



State of Mississippi



AIR POLLUTION CONTROL PERMIT

To Construct Air Emissions Equipment

THIS CERTIFIES

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Leake Road
Centreville, MS
Wilkinson County

has been granted permission to construct air emissions equipment to comply with the emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Mississippi Environmental Quality Permit Board

Mississippi Department of Environmental Quality

Issued/Modified: DEC 04 2014

Expires:

Permit No. 2940-00021

Agency Interest # 57872

Table of Contents

| | |
|-----------------------------|-----|
| Subject Item Inventory..... | i |
| Facility Requirements..... | 1 |
| General Information..... | A-1 |
| Other Relevant Documents: | |

The federal regulations referenced in this permit may be found on-line at <http://ecfr.gpoaccess.gov/> and the State of Mississippi regulations may be found on-line at <http://www.mdeq.ms.state.us/> or a copy of the regulations may be obtained by contacting the Mississippi Department of Environmental Quality, Environmental Permitting Division, Post Office Box 2261, Jackson, Mississippi 39255, phone (601) 961-5171. The following regulations were referenced in this permit:

Mississippi Air Regulations 11 Miss. Admin. Code Pt. 2, Ch. 1, Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants

Mississippi Air Regulations 11 Miss. Admin. Code Pt. 2, Ch. 2, Permit Regulations for the Construction and/or Operation of Air Emissions Equipment

40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Internal Combustion Engines

40 CFR Part 60, Subpart OOOO - New Source Performance Standards for Crude Oil and Natural Gas Production, Transmission, and Distribution

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Subject Item Inventory

Permit Number:2940-00021

Activity ID No.: PER20140001

Subject Item Inventory:

| ID | Designation | Description |
|---------|-------------|--|
| AI57872 | 57872 | Oil and Gas Production |
| EQPT41 | AA-002 | 0.5 MMBtu/hr Heater Treater Burner Stack (Facility Ref. No. 2-12-HT-BS |
| EQPT28 | AA-005 | 100 HP natural gas-fired, 4-stroke rich burn, spark ignition, non emergency, reciprocating internal combustion engine used as a gas compressor (5-12-ICE-ES) |
| EQPT46 | AA-007 | 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7a-12-OST-CV) |
| EQPT45 | AA-008 | 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7b-12-OST-CV) |
| EQPT44 | AA-009 | 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7c-12-OST-CV) |
| EQPT43 | AA-010 | 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7d-12-OST-CV) |
| EQPT42 | AA-011 | 400 Barrel (16,800 gallon) Produced Water Storage Tank with a common vent (Facility Ref. No. 7e-12-WST-CV) |
| EQPT29 | AA-012 | 400 Barrel (16,800 gallon) Produced Water Storage Tank with a common vent (Facility Ref. No. 7f-12-WST-CV) |
| EQPT38 | AA-016 | Blowcase Vessel - Compressor Skid Fluids (Facility Ref. No. 12-12-BV) |
| EQPT36 | AA-018 | Four Gas Operated Pump for Chemical Injection(Facility Ref. No. 14-12-GOP, 27-14-GOP, 28-13-GOP, 29-13-GOP) |
| EQPT33 | AA-020 | Oil Tank Transfer to Truck Loading - Loading Losses (Facility Ref. No. 16-12-LL) |
| EQPT34 | AA-021 | Pneumatic Controllers (Facility Ref. No. 17-12-PC) |
| AREA2 | AA-022 | Fugitive Emissions (Facility Ref. No. 18-12-FE) |
| EQPT32 | AA-023 | Lube Oil Tank (Facility Ref. No. 19-12-LOT) |
| CONT2 | AA-026 | Control Flare (Facility Ref.: 8-12-F) |
| EQPT50 | AA-027 | Three Methanol Storage Tanks (32-14-MST, 33-14-MST, 34-14-MST) |
| EQPT51 | AA-028 | Flare Gas from JT Outlet (Facility Ref.: 23-14-FG) |
| EQPT52 | AA-029 | Natural Gas Liquids Purging (Facility Ref.: 23-14-NGL-P) |
| EQPT53 | AA-030 | 163 HP, natural gas-fired, 4-stroke, rich burn, spark ignition, non-emergency stationary internal combustion engine used as a gas compressor (24-14-ICE-ES) |
| EQPT54 | AA-031 | 200 hp, natural gas-fired, 4 stroke, rich burn, spark ignition, non-emergency stationary internal combustion engine jet pump (Facility Ref.: 25-14-ICE-ES) |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Subject Item Inventory

Permit Number:2940-00021

Activity ID No.: PER20140001

| ID | Designation | Description |
|--------|-------------|--|
| EQPT55 | AA-032 | 8.5 HP, natural gas-fired, 4 stroke, rich burn, spark ignition, non emergency stationary internal combustion engine (Pump) (Facility Ref.: 26-14-ICE-ES) |

Subject Item Groups:

| ID | Description | Components |
|--------|---|---|
| GRPT10 | Crude Oil Storage Tanks | EQPT46 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7a-12-OST-CV) |
| | | EQPT45 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7b-12-OST-CV) |
| | | EQPT44 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7c-12-OST-CV) |
| | | EQPT43 400 Barrel (16,800 gallon) Oil Storage Tank with a common vent (Facility Ref. No. 7d-12-OST-CV) |
| GRPT11 | Produced Water Storage Tanks | EQPT42 400 Barrel (16,800 gallon) Produced Water Storage Tank with a common vent (Facility Ref. No. 7e-12-WST-CV) |
| | | EQPT29 400 Barrel (16,800 gallon) Produced Water Storage Tank with a common vent (Facility Ref. No. 7f-12-WST-CV) |
| GRPT12 | Line Heater, Heater Treater Burner, Glycol Regenerator Burner | EQPT41 0.5 MMBtu/hr Heater Treater Burner Stack (Facility Ref. No. 2-12-HT-BS) |
| GRPT13 | Compressor Engines (Emission Points: AA-005, AA-030, AA-031) | EQPT53 163 HP, natural gas-fired, 4-stroke, rich burn, spark ignition, non-emergency stationary internal combustion engine used as a gas compressor (24-14-ICE-ES) |
| | | EQPT54 200 hp, natural gas-fired, 4 stroke, rich burn, spark ignition, non-emergency stationary internal combustion engine jet pump (Facility Ref.: 25-14-ICE-ES) |
| | | EQPT28 100 HP natural gas-fired, 4-stroke rich burn, spark ignition, non emergency, reciprocating internal combustion engine used as a gas compressor (5-12-ICE-ES) |
| GRPT7 | Gas Operated Pumps | EQPT36 Four Gas Operated Pump for Chemical Injection(Facility Ref. No. 14-12-GOP, 27-14-GOP, 28-13-GOP, 29-13-GOP) |
| | | EQPT35 Two Gas Operated Pump (Sandpiper GIF) to move skid fluids (Facility Ref.: 10-14-GOP, 31-14-GOP) |
| GRPT8 | Miscellaneous small storage tanks | EQPT50 Three Methanol Storage Tanks (32-14-MST, 33-14-MST, 34-14-MST) |
| | | EQPT32 Lube Oil Tank (Facility Ref. No. 19-12-LOT) |
| | | EQPT31 Glycol Storage Tank (Facility Ref. No. 20-12-GST) |
| | | EQPT30 Chemical Storage Tank (Facility Ref. No. 21-12-CST) |
| GRPT9 | Blowcase Vessels | EQPT38 Blowcase Vessel - Compressor Skid Fluids (Facility Ref. No. 12-12-BV) |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Subject Item Inventory

Permit Number:2940-00021

Activity ID No.: PER20140001

| ID | Description | Components |
|-------|------------------|---|
| GRPT9 | Blowcase Vessels | EQPT37 Blowcase Vessel - Condensed Liquids (Facility Ref. No. 13-12-BV) |

KEY

ACT = Activity

AREA = Area

CONT = Control Device

IA = Insignificant Activity

MAFO = Animal Feeding Operation

RPNT = Release Point

WDPT = Withdrawal Point

AI = Agency Interest

CAFO = Concentrated Animal Feeding Operation

EQPT = Equipment

IMPD = Impoundment

PCS = PCS

TRMT = Treatment

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 1 of 21

AI0000057872 (57872) Oil and Gas Production:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|------------------|---|
| L-1 | Hydrogen sulfide | Hydrogen sulfide: The permittee shall not cause or permit the emission of any gas stream which contains hydrogen sulfide in excess of one grain per 100 standard cubic feet. Gas streams containing hydrogen sulfide in excess of one grain per 100 standard cubic feet shall be incinerated at temperatures of not less than 1600 degrees Fahrenheit for a period of not less than 0.5 seconds, or processed in such manner which is equivalent to or more effective for the removal of hydrogen sulfide . [11 Miss. Admin. Code Pt. 2, R. 1.4.B(2)] |
| L-2 | Sulfur Dioxide | Sulfur Dioxide: Sulfur dioxide concentration limitations in the gas streams resulting from such incineration or processing shall be determined for each emission point on a case-by-case basis to insure that the resulting maximum ground level concentration of sulfur dioxide as determined by acceptable method or methods will be in compliance with the National Ambient Air Quality Standards for sulfur dioxide. Testing to determine the productive capacity of new fields shall be exempted from emission limitation provisions of the paragraph of the regulation providing such testing has been previously negotiated and approved by the Mississippi Office of Pollution Control. [11 Miss. Admin. Code Pt. 2, R. 1.4.B(2)] |
| L-3 | Fuel Combusted | Fuel Combusted: For all combustion units operating at this facility, the permittee shall only combust commercial grade propane or natural gas. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-4 | | The permittee shall comply with all applicable requirements of the Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution - 40 CFR Part 60, Subpart OOOO for all affected onshore facilities that commenced construction, modification or reconstruction after August 23, 2011. [40 CFR 60_Subpart OOOO] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 2 of 21

AI0000057872 (continued):

Monitoring Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| M-1 | | <p>The permittee shall conduct a semi-annual produced field gas analysis. This analysis shall include: hydrogen sulfide concentration, sulfur content, methane concentration (volume), gross heating value, molecular weight, specific gravity, well gas-to-oil ratio and produced field gas speciated analysis. The first annual produced field gas analysis shall be conducted no later than 30 days after the date of certification of construction</p> <p>Additionally, an updated produced field gas analysis must be conducted within 60 days from startup of any additional wells at this production site. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)]</p> |

Record-Keeping Requirements:

| Condition No. | Condition |
|---------------|---|
| R-1 | <p>The permittee shall keep the following records:</p> <ul style="list-style-type: none">(1) monthly lbs and /or tons of volatile organic compounds, total hazardous air pollutants and individual hazardous air pollutants including sample calculations;(2) result of annual produced gas analysis;(3) produced crude oil (barrels), monthly;(4) produced water (barrels), monthly(4) produced field gas (MMscf), monthly(5) Cubic feet of waste gas flared, monthly;(6) Cubic feet of natural gas sold, monthly <p>The permittee shall maintain a copy of this record on site for at least five years and shall make them available upon request by the Mississippi Department of Environmental Quality (MDEQ) personnel. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)]</p> |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 3 of 21

AI0000057872 (continued):

Submittal/Action Requirements:

| Condition No. | Condition |
|---------------|---|
| S-1 | General Condition: The permittee shall submit certification of construction: Due within thirty (30) days of completion of construction or installation of an approved stationary source or prior to startup, whichever is earlier. The notification shall certify that construction or installation was performed in accordance with the approved plans and specifications. In the event there is any change in construction from the previously approved plans and specifications or permit, the permittee shall promptly notify MDEQ in writing. If MDEQ determines the changes are substantial, MDEQ may require the submission of a new application to construct with "as built" plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an "as built" application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law. [11 Miss. Admin. Code Pt. 2, R. 2.5.D.] |
| S-2 | Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. [11 Miss. Admin.Code Pt. 2, R.2.5.C(2).] |
| S-3 | The permittee must notify DEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for eighteen (18) months or more. [11 Miss. Admin.Code Pt. 2, R.2.5.C(4).] |
| S-4 | <p>The permittee shall report to MDEQ all applicable requirements that the facility is subject to and must comply with under the following rules:</p> <p>40 CFR Part 60, Subpart A; 40 CFR Part 60, Subpart JJJJ; 40 CFR Part 60, Subpart OOOO. 40 CFR Part 63, Subpart A; 40 CFR Part 63, Subpart ZZZZ;</p> <p>This report shall include, at a minimum, standards, initial compliance demonstration, continuous compliance demonstration, record keeping, notification, performance testing, and reporting and shall be submitted within 30 days of certification of construction. This report shall be attached to the facility's copy of the air permit and shall be made available to MDEQ personel during an inspection of the site . [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)]</p> |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 4 of 21

AI0000057872 (continued):

Submittal/Action Requirements:

| Condition No. | Condition |
|---------------|--|
| S-5 | <p>The permittee shall report annually by January 31st for the preceding calendar year:</p> <ul style="list-style-type: none">(1) monthly lbs and /or tons of volatile organic compounds, total hazardous air pollutants and individual hazardous air pollutants including sample calculations;(2) result of annual produced gas analysis;(3) produced crude oil (barrels), monthly;(4) produced water (barrels), monthly(4) produced field gas (MMscf), monthly;(5) cubic feet of waste gas flared, monthly;(6) cubic feet of natural gas sold, monthly <p>. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)]</p> |

Narrative Requirements:

General Condition:

| Condition No. | Condition |
|---------------|--|
| T-1 | <p>General Condition: The stationary source shall be designed and constructed so as to operate without causing a violation of any Applicable Rules and Regulations or this permit, without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards, and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries. [11 Miss. Admin.Code Pt. 2, R.2.5.A.]</p> |
| T-2 | <p>General Condition: Any activities not identified in the application are not authorized by this permit. [Miss. Code Ann. 49_17_29 1.b]</p> |
| T-3 | <p>General Condition: The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters without the proper environmental permits. [Miss. Code Ann. 49_17_29]</p> |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 5 of 21

AI0000057872 (continued):

Narrative Requirements:

General Condition:

| Condition No. | Condition |
|---------------|---|
| T-4 | General Condition: The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except as provided for in Regulation 11 Miss. Admin. Code Pt.2, R. 1.10 "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. [11 Miss. Admin. Code Pt. 2, R. 1.10] |
| T-5 | General Condition: The permittee shall allow the Mississippi Environmental Quality Commission, the Mississippi Environmental Quality Permit Board, MDEQ staff and/or their authorized representatives, upon the presentation of credentials: a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring equipment or monitoring method required in this permit, and to sample any air emission. [Miss. Code Ann. 49_17_21] |
| T-6 | General Condition: After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for good cause shown including, but not limited to, the following: a. Persistent violation of any terms or conditions of this permit; b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or c. A change in any condition that requires either a temporary or permanent reduction or elimination of previously authorized air emissions. [11 Miss. Admin.Code Pt. 2, R.2.2.C.] |
| T-7 | General Condition: Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Environmental Quality Office of Pollution Control. [Miss. Code Ann. 49_17_39] |
| Condition No. | Condition |
| T-8 | General Condition:This permit is for air pollution control purposes only. [11 Miss. Admin.Code Pt. 2, R.2.1.D.] |
| T-9 | General Condition: The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law. [11 Miss. Admin.Code Pt. 2, R.2.2.B(5).] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 6 of 21

AI0000057872 (continued):

Narrative Requirements:

| Condition No. | Condition |
|---------------|--|
| T-10 | General Condition: It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits. [11 Miss. Admin.Code Pt. 2, R.2.1.D(6).] |
| T-11 | General Condition: The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities. [11 Miss. Admin.Code Pt. 2, R.2.1.D(7).] |
| T-12 | General Condition: It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state. [11 Miss. Admin.Code Pt. 2, R.2.2.B(15)(a).] |
| T-13 | General Condition: The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [11 Miss. Admin.Code Pt. 2, R.2.2.B(15)(b).] |
| T-14 | General Condition: The permit does not convey any property rights of any sort, or any exclusive privilege. [11 Miss. Admin.Code Pt. 2, R.2.2.B(15)(c).] |
| T-15 | General Condition: The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality. The permittee may furnish such records directly to the Administrator along with a claim of confidentiality. [11 Miss. Admin.Code Pt. 2, R.2.2.B(15)(d).] |
| T-16 | General Condition: This permit shall not be transferred except upon approval of the Permit Board. [11 Miss. Admin.Code Pt. 2, R.2.16.B.] |
| T-17 | General Condition: The provisions of this permit are severable. If any provision of the permit, or the application of any provision of the permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. [11 Miss. Admin.Code Pt. 2, R.1.1.D(7).] |
| T-18 | General Condition: The permit to construct will expire if construction does not begin within eighteen (18) months from the date of issuance or if construction is suspended for eighteen (18) months or more. [11 Miss. Admin.Code Pt. 2, R.2.5.C(1).] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 7 of 21

AI0000057872 (continued):

Narrative Requirements:

| Condition No. | Condition |
|---------------|--|
| T-19 | General Condition: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee. [11 Miss. Admin.Code Pt. 2, R.2.5.D(3).] |
| T-20 | General Condition: Except as prohibited in 11 Miss. Admin. Code Pt. 2,R. 2.5.D(7) after certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Permit or the application for issuance or modification of the State Permit to Operate, whichever is applicable, is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by APC-S-2, Section XIII.G. [11 Miss. Admin. Code Pt. 2, R. 2.5.D(4).] |
| T-21 | General Condition: Except as otherwise specified in 11 Miss. Admin. Code Pt. 2, R. 2.5.D(7), the application for issuance or modification of the State Permit to Operate or the Title V Permit, whichever is applicable, is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon certification of construction, unless the permittee specifies differently in writing. [11 Miss. Admin. Code Pt. 2, R. 2.5.D(5).] |
| T-22 | General Condition: Except as otherwise specified in 11 Miss. Admin. Code Pt. 2, R. 2.5.D(7), upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Permit, whichever is applicable, the applicant may continue to operate under the terms and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate. [11 Miss. Admin. Code Pt. 2, R. 2.5.D(6).] |
| T-23 | General Condition: For moderate modifications that require contemporaneous enforceable emissions reductions from more than one emission point in order to net out of PSD/NSR, the applicable Title V Permit to Operate or State Permit to Operate must be modified prior to beginning operation of the modified facilities. [11 Miss. Admin.Code Pt. 2, R.2.5.D(7).] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 8 of 21

AI0000057872 (continued):

Narrative Requirements:

| Condition No. | Condition |
|---------------|--|
| T-24 | <p>General Condition: Regarding compliance testing:</p> <p>(a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations or this permit and in units of mass per time.</p> <p>(b) Compliance testing will be performed at the expense of the permittee.</p> <p>(c) Each emission sampling and analysis report shall include but not be limited to the following:</p> <ol style="list-style-type: none">1. detailed description of testing procedures;2. sample calculation(s);3. results; and4. comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit. [11 Miss. Admin.Code Pt. 2, R.2.6.B(3),(4)&(6).] |
| T-25 | <p>General Condition: The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum. [11 Miss. Admin.Code Pt. 2, R.2.5.A(4).]</p> |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 9 of 21

EQPT0000000033 (AA-020) Oil Tank Transfer to Truck Loading - Loading Losses (Facility Ref. No. 16-12-LL):

Limitation Requirements:

| Condition | | |
|---------------|-----------|--|
| Condition No. | Parameter | Condition |
| L-1 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 10 of 21

EQPT0000000034 (AA-021) Pneumatic Controllers (Facility Ref. No. 17-12-PC):

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 11 of 21

CONT0000000002 (AA-026) Control Flare (Facility Ref.: 8-12-F):

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|--------------------|---|
| L-1 | Particulate Matter | Particulate Matter: (1) The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installation of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input . [11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)a] |
| L-2 | | For the flare, the permittee shall comply with all applicable requirements of 40 CFR 60.18. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-3 | | The permittee shall operate the control flare with no visible emissions as determined by EPA Method 22, except for periods not to exceed a total of 5 minutes during any consecutive two (2) hours. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-4 | | The permittee shall maintain a flare pilot flame at all times. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-5 | | The net heating value of the gas being combusted shall be 300 Btu/scf or greater if the flare is steam-assisted or air-assisted; or the net heating value of the gas being combusted shall be 200 Btu/scf or greater if the flare is non-assisted. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-6 | | Flares shall be operated at all times when emissions are being vented to them. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-7 | | Flares shall be operated and maintained in conformance with their design and manufacturer's recommendations. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

Monitoring Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| M-1 | | The permittee shall monitor the presence of the flare pilot flame by one of the following methods: using a thermo-couple or any other equivalent device to detect the presence of a flare; or visually observe the presence of the flare flame, daily. . [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 12 of 21

CONT0000000002 (continued):

Monitoring Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| M-2 | | The permittee shall visually observe the flare for a minimum of five (5) minutes during operation using EPA Method 22, weekly. If smoking is observed, corrective actions must be taken. The permittee shall perform a follow-up visual observation for a period of two (2) hours using EPA Method 22 immediately after corrections are made to demonstrate compliance with the visible emissions limitations. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |
| M-3 | | The net heating value of the gas being combusted shall be determined monthly by the methods specified in 40 CFR 60.18 (f) or by the semi-annual field gas analysis. Analysis must demonstrate that the heat content of the flare gas is 300 Btu/scf or greater if the flare is steam-assisted; or the net heating value of the gas being combusted is 200 Btu/scf or greater if the flare is non-assisted. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |
| M-4 | | The permittee shall measure the volume of gas combusted in the flare. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |

Record-Keeping Requirements:

| Condition No. | Condition |
|---------------|---|
| R-1 | The permittee shall keep records of all maintenance performed on the flare in order to operate the flare in a manner consistent with good air pollution control practices to minimize emissions and shall make said records available upon request. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |
| R-2 | The permittee shall maintain a record and/or a log documenting all visual observations/test, the nature and cause of any visible emissions, any corrective actions(s) taken to prevent or minimize the emissions, the date and time when visible observations were conducted and the date and time when corrective action was taken. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |
| R-3 | The permittee shall record on a log sheet anytime the facility is operating without a flame present and the corrective action taken. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |
| R-4 | The permittee shall keep a record of the net heating value of the stream combusted in the flare. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(11)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 13 of 21

EQPT0000000051 (AA-028) Flare Gas from JT Outlet (Facility Ref.: 23-14-FG):

Limitation Requirements:

| Condition | | |
|---------------|-----------|---|
| Condition No. | Parameter | Condition |
| L-1 | | The flare gas from the JT unit vent shall be routed to a control flare or to a natural gas liquids recovery unit; or to a natural gas transportation and sales pipeline. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 14 of 21

EQPT0000000055 (AA-032) 8.5 HP, natural gas-fired, 4 stroke, rich burn, spark ignition, non emergency stationary internal combustion engine (Pump) (Facility Ref.: 26-14-ICE-ES):

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | For this combustion engine, the maximum permissible emission of ash and/or particulate matter from fossil fuel burning installations of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)a] |
| L-2 | | Emissions of opacity shall be less than or equal to 40%, as determined by EPA Reference Method 9, 40 CFR Part 60, Appendix A. [11 Miss. Admin. Code Pt. 2, R. 1.3.A(1)] |
| L-3 | | For this combustion engine, the permittee is subject to and shall comply with the applicable requirements of the New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines (SI ICE) (40 CFR Part 60, Subpart JJJJ) and shall comply with the General Provisions (40 CFR Part 60, Subpart A) as required in Table 3 to NSPS Subpart JJJJ. [40 CFR 60_SUBPART JJJJ] |
| L-4 | | For this combustion engine, the permittee is subject to 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE). Emission Point AA-003 and AA-033 are new RICE located at an area source of hazardous air pollutants (HAP). Therefore, compliance with 40 CFR Part 63, Subpart ZZZZ shall be achieved by meeting all applicable requirements of the New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines, 40 CFR 60, Subpart JJJJ. No further requirements apply for such engines under NESHAP Subpart ZZZZ. [40 CFR 63.6590(c), 40 CFR 63.6585] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 15 of 21

GRPT0000000007 (Pumps) Gas Operated Pumps:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants . [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 16 of 21

GRPT0000000008 (Storage Tanks) Miscellaneous small storage tanks:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 17 of 21

GRPT0000000009 (Vessels) Blowcase Vessels:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 18 of 21

GRPT0000000010 (Storage Tanks) Crude Oil Storage Tanks:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| L-1 | | Emission Point AA-007, AA-008, AA-009, AA-010 shall only be operated with vapors routed to a control flare. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-2 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Facility Requirements
Permit Number:2940-00021
Activity ID No.: PER20140001

Page 19 of 21

GRPT0000000011 (Storage Tanks) Produced Water Storage Tanks:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| L-1 | | Emission Point AA-011 and AA-012 shall only be operated with emissions routed to a control flare. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |
| L-2 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 20 of 21

GRPT0000000012 (Combustion Units Rated Less than 10 MMBtu/hr) Line Heater, Heater Treater Burner, Glycol Regenerator Burner:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|--------------------|---|
| L-1 | Particulate Matter | Particulate Matter: The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installation of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)a] |
| L-2 | Opacity | Opacity: The permittee shall not have emissions of opacity greater than or equal to 40% as determined by EPA Reference Method 9, 40 CFR 60, Appendix A. [11 Miss. Admin. Code Pt. 2, R. 1.3.A(1)] |
| L-3 | | Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [11 Miss. Admin. Code Pt. 2, R. 2.2.B(10)] |

To Construct Air Emissions Equipment

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility

Facility Requirements

Permit Number:2940-00021

Activity ID No.: PER20140001

Page 21 of 21

GRPT0000000013 (Reciprocating Internal Combustion Engine) Compressor Engines (Emission Points: AA-005, AA-030, AA-031):

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | | The maximum permissible emission of ash and/or particulate matter from fossil fuel burning installation of less than 10 million BTU per hour heat input shall not exceed 0.6 pounds per million BTU per hour heat input. [11 Miss. Admin. Code Pt. 2, R. 1.3.D(1)a] |
| L-2 | | Emissions of opacity shall be less than or equal to 40%, as determined by EPA Reference Method 9, 40 CFR Part 60, Appendix A. [11 Miss. Admin. Code Pt. 2, R. 1.3.A(1)] |
| L-3 | | For the existing four stroke, rich burn (4SRB), non-emergency, reciprocating internal combustion engines (RICE) with a site rating of less than 500 hp, located at an area source of hazardous air pollutants (HAPs), the permittee is subject to and shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63, Subpart ZZZZ. [40 CFR 63.6585, 40 CFR 63.6590(a)(1)(iii)] |
| L-4 | | <p>General Provisions</p> <p>The permittee is subject to and shall comply with all applicable requirements of the General Provisions, 40 CFR 63, Subpart A (except the permittee does not have to comply with the following: §63.7(b) and (c), §63.8 (e),(f)(4) & (f)(6) and §63.9 (b) through(e), (g) and (h))</p> <p>. [40 CFR 63.6645((a)), 40 CFR 63.63.6665, 40 CFR 63.Table 8]</p> |

GENERAL INFORMATION

Goodrich Petroleum Company LLC, Crosby Minerals 12-1H Number 1 Production Facility
Leake Road
Centreville, MS
Wilkinson County

Alternate/Historic Identifiers

| ID | Alternate/Historic Name | User Group | Start Date | End Date |
|------------|---|--------------------|------------|------------|
| 57872 | Goodrich Petroleum Company, LLC, Crosby Minerals 12-1H Number 1 Product | Official Site Name | 11/20/2014 | |
| 2815700021 | Goodrich Petroleum Company, LLC | Air-AIRS AFS | 6/21/2012 | |
| 294000021 | Goodrich Petroleum Company LLC, Crosby Minerals 12-1 -1E Production Facil | Air-Construction | 1/24/2013 | |
| 57872 | Goodrich Petroleum Company, LLC, Crosby Minerals 12-1-1E Production Facil | Historic Site Name | 6/20/2012 | 11/20/2014 |

Basin: South Independent Streams Basin

Location Description:

GENERAL INFORMATION

Relevant Documents:

The federal regulations referenced in this permit may be found on-line at <http://ecfr.gpoaccess.gov/> and the State of Mississippi regulations may be found on-line at <http://www.mdeq.ms.state.us/> or a copy of the regulations may be obtained by contacting the Mississippi Department of Environmental Quality, Environmental Permitting Division, Post Office Box 2261, Jackson, Mississippi 39255, phone (601) 961-5171. The following regulations were referenced in this permit:

Mississippi Air Regulations 11 Miss. Admin. Code Pt. 2, Ch. 1, Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants

Mississippi Air Regulations 11 Miss. Admin. Code Pt. 2, Ch. 2, Permit Regulations for the Construction and/or Operation of Air Emissions Equipment

40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Internal Combustion Engines

40 CFR Part 60, Subpart OOOO - New Source Performance Standards for Crude Oil and Natural Gas Production, Transmission, and Distribution