



State of Utah

GARY R. HERBERT
Governor

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Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN146270001-13

June 21, 2013

Ron Chamness
Emery Refining, L.L.C.
4265 San Felipe Street
Houston, TX 77027

Dear Mr. Chamness:

Re: Approval Order: Petroleum Processing Plant
Project Number: N14627-0001

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Mr. Tim DeJulis, who may be reached at (801) 536-4012.

Sincerely,

Bryce C. Bird
Director

BCB:TDJ:kw

cc: Southeastern Utah District Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: Petroleum Processing Plant

**Prepared By: Mr. Tim DeJulis, Engineer
Phone: (801) 536-4012
Email: tdejulis@utah.gov**

APPROVAL ORDER NUMBER

DAQE-AN146270001-13

Date: June 21, 2013

**Emery Refining, L.L.C.
Green River Oil Refinery
Source Contact:
Ron Chamness, Environmental Contact
Phone: (713) 654-0912
Email: Rchamness@woodlock.Com**

**Bryce C. Bird
Director**

Abstract

Emery Refining, L.L.C. has requested an approval order to establish a new petroleum processing plant. The new plant will be located in Green River, Emery County. The processing plant will consist of two separate processing facilities: fuels, solvents, lubricants, and waxes. The processing plant will consist of distillation towers, process heaters, boilers, storage tanks, centrifuges, wax crystallizers, a flare device, material unloading/loading racks, and various pollution control devices. The entire plant will be capable of processing up to 20,000 barrels of various oils feedstock per day.

This document is different compared to the ITA published earlier. It holds additional terms in the permit consistent with the comments offered.

Emery County is an attainment area of the NAAQS for all pollutants. NSPS, NESHAP, and MACT regulations and Title V of the 1990 Clean Air Act apply to this source.

The emissions, in TPY, will be as follows:

$PM_{10} = 10.92$, $PM_{2.5} = 2.45$, $NO_x = 21.09$, $SO_2 = 1.15$, $CO = 73.20$, $VOC = 36.02$, $HAPs = 2.71$, $CO_2e = 90,096$

$PM_{2.5}$ is a subset of PM_{10} .

The project has been evaluated and found to be consistent with the requirements of UAC R307. A public comment period was held in accordance with UAC R307-401-7 and comments were received. All Comments were evaluated and addressed. This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:

Emery Refining, L.L.C.
4265 San Felipe Street
Houston, TX 77027

Permitted Location:

Green River Oil Refinery
5 miles west of Green River
Emery County, UT

UTM coordinates: 564,747 m Easting, 4,316,525 m Northing, UTM Zone 12

SIC code: 2911 (Petroleum Refining)

Section I: GENERAL PROVISIONS

- I.1 All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
- I.2 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
- I.3 Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]

- I.4 All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
- I.5 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
- I.6 The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
- I.7 The owner/operator shall comply with UAC R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

- II.A.1 **Petroleum Processing Plant**
Emery Refining, L.L.C.
- II.A.2 **Water Treatment**
consisting of:
Two separate oil/water and salt separation systems
- II.A.3 **Boilers (3)**
Capacity: 1.5 MMBtu/hr
Fuel: natural gas
- II.A.4 **Boilers (3)**
Capacity: three (3) MMBtu/hr
Fuel: natural gas
- II.A.5 **Cooling Towers**
30,000 gpm capacity (combined).

Listed for information purposes.
- II.A.6 **Flare System**
One (1) industrial flare device for emergency use only (50,000 Btu/hr pilot fueled by pipeline-quality natural gas).
- II.A.7 **Fire System Pump Engine**
Capacity: 334 hp
Fuel: diesel or fuel oil

- II.A.8 **Emergency Generator Engine**
Capacity: one (1) MW
Fuel: diesel or fuel oil
- II.A.9 **Material Transfer Equipment (2)**
Crude oil, kerogen oil, tar sands oil receiving and diesel fuel, marine fuel oil, heavy fuel oil, naphtha solvents, kerosene, asphalt, and liquid petroleum gas product transfer equipment.
- II.A.10 **Atmospheric Distillation Heater**
Capacity: 36 MMBtu/hr
Fuel: natural gas
- II.A.11 **Vacuum Distillation Heater**
Capacity: five (5) MMBtu/hr
Fuel: natural gas
- II.A.12 **Wax Plant Distillation Heaters (2)**
Capacity: 51 MMBtu/hr each
Fuel: natural gas
Attached equipment: SCR, ammonia reagent
- II.A.13 **Fuel Distillation Unit**
Salt separator
Oil/water separator (see II.A.2)
Atmospheric fractionation tower
Vacuum fractionation tower
Fired heaters (see II.A.10 and II.A.11)
Storage tanks (see tanks D350-1 through D20000-5)
Product loading rack (see II.A.9)
- II.A.14 **Wax Plant Unit**
Salt separator
Oil/water separator (see II.A.2)
Atmospheric fractionation towers
Fired heaters (see II.A.12)
Storage tanks (see tanks W2500-1 through W20000-12)
Evaporators
Crystallizers
Rotary filters
Slabber, priller, pelletizer
Product loading rack (see II.A.9)
- II.A.15 **Storage Tanks**
Four (4) pressurized storage tanks

Two (2) in LNG fuel (process) service
Two (2) in LPG products service

Listed for information purposes.
- II.A.16 **Storage Tank (D350-1)**
One (1) internal floating roof tank, 14,700 gallon capacity, in crude oil or water service

- II.A.17 **Storage Tanks (D500-1 and D500-2)**
Two (2) internal floating roof tanks, 21,000 gallon capacity each, in naphtha service
- II.A.18 **Storage Tanks (D2500-1 through D2500-8)**
Eight (8) vertical fixed roof tanks, 89,890 gallon capacity each, in diesel, heavy fuel oil, or marine fuel oil service
- II.A.19 **Storage Tanks (D5000-1 through D5000-8)**
Eight (8) internal floating roof tanks, 210,000 gallon capacity each, in naphtha service
- II.A.20 **Storage Tank (D5000-9)**
One (1) vertical fixed roof tank, 272,610 gallon capacity, in kerosene service
- II.A.21 **Storage Tanks (D10000-1 through D10000-11)**
11 vertical fixed roof tanks, 390,114 gallon capacity each, in kerosene, heavy fuel oil service, or marine fuel oil service
- II.A.22 **Storage Tanks (D20000-1 through D20000-5)**
Five (5) internal floating roof tanks, 840,000 gallon capacity each, in crude oil or water service
- II.A.23 **Storage Tanks (W2500-1 through W2500-4)**
Four (4) internal floating roof tanks, 105,000 gallon capacity each, in naphtha service
- II.A.24 **Storage Tank (W2500-5)**
One (1) vertical fixed roof tank, 89,890 gallon capacity, in lube oil service
- II.A.25 **Storage Tanks (W5000-1 through W5000-7)**
Seven (7) vertical fixed roof tanks, 272,610 gallon capacity each, in diesel, lube oil, or water service
- II.A.26 **Storage Tanks (W10000-1 through W10000-17)**
17 vertical fixed roof tanks, 390,114 gallon capacity each, in diesel, lube oil, or wax oil service
- II.A.27 **Storage Tanks (W20000-1 through W20000-3)**
Three (3) vertical fixed roof tanks, 554,620 gallon capacity each, in wax oil service
- II.A.28 **Storage Tanks (W20000-4 through W20000-12)**
Eight (8) internal floating roof tanks, 840,000 gallon capacity each, in crude oil or water service

II.B Requirements and Limitations

- II.B.1 **The Emery Refining L.L.C. Petroleum Processing Plant shall be subject to the following**
- II.B.1.a Visible emissions from any stationary point or fugitive emission source associated with the source or with the control facilities shall not exceed 10% opacity, unless specified elsewhere. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401-8]
- II.B.1.b The owner/operator shall develop and implement a written leak-detection-and-repair (LDAR) plan consistent with 40 CFR 60.482-2a (g)(2), 60.482-7a (g)(2) & (3), 60.482-10a (j)(2) & (3), and 60.482-11a (e)(2). [40 CFR 60.482]

II.B.1.c The following limits shall not be exceeded:

30,660,000 gallons of naphtha per rolling 12-month period
7,741,650 gallons of solvents per rolling 12-month period
82,170,000 gallons of kerosene and diesel fuel per rolling 12-month period
72,051,000 gallons of asphalt, marine fuel oil, and heavy fuel oil per rolling 12-month period
37,740,000 gallons of lube oils per rolling 12-month period
244,050 tons of wax products per rolling 12-month period

[R307-401-8]

II.B.1.c.1 A new 12-month total shall be calculated on a monthly basis by summing the monthly totals from the previous consecutive 12 months. Monthly calculations shall be made no later than 20 days after the end of each calendar month. Records of each production shall be kept for all periods when the plant is in operation. The finished production shall be determined by examination of company and/or customer billing records in each case. The records of each production shall be kept on a daily basis. [R307-401-8]

II.B.1.d Emery Refining, L.L.C. shall notify the Director in writing when the installation of the items appearing in the equipment list is complete and is operational. To ensure proper credit when notifying the Director, send your correspondence to the Director, attn: Compliance Section. If the construction and/or installation is not complete within 18 months from the date of this AO, the Director shall be notified in writing on the status of the construction and/or installation. At that time, the Director shall require documentation of the continuous construction and/or installation of the operation. If a continuous program of construction, installation, modification, relocation, or establishment is not proceeding, the Director may revoke the AO. [R307-401-18]

II.B.2 The In-Plant Haul Roads shall be subject to the following conditions

II.B.2.a The facility shall comply with all applicable requirements of R307-205 for Fugitive Emission and Fugitive Dust sources. [R307-205]

II.B.2.b Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity at any point. Visible emission determinations shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Visible emissions shall be measured at the densest point of the plume but at a point not less than 1/2 vehicle length behind the vehicle and not less than 1/2 the height of the vehicle. [R307-401-8]

II.B.2.c The in-plant haul roads shall be paved, and shall be periodically swept, or sprayed clean as dry conditions warrant or as determined necessary by the Director. Records of cleaning paved roads shall be kept for periods the plant is in operation. The records shall include the following items:

1. Date of cleaning(s)
2. Time of day that cleaning(s) were performed.

[R307-401-8]

II.B.2.d The owner/operator shall cover all unpaved disturbed areas with road base material and shall use water application to maintain opacity limits listed in this AO. If the temperature is below freezing, the owner/operator may stop applying water to the unpaved haul roads and wheeled-vehicle operational areas. The owner/operator shall resume

applying water to the unpaved haul road and wheeled-vehicle operational when the temperature is above freezing.

[R307-401-8]

II.B.3 The Oil Water Separators shall be subject to the following

II.B.3.a In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS Subpart QQQ, found at 40 CFR 60.690 to 60.699 (Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems) and 40 CFR 61, NESHAP Subpart FF, found at 40 CFR 61.340 to 61.359 (National Emission Standard for Benzene Waste Operations) apply to this installation. [40 CFR 60 Subpart QQQ, 40 CFR 61 Subpart FF]

II.B.3.b A monitoring device capable of monitoring and recording the VOC concentration shall be installed and operated in accordance with 40 CFR 60.695 and 40 CFR 61.354. [40 CFR 60 Subpart QQQ, 40 CFR 61 Subpart FF]

II.B.4 The Process Boilers shall be subject to the following

II.B.4.a The owner/operator shall use process off-gas or natural gas as fuel in the crude distillation process boilers. [R307-401-8]

II.B.4.b The boilers shall comply with the following emission limits:

SO₂ emissions less than or equal to 20 ppmvd, corrected to 0% O₂, 3-hour rolling average and SO₂ emissions less than or equal to 8 ppmvd, corrected to 0% O₂, 365-day rolling average;

or

H₂S concentration in process off-gas less than or equal to 162 ppmv, 3-hour rolling average

and,

H₂S concentration in process off-gas less than or equal to 40 ppmv, 365-day rolling average.

[40 CFR 60.102a (g)(1)(i), 40 CFR 60.102a (g)(1)(ii)]

II.B.4.b.1 Emery Refining, L.L.C. shall install, calibrate, maintain, and operate a continuous monitoring system to measure the effluent SO₂ emissions from the distillation process boilers, or

Emery Refining, L.L.C. shall install, calibrate, maintain, and operate a continuous monitoring system to measure the H₂S content in the process off-gas supplied to the distillation process boilers, depending on which limit is chosen by Emery Refining, L.L.C.. The monitoring system shall comply with all applicable sections of R307-170 and 40 CFR 60, Appendix B. [40 CFR 60.102a (g)(1)(i), 40 CFR 60.102a (g)(1)(ii), R307-170]

II.B.4.c The owner/operator shall comply with the following limit:

5 ppm ammonia, corrected to 0% O₂, 365-day rolling average

from the SCR attached to the boiler

[R307-401-8]

- II.B.4.c.1 Emery Refining, L.L.C. shall install, calibrate, maintain, and operate a monitoring system to measure the amount of ammonia coming from the SCR to control NO_x. The monitoring system shall comply with all applicable sections of R307-170 and 40 CFR 60, Appendix B. [R307-170]
- II.B.5 **The Flare System shall be subject to the following**
- II.B.5.a The owner/operator shall not allow flow to the flare during normal operations of more than: 250,000 standard cubic feet per day (scfd) on a 30-day rolling average. [40 CFR 60.102a (g)(3)]
- II.B.5.a.1 The flow to the flare device shall be determined by use of a flow meter. Flow measurement shall occur at least once every hour. The accuracy of the monitoring device must be certified by the manufacturer. The monitoring device shall be accurate within plus or minus five (5) percent of the design gas flow rate and must be calibrated on an annual basis according to the manufacturer's instructions. [R307-401-8]
- II.B.5.b The flare system shall comply with the following emission limits at all times except during unavoidable process upsets or plant emergency:
- SO₂ emissions less than or equal to 20 ppmvd, corrected to 0% O₂, 3-hour rolling average and SO₂ emissions less than or equal to 8 ppmvd, corrected to 0% O₂, 365-day rolling average;
- or
- H₂S concentration in process off-gas in excess of 162 ppmv, 3-hour rolling average and, H₂S concentration in process off-gas in excess of 40 ppmv, 365-day rolling average. [40 CFR 60.102a (g)(1)(ii), R307-401-8]
- II.B.5.b.1 Emery Refining, L.L.C. shall install, calibrate, maintain, and operate a continuous monitoring system to measure the effluent SO₂ emissions from the flare device, or
- Emery Refining, L.L.C. shall install, calibrate, maintain, and operate a continuous monitoring system to measure the H₂S content in the process off-gas supplied to the flare device, depending on which limit is chosen by Emery Refining, L.L.C.. The monitoring system shall comply with all applicable sections of R307-170 and 40 CFR 60, Appendix B. [40 CFR 60.102a (g)(1)(ii), R307-170]
- II.B.6 **The Internal Combustion Engines shall be subject to the following**
- II.B.6.a In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS Subpart A, found at 40 CFR 60.1 to 60.18 (General Provisions), Subpart IIII, found at 40 CFR 60.4200 to 60.4219 (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines), as well as all applicable provisions of Subpart ZZZZ, found at 40 CFR 63.6580 to 63.6675 (National Emission Standard for Reciprocating Internal Combustion Engines) apply to this facility. [40 CFR 60 Subpart IIII, 40 CFR 60 Subpart ZZZZ]
- II.B.6.b The owner/operator shall not allow visible emissions from the emergency generators and fire pump engines to exceed 20 percent opacity. [R307-201-3]
- II.B.6.c The sulfur content shall not exceed:

0.0015 percent by weight for diesel fuels consumed in the internal combustion engines.
[40 CFR 60.4207 (b)]

II.B.6.c.1 The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of diesel fuels shall be either by Emery Refining, L.L.C.'s own testing or test reports from the fuel marketer. [R307-401-8]

II.B.7 **The Material Transfer Equipment shall be subject to the following**

II.B.7.a The product loading rack shall be equipped with a vapor collection system. The collected gases shall use a submersible loading mechanism. Collected naphtha gases shall be routed to the process boilers. [R307-401-8]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), A: General Provisions

NSPS (Part 60), Ja: Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007

NSPS (Part 60), Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

NSPS (Part 60), GGGa: Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

NSPS (Part 60), QQQ: Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems

NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

NESHAP (Part 61), A: General Provisions

NESHAP (Part 61), FF: National Emission Standard for Benzene Waste Operations

MACT (Part 63), A: General Provisions

MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

PERMIT HISTORY

This AO is based on the following documents:

Incorporates	Additional information dated December 13, 2012
Incorporates	Additional information dated December 11, 2012
Is Derived From	NOI dated November 19, 2012

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Emery County

CDS B

MACT (Part 63), NESHAP (Part 61), Attainment Area, NSPS (Part 60),

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM ₁₀	Particulate matter less than 10 microns in size
PM _{2.5}	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO ₂	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds