

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION
TELEPHONE: (303) 692-3150



CONSTRUCTION PERMIT

PERMIT NO: 14WE0183

Issuance 1

DATE ISSUED:
ISSUED TO: Whiting Oil and Gas Corporation

THE SOURCE TO WHICH THIS PERMIT APPLIES IS DESCRIBED AND LOCATED AS FOLLOWS:

Oil and gas exploration and production facility known as the Horsetail 16-1610B, located in the NWNE, Section 16, T10N, R57W, Weld County, Colorado.

THE SPECIFIC EQUIPMENT OR ACTIVITY SUBJECT TO THIS PERMIT INCLUDES THE FOLLOWING:

Facility Equipment ID	AIRS Point	Description
SEP-1	004	Separator controlled by a 25' flare stack. Flare has a minimum combustion efficiency of 95%. The flare is not enclosed.

THIS PERMIT IS GRANTED SUBJECT TO ALL RULES AND REGULATIONS OF THE COLORADO AIR QUALITY CONTROL COMMISSION AND THE COLORADO AIR POLLUTION PREVENTION AND CONTROL ACT C.R.S. (25-7-101 et seq), TO THOSE GENERAL TERMS AND CONDITIONS INCLUDED IN THIS DOCUMENT AND THE FOLLOWING SPECIFIC TERMS AND CONDITIONS:

REQUIREMENTS TO SELF-CERTIFY FOR FINAL AUTHORIZATION

1. **YOU MUST notify the Air Pollution Control Division (the Division) no later than fifteen days after issuance of this permit, by submitting a Notice of Startup form to the Division.** The Notice of Startup form may be downloaded online at www.cdphe.state.co.us/ap/downloadforms.html. Failure to notify the Division of startup of the permitted source is a violation of Air Quality Control Commission (AQCC) Regulation No. 3, Part B, Section III.G.1 and can result in the revocation of the permit.
2. Within one hundred and eighty days (180) after issuance of this permit, compliance with the conditions contained in this permit shall be demonstrated to the Division. It is the owner or operator's responsibility to self-certify compliance with the conditions. Failure to demonstrate compliance within 180 days may result in revocation of the permit. (Reference: Regulation No. 3, Part B, III.G.2).
3. Within one hundred and eighty days (180) after issuance of this permit, the operator shall install a flow meter to monitor and record volumetric flow rate of natural gas vented from each low pressure separator. The operator shall use the gas flow rate listed in the application for actual flow rate until the flow meter is installed, not to exceed one hundred and eighty (180) days after issuance of this permit.

4. This permit shall expire if the owner or operator of the source for which this permit was issued: (i) does not commence construction/modification or operation of this source within 18 months after either, the date of issuance of this construction permit or the date on which such construction or activity was scheduled to commence as set forth in the permit application associated with this permit; (ii) discontinues construction for a period of eighteen months or more; (iii) does not complete construction within a reasonable time of the estimated completion date. The Division may grant extensions of the deadline per Regulation No. 3, Part B, III.F.4.b. (Reference: Regulation No. 3, Part B, III.F.4.)
5. The operator shall complete all initial compliance testing and sampling as required in this permit and submit the results to the Division as part of the self-certification process. (Reference: Regulation No. 3, Part B, Section III.E.)
6. The following information for the open flare shall be provided to the Division within fifteen (15) days after issuance of permit.
 - manufacturer
 - model number
 - serial number

This information shall be included with the Notice of Startup submitted for the equipment. (Reference: Regulation No. 3, Part B, III.E.)

7. The operator shall retain the permit final authorization letter issued by the Division, after completion of self-certification, with the most current construction permit. This construction permit alone does not provide final authority for the operation of this source.

EMISSION LIMITATIONS AND RECORDS

8. Emissions of air pollutants shall not exceed the following limitations (as calculated in the Division's preliminary analysis). (Reference: Regulation No. 3, Part B, Section II.A.4)

Annual Limits:

Facility Equipment ID	AIRS Point	Tons per Year			Emission Type
		NO _x	VOC	CO	
SEP-1	004	5.0	79.7	27.0	Point

See "Notes to Permit Holder" for information on emission factors and methods used to calculate limits.

Facility-wide emissions of each individual hazardous air pollutant shall be less than 8.0 tpy.

Facility-wide emissions of total hazardous air pollutants shall be less than 20.0 tpy.

Compliance with the annual limits shall be determined by recording the facility's annual criteria pollutant emissions, (including all HAPs above the de-minimis reporting level) from each emission unit, on a rolling twelve (12) month total. By the end of each month a new twelve-month total shall be calculated based on the previous twelve months' data. The permit holder shall calculate emissions each month and keep a compliance record on site or at a local field office with site responsibility, for Division review. This rolling twelve-month total shall apply to all permitted emission units, requiring an APEN, at this facility.

9. The emission points in the table below shall be operated and maintained with the control equipment as listed in order to reduce emissions to less than or equal to the limits established in this permit (Reference: Regulation No.3, Part B, Section III.E.)

Facility Equipment ID	AIRS Point	Control Device	Pollutants Controlled
SEP-1	004	Open Flare	VOC

PROCESS LIMITATIONS AND RECORDS

10. This source shall be limited to the following maximum processing rates as listed below. Monthly records of the actual processing rates shall be maintained by the owner or operator and made available to the Division for inspection upon request. (Reference: Regulation 3, Part B, II.A.4)

Process/Consumption Limits

Facility Equipment ID	AIRS Point	Process Parameter	Annual Limit
SEP-1	004	Gas Vented from Separator	98.6 MMscf

Compliance with the annual throughput limits shall be determined on a rolling twelve (12) month total. By the end of each month a new twelve-month total is calculated based on the previous twelve months' data. The permit holder shall calculate throughput each month and keep a compliance record on site or at a local field office with site responsibility, for Division review.

11. Upon installation of the flow meter required under Condition 4, the owner or operator shall continuously monitor and record the volumetric flow rate of natural gas vented from each low pressure separator using a flow meter. The flow meter shall continuously measure flow rate and record total volumetric flow vented from each separator. The owner or operator shall use monthly throughput records to demonstrate compliance with the limits specified in Condition 10 and to calculate emissions as described in this permit.

STATE AND FEDERAL REGULATORY REQUIREMENTS

12. The permit number and AIRS ID point number (e.g. 123/4567/890) shall be marked on the subject equipment for ease of identification. (Reference: Regulation Number 3, Part B, III.E.) (State only enforceable)
13. Visible emissions shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. Emission control devices subject to Regulation 7, Sections XVII.B.2.b shall have no visible emissions. (Reference: Regulation No. 1, Section II.A.1. & 4.)
14. No owner or operator of a smokeless flare or other flare for the combustion of waste gases shall allow or cause emissions into the atmosphere of any air pollutant which is in

excess of 30% opacity for a period or periods aggregating more than six minutes in any sixty consecutive minutes. (Reference: Regulation No. 1, Section II.A.5.)

15. The open flare covered by this permit has been approved as an alternative emissions control device under Regulation No. 7, Section XVII.B.2.e. The open flare shall have no visible emissions during normal operations and be designed so that an observer can, by means of visual observation from the outside of the open flare, or by other convenient means approved by the Division, determine whether it is operating properly. The operator shall comply with all applicable requirements of Section XVII. The owner/operator must equip the open flare with an operational auto-igniter by or before May 1, 2016, or after the next combustion device planned shutdown, whichever comes first. (Regulation No. 7, Section XVII.B.)
16. This source is subject to the odor requirements of Regulation No. 2. (State only enforceable)

OPERATING & MAINTENANCE REQUIREMENTS

17. Upon startup of these points, the owner or operator shall follow the most recent operating and maintenance (O&M) plan and record keeping format approved by the Division, in order to demonstrate compliance on an ongoing basis with the requirements of this permit. Revisions to your O&M plan are subject to Division approval prior to implementation. (Reference: Regulation No. 3, Part B, Section III.G.7.)

COMPLIANCE TESTING AND SAMPLING

Initial Testing Requirements

18. The owner or operator shall demonstrate compliance with opacity standards, using EPA Method 9 to measure opacity from the flare. (Reference: Regulation No. 1, Section II.A.1 & 4)

Periodic Testing Requirements

19. On an annual basis, the operator shall complete a site specific extended gas analysis of the natural gas produced at this site that is routed to the flare in order to verify the VOC content (weight fraction) of this emission stream used in the permit application. Results of testing shall be used to determine site-specific emission factors using Division approved methods.

ADDITIONAL REQUIREMENTS

20. A revised Air Pollutant Emission Notice (APEN) shall be filed: (Reference: Regulation No. 3, Part A, II.C)
 - a. Annually by April 30th whenever a significant increase in emissions occurs as follows:

For any criteria pollutant:

For sources emitting **less than 100 tons per year**, a change in actual emissions of five (5) tons per year or more, above the level reported on the last APEN; or

For sources emitting **100 tons per year or more**, a change in actual emissions of five percent or 50 tons per year or more, whichever is less, above the level reported on the last APEN submitted; or

For any non-criteria reportable pollutant:

If the emissions increase by 50% or five (5) tons per year, whichever is less, above the level reported on the last APEN submitted to the Division.

- b. Whenever there is a change in the owner or operator of any facility, process, or activity; or
 - c. Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment; or
 - d. Whenever a permit limitation must be modified; or
 - e. No later than 30 days before the existing APEN expires.
21. Federal regulatory program requirements (i.e. PSD, NANSR or Title V Operating Permit) shall apply to this source at any such time that this source becomes major solely by virtue of a relaxation in any permit condition. Any relaxation that increases the potential to emit above the applicable Federal program threshold will require a full review of the source as though construction had not yet commenced on the source. The source shall not exceed the Federal program threshold until a permit is granted. (Regulation No. 3 Part D).

GENERAL TERMS AND CONDITIONS

22. This permit and any attachments must be retained and made available for inspection upon request. The permit may be reissued to a new owner by the APCD as provided in AQCC Regulation No. 3, Part B, Section II.B upon a request for transfer of ownership and the submittal of a revised APEN and the required fee.
23. If this permit specifically states that final authorization has been granted, then the remainder of this condition is not applicable. Otherwise, the issuance of this construction permit does not provide "final" authority for this activity or operation of this source. Final authorization of the permit must be secured from the APCD in writing in accordance with the provisions of 25-7-114.5(12)(a) C.R.S. and AQCC Regulation No. 3, Part B, Section III.G. Final authorization cannot be granted until the operation or activity commences and has been verified by the APCD as conforming in all respects with the conditions of the permit. Once self-certification of all points has been reviewed and approved by the Division, it will provide written documentation of such final authorization. **Details for obtaining final authorization to operate are located in the Requirements to Self-Certify for Final Authorization section of this permit.**
24. This permit is issued in reliance upon the accuracy and completeness of information supplied by the owner or operator and is conditioned upon conduct of the activity, or construction, installation and operation of the source, in accordance with this information and with representations made by the owner or operator or owner or operator's agents. It is valid only for the equipment and operations or activity specifically identified on the permit.
25. Unless specifically stated otherwise, the general and specific conditions contained in this permit have been determined by the APCD to be necessary to assure compliance with the provisions of Section 25-7-114.5(7)(a), C.R.S.
26. Each and every condition of this permit is a material part hereof and is not severable. Any challenge to or appeal of a condition hereof shall constitute a rejection of the entire permit and upon such occurrence, this permit shall be deemed denied *ab initio*. This

permit may be revoked at any time prior to self-certification and final authorization by the Air Pollution Control Division (APCD) on grounds set forth in the Colorado Air Quality Control Act and regulations of the Air Quality Control Commission (AQCC), including failure to meet any express term or condition of the permit. If the Division denies a permit, conditions imposed upon a permit are contested by the owner or operator, or the Division revokes a permit, the owner or operator of a source may request a hearing before the AQCC for review of the Division's action.

27. Section 25-7-114.7(2)(a), C.R.S. requires that all sources required to file an Air Pollution Emission Notice (APEN) must **pay an annual fee** to cover the costs of inspections and administration. If a source or activity is to be discontinued, the owner must notify the Division in writing requesting a cancellation of the permit. Upon notification, annual fee billing will terminate.
28. Violation of the terms of a permit or of the provisions of the Colorado Air Pollution Prevention and Control Act or the regulations of the AQCC may result in administrative, civil or criminal enforcement actions under Sections 25-7-115 (enforcement), -121 (injunctions), -122 (civil penalties), -122.1 (criminal penalties), C.R.S.

By:

Kirk Bear
Permit Engineer

Permit History

Issuance	Date	Description
Issuance 1	This Issuance	Issued to Whiting Oil and Gas Corporation

Notes to Permit Holder at the time of this permit issuance:

- 1) The permit holder is required to pay fees for the processing time for this permit. An invoice for these fees will be issued after the permit is issued. The permit holder shall pay the invoice within 30 days of receipt of the invoice. Failure to pay the invoice will result in revocation of this permit (Reference: Regulation No. 3, Part A, Section VI.B.)
- 2) The production or raw material processing limits and emission limits contained in this permit are based on the consumption rates requested in the permit application. These limits may be revised upon request of the owner or operator providing there is no exceedance of any specific emission control regulation or any ambient air quality standard. A revised air pollution emission notice (APEN) and complete application form must be submitted with a request for a permit revision.
- 3) This source is subject to the Common Provisions Regulation Part II, Subpart E, Affirmative Defense Provision for Excess Emissions During Malfunctions. The owner or operator shall notify the Division of any malfunction condition which causes a violation of any emission limit or limits stated in this permit as soon as possible, but no later than noon of the next working day, followed by written notice to the Division addressing all of the criteria set forth in Part II.E.1 of the Common Provisions Regulation. See: http://www.colorado.gov/cs/Satellite?c=Document_C&childpagename=CDPHE-Main%2FDocument_C%2FCBONAddLinkView&cid=1251599389641&pagename=CBONWrapper
- 4) The following emissions of non-criteria reportable air pollutants are estimated based upon the process limits as indicated in this permit. This information is listed to inform the operator of the Division's analysis of the specific compounds emitted if the source(s) operate at the permitted limitations.

AIRS Point	Pollutant	CAS #	Uncontrolled Emissions (lb/yr)	Are the emissions reportable?	Controlled Emissions (lb/yr)
004	Benzene	71432	10552	Yes	528
004	n-Hexane	110543	85512	Yes	4276
004	Toluene	108883	10293	Yes	515
004	Ethylbenzene	100414	1655	Yes	83
004	Xylenes	1330207	2482	Yes	124

- 5) The emission levels contained in this permit are based on the following emission factors:

Pollutant	Emission Factors Uncontrolled lb/MMscf	Source
NOx (lb/MMBtu)	0.068	AP-42
CO (lb/MMBtu)	0.37	AP-42
VOC	32363	Gas Analysis
Benzene	107	Gas Analysis
Toluene	104	Gas Analysis
Ethylbenzene	17	Gas Analysis
Xylenes	25	Gas Analysis
n-hexane	868	Gas Analysis

- 6) In accordance with C.R.S. 25-7-114.1, each Air Pollutant Emission Notice (APEN) associated with this permit is valid for a term of five years from the date it was received by the Division. A revised APEN shall be submitted no later than 30 days before the five-year term expires. Please refer to the most recent annual fee invoice to determine the APEN expiration date for each emissions point

associated with this permit. For any questions regarding a specific expiration date call the Division at (303)-692-3150.

- 7) This facility is classified as follows:

Applicable Requirement	Status
Operating Permit	Synthetic Minor/Major Source of: VOC
PSD	Synthetic Minor/Major Source of: VOC
MACT HH	Major Source Requirements: Not Applicable Area Source Requirements: Not Applicable

- 8) Full text of the Title 40, Protection of Environment Electronic Code of Federal Regulations can be found at the website listed below:

<http://ecfr.gpoaccess.gov/>

Part 60: Standards of Performance for New Stationary Sources		
NSPS	60.1-End	Subpart A – Subpart KKKK
NSPS	Part 60, Appendixes	Appendix A – Appendix I
Part 63: National Emission Standards for Hazardous Air Pollutants for Source Categories		
MACT	63.1-63.599	Subpart A – Subpart Z
MACT	63.600-63.1199	Subpart AA – Subpart DDD
MACT	63.1200-63.1439	Subpart EEE – Subpart PPP
MACT	63.1440-63.6175	Subpart QQQ – Subpart YYY
MACT	63.6580-63.8830	Subpart ZZZZ – Subpart MMMMM
MACT	63.8980-End	Subpart NNNNN – Subpart XXXXX

- 9) A self certification form and guidance on how to self-certify compliance as required by this permit may be obtained online at: <http://www.colorado.gov/pacific/cdphe/air-permit-self-certification>