



State of Mississippi



AIR POLLUTION CONTROL PERMIT

Permit To Construct Air Emissions Equipment

THIS CERTIFIES

Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant
Doveland Road
Waynesboro, MS
Wayne 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: APR 18 2013

Expires:

Permit No. 2840-00075

Agency Interest # 57740

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Permit To Construct Air Emissions Equipment

Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant

Subject Item Inventory

Permit Number:2840-00075

Activity ID No.: PER20120001

Subject Item Inventory:

ID	Designation	Description
AI57740	57740	
EQPT1	AA-001	NGL Refrigeration Compressor Engine (E-3)
EQPT2	AA-002	Process Flare (E-6)
EQPT3	AA-003	Hot Oil Box Heater (E-5)
ACT1	AA-004	NGL Bullet Tanks - Truck Loading Losses (E-8)
AREA6	AA-005	Fugitive Emissions (E-9)

Receiving Stream Relationships:

Subject Item	Relationship	Receiving Stream
AI 57740	Discharges Into	Wetland Adjacent to
	Then Into	Unnamed Tributary of
	Then Into	Chickasawhay River

KEY

ACT = Activity

AREA = Area

CONT = Control Device

IA = Insignificant Activity

RPNT = Release Point

AI = Agency Interest

CAFO = Concentrated Animal Feeding Operation

EQPT = Equipment

MAFO = Animal Feeding Operation

TRMT = Treatment

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KEY

TRMT = Treatment

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AI0000057740 (57740):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Hydrogen sulfide	<p>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</p> <p>. [APC-S-2 II.B(10)]</p>
L-2	Sulfur Dioxide	<p>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. [APC-S-2 II.B(10)]</p>
L-3		<p>The permittee is subject to the applicable provisions of 40 CFR Part 60, Subpart OOOO, Standards of Performance for Crude oil and Natural Gas Production, Transmission and Distribution for each affected facility which commenced construction, modification or reconstruction after August 23, 2011. [40 CFR 60.5365]</p>
L-4		<p>For each affected reciprocating compressor, the permittee shall replace the reciprocating compressor rod packing according to either of the following:</p> <p>Before the compressor has operated more than 26,000 hours, The number of hours of operations must be continuously monitored beginning upon initial startup of your reciprocation compressor affected facility, or October 15, 2012, or the date of the most recent reciprocating compressor rod packing replacement, whichever is later</p> <p>Prior to 36 months from the date of the most recent rod packing replacement, or 36 months from the date of startup for a new reciprocating compressor for which the rod packing has not yet been replaced</p> <p>. [40 CFR 60.5385(a)]</p>

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AI0000057740 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-5		<p>The facility shall comply with the applicable equipment leak standards and requirements of §§ 60.482-1a(a), (b), and (d), 60.482-2a, and 60.482-4a through 60.482-11a, except as provided in § 60.5401, as follows. (60.5400(a))</p> <ol style="list-style-type: none">1. Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.2. For Pumps and Valves in heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Connectors, if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at equipment in this category, the owner or operator shall follow either one of the following procedures:<ol style="list-style-type: none">a. Eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection, or:b. Monitor the equipment within 5 days by the method specified in 60.485. If a reading of 10,000 ppm or greater is measured, a leak is detected. When a leak is detected, the owner or operator shall:<ol style="list-style-type: none">i. Repair the leak as soon as practicable, but not later than 15 calendar days after it was discovered.ii. The first attempt at repair shall be made no later than 5 calendar days after each leak is detected. <p>In certain special situations, such as a process unit shutdown being required in order to make the repair, delay of repair of equipment for which leaks have been detected is allowed. Other specific allowable delays to repair and special requirements associated with delays to repair are described in 60.482-9</p> <p>. [40 CFR 60.482-6(a)(1), 40 CFR 60.482-6(a)(2)]</p>

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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. [APC-S-2 II.B(10)]</p>
M-2		<p>To achieve initial compliance with the standards for the reciprocating compressor affected facility the permittee must comply with the following:</p> <p>During the initial compliance period, continuously monitor the number of hours of operation or track the number of months since the last rod packing replacement.</p> <p>Submit the notifications required in 60.7(a)(1), (3), and (4).</p> <p>Submit the initial annual report for the reciprocating compressor as required in 60.5420(b).</p> <p>Maintain the records as specified in 60.5420(c)(3) for the reciprocating compressor affected facility. [40 CFR 60.5410(c)]</p>
M-3		<p>The permittee must demonstrate continuous compliance according to the following:</p> <p>Continuously monitor the number of hours of operation for the reciprocating compressor affected facility or track the number of months since initial startup, or October 15, 2012, whichever is later.</p> <p>Submit the annual report as required in 60.5420(b) and maintain records as required in 60.5420(c)(3).</p> <p>Replace the reciprocating compressor rod packing before the total number of hours of operation reaches 26,000 hours or the number of months since the most recent rod packing replacement reaches 36 months. [40 CFR 60.5415(c)]</p>

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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) cubic feet of liquid 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 . [APC-S-2 II.B(10)]</p>
R-2	<p>The permittee shall maintain the records as follows:</p> <ul style="list-style-type: none">a. Records of the cumulative number of hours of operation or number of months since initial startup or October 15, 2012, or the previous replacement of the reciprocating compressor rod packing, whichever is later.b. Records of the date and time of the reciprocating compressor rod packing replacement.c. Records of deviations in cases where the reciprocating compressor was not operated in compliance with the requirements specified in 60.5385. [40 CFR 60.5420(c)(3)]
R-3	<p>When a leak is detected by inspection or testing, the following recordkeeping requirements apply:</p> <ul style="list-style-type: none">a. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.b. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in §60.482-7(c) and no leak has been detected during those 2 monthsc. The identification on equipment except on a valve, may be removed after it has been repaired. The identification on a pressure relief device may be removed after it has been repaired . [40 CFR 60.486(b), 40 CFR 60.635(b)]

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Record-Keeping Requirements:

Condition No.	Condition
R-4	<p>When each leak is detected as specified in §§60.482-2, 60.482-3, 60.482-7, 60.482-8, 60.483-2, and 60.633(b)(2), the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:</p> <ol style="list-style-type: none">The instrument and operator identification numbers and the equipment identification number.The date the leak was detected and the dates of each attempt to repair the leak.Repair methods applied in each attempt to repair the leak."Above 10,000" if the maximum instrument reading measured by the methods specified in §60.485(a) after each repair attempt is equal to or greater than 10,000 ppm."Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.The expected date of successful repair of the leak if a leak is not repaired within 15 days.Dates of process unit shutdowns that occur while the equipment is unrepaired.The date of successful repair of the leak <p>. [40 CFR 60.40(c), 40 CFR 60.635(b)(2)]</p>
R-5	<p>The following information pertaining to all equipment subject to the requirements in §§60.482-1 to 60.482-10 shall be recorded in a log that is kept in a readily accessible location:</p> <ol style="list-style-type: none">A list of identification numbers for equipment subject to the requirements of this subpart.A list of equipment identification numbers for pressure relief devices required to comply with §60.482-4. [40 CFR 60.486(e)(3)]
R-6	<p>Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.</p> <p>[40 CFR 60.486(j)]</p>
R-7	<p>The permittee shall include the following additional requirements for initial report:</p> <ol style="list-style-type: none">Number of valves subject to § 60.482-7.Number of pumps subject to § 60.482-2.Number of compressors subject to § 60.482-3.Number of pressure relief valves in gas/vapor service subject to § 60.633(b) <p>. [40 CFR 60.482]</p>

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Record-Keeping Requirements:

Condition No.	Condition
R-8	<p>The facility shall maintain the records identified as specified in § 60.7(f) and in paragraphs (c)(1) through (10) of this section. All records must be maintained for at least 5 years.</p> <p>a. For each reciprocating compressors affected facility, you must maintain the records in paragraphs (c)(3)(i) through (iii) of this section.</p> <p>i. Records of the cumulative number of hours of operation or number of months since initial startup or October 15, 2012, or the previous replacement of the reciprocating compressor rod packing, whichever is later.</p> <p>ii. Records of the date and time of each reciprocating compressor rod packing replacement.</p> <p>iii. Records of deviations in cases where the reciprocating compressor was not operated in compliance with the requirements specified in § 60.5385</p> <p>. [40 CFR 60.5420(c)]</p>

Submittal/Action Requirements:

Condition No.	Condition
S-1	<p>The permittee shall submit annual reports containing the information specified in the following to the MDEQ. The initial annual report is due 30 days after the end of the initial compliance period as determined according to 40 CFR Section 60.5410. Subsequent annual reports are due on the same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in the following:</p> <p>a. The company name and address of the affected facility.</p> <p>b. An identification of each affected facility being included in the annual report.</p> <p>c. Beginning and ending dates of the reporting period.</p> <p>d. A certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.</p> <p>e. The cumulative number of hours of operation of the number of months since initial startup, October 15, 2012, or since the previous reciprocating compressor rod packing replacement, whichever is later</p> <p>f. Records of deviations specified in paragraph (c)(3)(iii) of this section that occurred during the reporting period</p> <p>. [40 CFR 60.5420(b)]</p>

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Submittal/Action Requirements:

Condition No.	Condition
S-2	<p>The permittee shall submit semiannual reports to the MDEQ beginning six months after the initial startup date. All semiannual reports to the MDEQ shall include the following information, summarized from the information in § 60.486 (recordkeeping):</p> <ul style="list-style-type: none">a. Process unit identification.<ul style="list-style-type: none">i. For each month during the semiannual reporting period:<ul style="list-style-type: none">1. Number of valves for which leaks were detected as described in § 60.482-7(b) or § 60.483;2,2. Number of valves for which leaks were not repaired as required in § 60.482-7(d)(1),3. Number of pumps for which leaks were detected as described in § 60.482-2(b), (d)(4)(ii)(A) or (B), or (d)(5)(iii),4. Number of pumps for which leaks were not repaired as required in § 60.482-2(c)(1) and (d)(6),5. Number of compressors for which leaks were detected as described in § 60.482-3(f),6. Number of compressors for which leaks were not repaired as required in § 60.482-3(g)(1),7. Number of pressure relief devices for which leaks were detected as required in § 60.633(b)(2).8. Number of pressure relief devices for which leaks were not repaired as required in §60.633(b)(3).ii. The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.iii. Dates of process unit shutdowns which occurred within the semiannual reporting period.iv. Revisions to equipment lists if changes have occurred since the initial report or subsequent revisions to the initial report . [40 CFR 60.486]
S-3	<p>The permittee shall submit annual reports containing the information specified in paragraphs (b)(1),(2), & (4) of 40 CFR Part 60, Subpart OOOO to the MDEQ. The initial annual report is due 30 days after the end of the initial compliance period as determined according to § 60.5410. Subsequent annual reports are due on the same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraph (b) of this section. The permittee has the option of arranging with the MDEQ a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period. [40 CFR 60.5420(b)]</p>

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Submittal/Action Requirements:

Condition No.	Condition
S-4	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. [APC-S-2 V.D]
S-5	Within fifteen (15) days of beginning actual construction, the permittee must notify DEQ in writing that construction has begun. [APC-S-2 V.C(2)]
S-6	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. [APC-S-2 V.C(3)]

Narrative Requirements:

General Condition:

Condition No.	Condition
T-1	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. [APC-S-2 V.A]
T-2	General Condition: Any activities not identified in the application are not authorized by this permit. [Miss. Code Ann. 49_17_29 1.b]
T-3	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]

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AI0000057740 (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 APC-S-1, "Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants", Section 10. [APC-S-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. [APC-S-2 II.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. [APC-S-2 I.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. [APC-S-2 II.B(5)]

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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. [APC-S-2 I.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. [APC-S-2 II.B(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. [APC-S-2 II.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. [APC-S-2 II.B(15)b]
T-14	General Condition: The permit does not convey any property rights of any sort, or any exclusive privilege. [APC-S-2 II.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. [APC-S-2 II.B(15)d]
T-16	General Condition: This permit shall not be transferred except upon approval of the Permit Board. [APC-S-2 XVI.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. [APC-S-2 I.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. [APC-S-2 V.C(1)]

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AI0000057740 (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. [APC-S-2 V.D(3)]
T-20	General Condition: Except as prohibited in APC-S-2, Section V.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. [APC-S-2 V.D(4)]
T-21	General Condition: Except as otherwise specified in APC-S-2, Section V.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. [APC-S-2 V.D(5)]
T-22	General Condition: Except as otherwise specified in APC-S-2, Section V.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. [APC-S-2 V.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. [APC-S-2 V.D(7)]
T-24	General Condition: Regarding compliance testing: (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. (b) Compliance testing will be performed at the expense of the permittee. (c) Each emission sampling and analysis report shall include but not be limited to the following: 1. detailed description of testing procedures; 2. sample calculation(s); 3. results; and 4. comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit. [APC-S-2 VI.B(3, 4 and 6)]

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AI0000057740 (continued):

Narrative Requirements:

Condition	Condition
T-25	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. [APC-S-2 V.A(4)]

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EQPT0000000001 (AA-001) NGL Refrigeration Compressor Engine (E-3):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		<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.Subpart A, 40 CFR 63.6645(a)(5), 40 CFR 63.6665, 40 CFR 63_Subpart ZZZZ.Table 8]</p>
L-2		<p>40 CFR Part 63, Subpart ZZZZ applicability</p> <p>For the existing four stroke rich burn (4SRB) reciprocating internal combustion engine (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 (RICE), 40 CFR 63, Subpart ZZZZ</p> <p>. [40 CFR 63.6585, 40 CFR 63.6590(a)(1)(III)]</p>
L-3		<p>Emission Limitations/Management Practices</p> <p>The permittee shall comply with the following emission limitation and management practices:</p> <ol style="list-style-type: none">Change oil and filter every 1,440 hours of operation or annually, whichever comes first;Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; andInspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary <p>. [40 CFR 63.6603, 40 CFR 63_Subpart ZZZZ.Table 2d]</p>

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EQPT0000000001 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-4		<p>Emission Limitations/Management Practices</p> <p>The permittee has the option of complying with the work, operation or management practices in this permit by utilizing an oil analysis program in order to extend the specified oil change requirement in Table 2d of 40 CFR 63, Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d of 40 CFR 63, Subpart ZZZZ. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows:</p> <ul style="list-style-type: none">- Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new- viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or,- percent water content (by volume) is greater than 0.5. <p>If all of these condemning limits are not exceeded, the permittee is not required to change the oil. If any of the limits are exceeded, the permittee must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the permittee must change the oil within 2 business days or before commencing operation, whichever is later. The permittee must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine</p> <p>. [40 CFR 63.6625(e), 40 CFR 63.6625(h), 40 CFR 63.6625(j)]</p>

Permit To Construct Air Emissions Equipment

Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant

Facility Requirements

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EQPT0000000001 (continued):

Limitation Requirements:

Condition No.	Parameter	Condition
L-5		<p>The permittee shall comply with the continuous compliance requirements, as specified below:</p> <p>(a) The permittee shall be in compliance with the applicable emission limitations and operating limitations in 40 CFR 63, subpart ZZZZ at all times.</p> <p>(b) The permittee shall operate and maintain the affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions at all times . [40 CFR 63.6605]</p>
L-6		<p>The permittee shall comply with the continuous compliance requirements, as specified below:</p> <p>The permittee shall demonstrate compliance with the emission limitations and management practices by operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions or by developing and following your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.</p> <p>The permittee shall report each instance in which the engine was not in compliance with the operating limitations listed above or any of the applicable requirements found in Table 8 of Subpart ZZZZ . [40 CFR 63.6640]</p>
L-7		<p>Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [APC-S-2 II.B(10)]</p>

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EQPT0000000001 (continued):

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1		<p>The permittee shall comply with monitoring, installation, collection, operation and maintenance requirements as specified below: The permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions</p> <p>The permittee shall minimize the engines' time spent at idle startup and minimize the engines' startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable at all times other than startup in Table 2d of 40 CFR 63, Subpart ZZZZ apply. [40 CFR 63_Subpart ZZZZ.6625]</p>

Record-Keeping Requirements:

Condition No.	Condition
R-1	<p>Recordkeeping</p> <p>The permittee shall keep all applicable records as specified in §63.6655 . [40 CFR 63.6655]</p>
R-2	<p>The permittee shall report each instance in which the engine was not in compliance with the operating limitations listed above or any of the applicable requirements in Table 8 of Subpart ZZZZ. [40 CFR 63_Subpart ZZZZ.6640]</p>

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EQPT0000000002 (AA-002) Process Flare (E-6):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		<p>(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</p> <p>(2) The maximum permissible emission of ash and /or particulate matter from fossil fuel burning installations equal to or greater than 10 million BTU per hour heat input but less than 10,000 million BTU per hour heat input shall not exceed an emission rate as determined by the relationship</p> $E = 0.8808 * I^{-0.1667}$ <p>Where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour . [APC-S-1 3.4.a]</p>
L-2		<p>For the flare, the permittee shall comply with all applicable requirements of 40 CFR 60.18, unless otherwise noted herein. [APC-S-2 II.B(10)]</p>
L-3		<p>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. [APC-S-2 II.B(10)]</p>
L-4		<p>The permittee shall maintain a flare flame or any other equivalent device at all times when emissions are routed to it. [APC-S-2 II.B(10)]</p>
L-5		<p>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. [APC-S-2 II.B(10)]</p>
L-6		<p>Flares shall be operated at all times when emissions are being vented to them. [APC-S-2 II.B(10)]</p>
L-7		<p>Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [APC-S-2 II.B(10)]</p>

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EQPT0000000002 (continued):

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1		The permittee shall monitor the presence of the flare 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. [APC-S-2 II.B(11)]
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. [APC-S-2 II.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. [APC-S-2 II.B(11)]
M-4		Flares shall be operated and maintained in conformance with their design and manufacturer's recommendations. [APC-S-2 II.B(11)]
M-5		The permittee shall measure the volume of gas combusted in the flare. [APC-S-2 II.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. [APC-S-2 II.B(11)]

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Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant

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EQPT0000000002 (continued):

Record-Keeping Requirements:

Condition No.	Condition
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. [APC-S-2 II.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. [APC-S-2 II.B(11)]
R-4	The permittee shall keep a record of the net heating value of the stream combusted in the flare. [APC-S-2 II.B(11)]

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EQPT0000000003 (AA-003) Hot Oil Box Heater (E-5):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1		<p>(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</p> <p>(2) The maximum permissible emission of ash and /or particulate matter from fossil fuel burning installations equal to or greater than 10 million BTU per hour heat input but less than 10,000 million BTU per hour heat input shall not exceed an emission rate as determined by the relationship</p> $E = 0.8808 * I - 0.1667$ <p>Where E is the emission rate in pounds per million BTU per hour heat input and I is the heat input in millions of BTU per hour . [APC-S-1 3.4.a(1)]</p>
L-2		<p>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. [APC-S-1 3.1.1]</p>
L-3		<p>Such air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants. [APC-S-2 II.B(10)]</p>

GENERAL INFORMATION

Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant
Doveland Road
Waynesboro, MS
Wayne County

Alternate/Historic Identifiers

ID	Alternate/Historic Name	User Group	Start Date	End Date
57740	Greenleaf CO2 Solutions, LLC	Official Site Name	5/31/2012	
2815300075	Greenleaf CO2 Solutions, LLC	Air-AIRS AFS (MDEQ USE ONLY)	5/31/2012	
WQC2012088	Tellus Operating Group LLC, and Greenleaf CO2 Solutions LLC	WQC Number	12/7/2012	
SAM201200895LET	Tellus Operating Group LLC, and Greenleaf CO2 Solutions LLC	COE Public Notice/ Permit Number	8/22/2012	9/21/2012
284000075	Greenleaf CO2 Solutions LLC, Hiwannee CO2 Plant	Air-Construction	4/18/2013	

Basin: Pascagoula River Basin

Location Description:

GENERAL INFORMATION

General Facility Description:

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 APC-S-1, Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants

Mississippi Air Regulations APC-S-2, Permit Regulations for the Construction and/or Operation of Air Emissions Equipment

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