, 2019

Waste Discharge Permit No. SC-100010-VSA

  
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**GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT**

**SCHEDULE C**

This Schedule sets out standard conditions and requirements for emergency procedures.

**1. STANDARD CONDITIONS**

- a) Except as otherwise provided in this Permit, all terms, conditions and definitions stipulated in the Bylaw shall apply to this Permit.
- b) Pursuant to the Bylaw, the Sewage Control Manager (the Manager) may amend the terms and conditions of this Permit.
- c) All records required by this permit shall be kept available for a minimum period of one year.

**2. WORKS AND PROCEDURES**

- a) All authorized works, procedures and requirements shall be employed at all times during any discharge to sewer. As applicable, all such works shall be inspected and calibrated regularly and maintained in good working condition.
- b) The Manager may require that additional works be installed if the existing works do not provide an acceptable level of treatment. The Manager must authorize new works or alterations to existing works. The Manager must authorize new waste sources.

**3. NOTIFICATION PROCEDURES**

The Permittee shall immediately report to Metro Vancouver at 604-643-8488 (24 hours):

- a) Spills with the potential to be discharged to the Sanitary Sewer.
- b) Failure of authorized works or conditions and/or failure to carry out authorized procedures that will or have the potential to result in a Permit limit being exceeded.
- c) Discharge pH less than 2 or greater than 12.5.

**4. BY-PASSES**

The discharge of Wastes that by-pass any authorized works or is not in accordance with procedures designated by the Permit is prohibited, unless prior authorization of the Manager is obtained.

**5. DISCHARGE MONITORING**

- a) All sampling and sample handling of wastewater discharges, including sample containers, storage, preservation and hold time requirements shall be carried out in accordance with all prescribed requirements stated within the latest edition of the "British Columbia Environmental Laboratory Manual" published by the Ministry of Environment, Province of British Columbia or "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, or an alternate standard authorized by the Manager.
- b) With the exception of pH measurements, all samples shall be analyzed by an independent, ISO/IEC 17025:2005 accredited laboratory unless otherwise authorized by the Manager.

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**GREATER VANCOUVER SEWERAGE & DRAINAGE DISTRICT**

**SCHEDULE C**

- c) Laboratories used by the Permittee must also be accredited by the Canadian Association for Laboratory Accreditation and/or the Standards Council of Canada for all parameters analyzed and must participate in relevant proficiency testing programs for each parameter.
- d) Any changes in method or location of monitoring must be authorized by the Manager.
- e) Additional monitoring and/or reporting shall be undertaken by the Permittee when required by the Manager.

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**SCHEDULE D**

This Schedule sets out the requirements for the monitoring of the discharge to Sewer.

**DISCHARGE SAMPLING AND ANALYSES: Effective July 01, 2019**

**1. FLOW MEASUREMENTS**

The Permittee shall measure or estimate the discharge flow to sanitary sewer during each month of operation using the method(s) authorized in Schedule B and record for reporting purposes the following:

- Total discharge volume (m<sup>3</sup>) for the month for sample point(s) 1
- Number of days of discharge to sewer during the month for sample point(s) 1
- Maximum daily discharge flow rate (m<sup>3</sup>/d) during the month for sample point(s) 1
- Maximum instantaneous flow rate (L/s) during the month for sample point(s) 1

**2. CONTINUOUS MEASUREMENTS**

The Permittee shall continuously measure the discharge pH during the period of discharge to sewer for sample point(s) 1 and record for reporting purposes the following:

- The total number of hours of discharge below the authorized pH range and the total number of hours of discharge above the authorized pH range during each month of operation.
- Total number of hours of discharge during the month.

**3. SAMPLING PROGRAM**


**Continuous Discharge Sampling:**

The Permittee shall record for reporting purposes for each sample the following:

- Sample date
- Sample collection time or sample collection start and stop time(s) if applicable
- Total daily discharge volume (m<sup>3</sup>) on the date of sampling

Issued: July 31, 1995  
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Waste Discharge Permit No. SC-100010-VSA

  
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**SCHEDULE D**

**SAMPLE POINT: 1**

**Continuous Discharges:**

On one normal operating day once per month collect 1 set of grab samples (\*see below) and analyze for:

- Toxicity (96 hr LC50 Rainbow Trout)
- Total BETX

On one normal operating day once per month collect 1 set of composite samples from Sample Point 1(c) and analyze for:

- Total Metals by ICP Scan including:  
Aluminum, Arsenic, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead,  
Manganese, Molybdenum, Nickel, Selenium, Silver, Zinc

On one normal operating day once per week collect 1 set of grab samples from Sample Point 1(a) and analyze for:

- pH
- Oil & Grease Hydrocarbon
- Ammonia as N
- Cyanide
- Sulphide
- Phenols

On one normal operating day once per week collect 1 set of composite samples from Sample Point 1(c) and analyze for:

- Biochemical Oxygen Demand
- Total Suspended Solids
- Sulphate

On one normal operating day once per quarter collect 1 set of grab samples from Sample Point 1(a) and analyze for:

- Polycyclic Aromatic Hydrocarbons

Grab sample pH analysis must be conducted immediately upon sampling.

Unless otherwise specified, composite samples shall consist of equal portions of grab samples, collected at a frequency of at least one per hour during discharge to sewer.

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**SCHEDULE D**

If composite sampling is specified, grab samples shall be taken during the period of composite sampling unless noted otherwise in this Schedule.

Unless otherwise specified, all samples should be taken during normal operations.

\* Toxicity samples shall be collected from Sample Point 1(b)  
Total BETX samples shall be collected from Sample Point 1(a)

Toxicity, 96 hour LC50 Rainbow Trout samples are to be collected prior to the sodium hypochlorite injection point. Greater than 50% survival in 100% concentration sample after 96 hours constitutes a passed test.

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**SCHEDULE E**

This Schedule sets out reporting requirements for this Permit.

**1. REPORTING REQUIREMENTS**

**By July 31, 2019 and quarterly thereafter for the term of this permit:**

The Permittee shall submit a report detailing the results of the discharge sampling and analyses program, as specified, for the previous calendar quarter including lab reports. This information shall be submitted electronically using the supplied password-enabled web based application.

Should a violation of any term or condition of the Permit be noted, the report shall include a summary of the investigation into the cause of the violation and the corrective actions taken or proposed to prevent future violations. This does not preclude the immediate notification requirements specified in Schedule C.

**2. ADDITIONAL REPORTING**

<b>Report Type</b>	<b>Requirements</b>	<b>Due Date</b>	<b>Frequency</b>
Sampling Methodology	Written report outlining the methods used for the sampling and analysis program contained in this Permit. The report shall include: sampling schedule; sample handling including sampling methods, preservation, storage, and transportation; analytical methods references; potential interferences / results bias; laboratory quality assurance / control programs in place; identification of the laboratory responsible for conducting analyses (in-house or consultant).	September 30, 2019	Yearly thereafter
Equipment Maintenance	Written report describing: the procedures, frequency, and record keeping for inspections and maintenance of equipment listed in Schedule B, under Works and Procedures; procedures for inspection and calibration of in-situ monitoring equipment listed in Schedule B, under Works and Procedures; and a description of the training, duties and responsibilities of personnel maintaining and operating these works.	September 30, 2019	Yearly thereafter

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**SCHEDULE E**

Other	<p>Written report detailing the results of the Dissolved Organic Halides sampling and analyses program for the preceding calendar year.</p> <p>The sampling program shall consist of three set of grab samples, consisting of pre and post chlorinated effluent, during one normal operating day once per annum. The grab samples shall be taken on the same day that the weekly composite sample described in Schedule D, Section 3 is taken, with a minimum sample frequency of once every 15 minutes.</p>	September 30, 2019	Yearly thereafter
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