

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero
Resources Corporation for Unit Operation

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Application Date: September 13, 2016

Harrison Unit



**APPLICATION OF ANTERO RESOURCES CORPORATION ("ANTERO")
FOR UNIT OPERATION**

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Resources Corporation for Unit Operation :
 : Application Date: September 13, 2016
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Harrison Unit :

APPLICATION

Pursuant to Ohio Revised Code Section 1509.28, Antero Resources Corporation (“Antero”) hereby respectfully requests the Chief of the Division of Oil and Gas Resources Management (“Division”) to issue an order authorizing Antero to operate the Unitized Formation and applicable land area in Belmont and Monroe Counties, Ohio (hereinafter, the “Harrison Unit”) as a unit according to the Unit Plan attached hereto and as more fully described herein. Antero makes this request for, and unitization is necessary for, the purpose of increasing substantially the ultimate recovery of oil and natural gas, including related liquids, from the Unitized Formation, and to protect the correlative rights of unit owners, consistent with the public policy of Ohio to conserve and develop the state’s natural resources and prevent waste.

I.
APPLICANT INFORMATION

Antero is a corporation organized under the laws of the State of Delaware, with its principal office located at 1615 Wynkoop Street, Denver, Colorado 80202. Antero is registered in good standing as an “owner” with the Division.

Antero designates to receive service, and respectfully requests that all orders, correspondence, pleadings and documents from the Division and other persons concerning this filing be served upon, the following:

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II. PROJECT DESCRIPTION

The Harrison Unit is located in Belmont and Monroe Counties, Ohio, and consists of twenty-seven (27) separate tracts of land. See Exhibits A-1 and A-2 of the Unit Operating Agreement (showing the plat and tract participations, respectively). The total land area in the Harrison Unit is approximately 457 acres and, at the time of this Application, Antero has a lease on and the right to drill on and produce from ninety-five (95%) of the proposed unit, well above the sixty-five percent (65%) threshold required by Ohio Revised Code § 1509.28. Antero seeks this unit order for two reasons. First, a lease in the unit has non-conforming pooling provisions – i.e., it limits the amount of acreage that may be voluntarily consolidated by Antero into a unit to something less than the 457 acres proposed for the Harrison Unit or it contains no pooling provision at all (hereinafter referred to as the “Non-Conforming Lease”).¹ Second, there are several leased tracts in the unit whose lessee has not reached an agreement with Antero to approve this application.

Overall, Antero seeks this unit order to allow it to develop the entirety of the Harrison Unit in accordance with the Unit Plan to protect the correlative rights of all of the interest owners in the unit and prevent the waste of natural resources that would otherwise occur.² To effectively and efficiently develop the Unit Area, therefore, Antero seeks authorization from the Division, as more specifically described herein, to drill and complete two or more horizontal wells in the Unitized Formation, from two well pads, located on the southwestern and off the southeastern portions of the Harrison Unit, respectively, to efficiently test, develop, operate and produce the Unitized Formation for oil, natural gas, and related liquids production.

Antero’s plan for unit operations (the “Unit Plan”) is attached to this Application as Attachment 1. Among other things, the Unit Plan allocates unit production and expenses based upon each tract’s surface acreage participation in the unit, includes various operating provisions in the event that other entities or persons become owners in the unit, as that term is understood in the Revised Code, and conforms to industry standards for the drilling and operating of horizontal wells.

¹ The Non-Conforming Lease is set out more specifically on Exhibit A-5 to the Unit Operating Agreement.

² Note that Antero is not seeking to modify the Non-Conforming Lease. Rather, Antero is seeking an order from the Division, pursuant to the Division’s statutory authority under R.C. 1509.28, that would allow Antero to develop the Harrison Unit under the terms of the Unit Plan attached hereto.

III.
THE CHIEF SHOULD GRANT THIS APPLICATION

A Contents of Application

Pursuant to the Division's *Unitization Application Procedural Guideline* (dated May 9, 2014), a unitization application must include the following:

1. A cover letter requesting unitization.
 - See the cover letter and this Application.
2. An affidavit attesting that the applicant is the owner (as defined in R.C. 1509.01(K)) of at least 65% of the land overlying the pool that is the subject of the unitization request.
 - See Exhibit 9.³
3. A summary of the request for unitization that includes all of the following information:
 - a. A statement describing the reasons why unitization is necessary;
 - b. A description of the plan for development of the unit;
 - c. An identification of the geologic formation(s) to be developed;
 - d. An estimate of the value of the recovery of oil and gas for each well proposed to be drilled in the unit area;
 - e. An estimate of the cost to drill and operate each well in the proposed unit; and,
 - f. A designated contact person for the applicant for communication purposes with the Division, including legal counsel for the applicant (if applicable).
 - See entirety of this Application, and in particular Sections II and III(C).
4. A list identifying all unleased mineral owners that includes the name, valid address, parcel number, and respective acreage of each unleased owner. If an unleased mineral owner is a corporation or other business entity, the name of a contact person within that corporation or business.
 - See Exhibit A-3 to the Unit Operating Agreement (which indicates there are no unleased mineral owners in the Harrison Unit). Further, Antero notes that there is a Non-Conforming Lease. See Exhibit A-5 to the Unit Operating Agreement.
5. A list identifying all mineral owners in the unit, leased or unleased, that includes the name, valid address, parcel number, and respective acreage of each owner. If a mineral owner is a corporation or other business entity, the name of a contact person within that corporation or business.
 - See Exhibit A-2 to the Unit Operating Agreement.
6. A list identifying all working interest owners, committed or uncommitted, in the unit that includes the name, valid address, parcel number, and respective acreage of each working interest owner. If the working interest owner is a corporation or other business entity, include the name of a contact person within that corporation or business.

³ References to Exhibit 1 through Exhibit 10 refer to those exhibits in Attachment 2.

- See Exhibit A-2 to the Unit Operating Agreement. See also Exhibit A-4 to the Unit Operating Agreement, which sets out the interests of uncommitted working interest owners.
7. A map on a scale of 1"=1000' that shows all of the following:
- a. The boundary of the proposed unit area;
 - b. The proposed location of the well pad and wells to be drilled;
 - c. The tracts of land within the unit area that are leased to the applicant, shown in yellow;
 - d. The tracts of land within the unit area that are unleased, shown in red;
 - e. The tracts of land within the unit area that are leased to other operators (i.e. uncommitted working interest owners), including an identification of the operators, shown in green;
 - f. A five hundred foot boundary around each property in the unit that is not leased by the applicant or that is not subject to an agreement with the applicant;
 - g. Identification of each tract within the unit area by parcel number of a size that is legible.
- See Exhibit 3. Antero has identified the tracts of land within the unit belonging to uncommitted working interests in green. Further, there is a tract belonging to uncommitted working interest owners and also covered by a Non-Conforming Lease, which is shown using cross-hatching. These tracts are shown with a five hundred foot boundary around them.
8. An aerial photograph on a scale of 1"=1000' that shows all of the following:
- a. The boundary of the proposed unit area;
 - b. The proposed location of the well pad and wells to be drilled;
 - c. The tracts of land within the proposed unit area that are unleased;
 - d. Identification of each tract within the unit area by parcel number of a size that is legible.
- See Exhibit 4. Antero has identified the tracts of land within the unit belonging to uncommitted working interests in green. Further, there is a tract belonging to uncommitted working interest owners and also covered by a Non-Conforming Lease, which is shown using cross-hatching. These tracts are shown with a five hundred foot boundary around them.
9. A gamma ray-density or gamma-ray resistivity geophysical type log identifying the proposed geological formations to be produced.
- See Exhibit 1 and Exhibit 2.
10. A cross-section showing the applicable formations that the applicant is proposing to drill into and produce from in the unit area.
- See Exhibit 1 and Exhibit 2.
11. A map showing all existing units adjacent to the unit proposed in the application with an identification of any permitted, drilled, and/or producing wells in the existing units.

- See Exhibit 6.
12. If reserve calculations are based upon other existing wells in the vicinity of the proposed unit, an exhibit showing the locations of the well(s) to the proposed unit area and an identification of the wells by name and permit number.
- See Exhibit 10.
13. A statement in the form of an affidavit that gives a detailed account of the attempts to lease the unleased properties. The statement must include:
- a. The dates of all attempts;
 - b. The person who was contacted, how contact was made, and by whom;
 - c. The address at which the contact was made or attempted;
 - d. The response given by the unleased mineral owner when contacted;
 - e. Any joint venture or farmout proposal to another operator, if applicable.
- There are no unleased properties within the Harrison Unit. However, Antero notes that there is a Non-Conforming Lease and uncommitted working interest owners in the unit and has attached a statement detailing its negotiations with the owners of those interests. See Exhibit 7.
14. A copy of a joint operating agreement for working interest partners, if applicable.
- See Attachment 1.
15. An affidavit attesting to the fact that the applicant holds a valid lease agreement for all of the acreage that the applicant claims to have under lease.
- See Exhibit 8.
16. A copy of the executed working interest agreement for each committed working interest partner in the proposed unit.
- Antero owns approximately 95% of the working interest in the Harrison Unit. The owners of the remaining working interest in the Harrison Unit have not approved this application.
17. Any additional information that the applicant determines is beneficial for the Chief to consider in support of their request.
- See entirety of Application. Also, see attached pre-filed testimony.

Antero has submitted all of the required information.

B. Legal Standard

Ohio Revised Code § 1509.28 requires the Chief of the Division to issue an order providing for the unit operation of a pool – or a part thereof – if it is reasonably necessary to increase substantially the ultimate recovery of oil and gas, and the value of the estimated additional resource recovery from the unit’s operations exceeds its additional costs. See Ohio Rev. Code § 1509.28(A).

The Chief's order must be on terms and conditions that are just and reasonable and prescribe a plan for unit operations that includes the following:

- (1) a description of the unit area;
- (2) a statement of the nature of the contemplated operations;
- (3) an allocation of production from the unit area not used in unit operations, or otherwise lost, to the separately owned tracts;
- (4) a provision addressing credits and charges to be made for the investment in wells, tanks, pumps, and other equipment contributed to unit operations by owners in the unit;
- (5) a provision addressing how unit operation expenses shall be determined and charged to the separately owned tracts in the unit, and how they will be paid;
- (6) a provision, if necessary, for carrying someone unable to meet their financial obligations in connection with the unit;
- (7) a provision for the supervision and conduct of unit operations in which each person has a vote with a value corresponding to the percentage of unit operations expenses chargeable against that person's interest;
- (8) the time when operations shall commence and the manner in which, and circumstances under which, unit operations will terminate; and
- (9) such other provisions appropriate for engaging in unit operations and for the protection or adjustment of correlative rights.

See Ohio Rev. Code § 1509.28(A). The Chief's order becomes effective once approved in writing by those owners who will be responsible for paying at least sixty-five percent of the costs of the unit's operations and by royalty and unleased fee-owners of sixty-five percent of the unit's acreage. Once effective, production that is "allocated to a separately owned tract shall be deemed, for all purposes, to have been actually produced from such tract, and all operations *** [conducted] upon any portion of the unit area shall be deemed for all purposes the conduct of such operations and production from any lease or contract for lands any portion of which is included in the unit area." Ohio Rev. Code § 1509.28(B)(2).

C. Antero's Application Meets this Standard

i. *The Unitized Formation is Part of a Pool*

The "Unitized Formation" consists of the subsurface portion of the Unit Area (i.e., the lands shown on Exhibit A-1 and identified in Exhibit A-2 to the Unit Operating Agreement) at an approximate depth located from fifty feet above the top of the Utica Shale to fifty feet below the base of the Point Pleasant Formation, and frequently referred to as the Utica/Point Pleasant Formation. The evidence presented with this Application and at the hearing will establish that the

Unitized Formation is part of a pool and, thus, an appropriate subject of unit operation under Ohio Rev. Code § 1509.28.⁴ Additionally, that evidence will establish that the Unitized Formation is likely to be reasonably uniformly distributed throughout the Unit Area and thus, it is reasonable for the Unit Plan to allocate unit production and expenses to separately owned tracts on a surface acreage basis.

ii. *Unit Operations Are Reasonably Necessary to Increase Substantially the Ultimate Recovery of Oil and Gas*

The evidence presented in this Application and at the hearing will establish that unit operations are reasonably necessary to increase substantially the ultimate recovery of oil and gas from the lands making up the Harrison Unit. The Unit Plan contemplates the potential drilling of two (2) horizontal wells from two well pads, with laterals of 8,679' and 10,561' in length, respectively.⁵ Antero estimates that operations under the requested unit order will substantially increase the ultimate resource recovery from this unit if all unit wells are drilled by approximately 10.9 Bcfe of natural gas from the Unitized Formation.⁶ Absent a unit order, that 10.9 Bcfe of natural gas will be unable to be produced and therefore stranded, resulting in a waste of resources.

iii. *The Value of Additional Recovery Exceeds Its Additional Costs*

The evidence presented in this Application and at the hearing will establish that the value of the estimated additional recovery (i.e., the 10.9 Bcfe of natural gas referred to above) has an estimated net present value of approximately \$3.83 million, meaning that the value of that additional resource recovery exceeds the estimated additional costs incident to conducting unit operations to obtain such additional recovery.⁷ See Exhibit 5, showing for each proposed well the estimated value of the well's production and the estimated drilling and operating costs (incorporated here as if fully rewritten herein). In particular, it shows that the capital/drilling costs will be approximately \$9.2 million and \$10.51 million respectively, and an estimated annual average operating cost for each well for the first 5 years of production of approximately \$0.923 million.

⁴ A "pool" is defined under Ohio law as "an underground reservoir containing a common accumulation of oil or gas, or both, but does not include a gas storage reservoir." Ohio Rev. Code § 1509.01(E).

⁵ See Exhibit 3.

⁶ See Exhibit 5. We emphasize that these are only estimates, and like the rest of the estimates set forth in this Application, they should be treated as simply estimates based upon the best information available at the time. Antero's estimates of production from the Harrison Unit demonstrate that without an order authorizing unit operations, it may be uneconomical to pursue development of the unit. For purposes of quantitative illustration only, Exhibit 5 includes estimates of development of the unit without an order providing for unit operations..

⁷ *Id.*

iv. *The Unit Plan Meets the Requirements of Ohio Revised Code § 1509.28*

The Unit Plan proposed by Antero meets the requirements set forth in Ohio Revised Code § 1509.28. The unit area is described in the Unit Plan at Article 1, as well as on Exhibits A-1 and A-2 to the Unit Operating Agreement. The nature of the contemplated unit operations can be found generally in the Unit Plan at Article 3, with greater specificity throughout, including the Unit Operating Agreement. Unit production and unit expenses are allocated on a surface acreage basis as set forth in the Unit Plan at Articles 3 through 5 (generally), except where otherwise allocated by the Unit Operating Agreement. Payment of unit expenses is addressed generally in Article 3 of the Unit Plan. The Unit Plan provides for payment of costs by other working interest owners in the event a participant is unable to meet its financial obligations related to the unit - see, e.g., Article VI of the Unit Operating Agreement. Voting provisions related to the supervision and conduct of unit operations are set forth in Article 14 of the Unit Plan, with each person having a vote that has a value corresponding to the percentage of unit expenses chargeable against that person's interest. And the commencement and termination of operations are addressed in Articles 11 and 12 of the Unit Plan.⁸

IV.
HEARING

Ohio Revised Code § 1509.28 requires the Chief to hold a hearing to consider this Application when requested by sixty-five percent (65%) of the owners of the land area underlying the proposed unit. Ohio Rev. Code § 1509.28(A). That threshold level is met here. See Exhibit 9. Accordingly, Antero respectfully requests that the Division maintain the currently scheduled hearing at the Division's Columbus complex on or before January 11, 2017 to consider the Application filed herein.

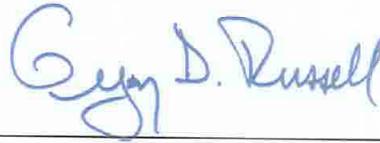
V.
CONCLUSION

Ohio Revised Code § 1509.28 requires the Chief of the Division to issue an order for the unit operation of a pool or a part thereof if it is reasonably necessary to increase substantially the recovery of oil and gas, and the value of the estimated additional recovery from the unit's operations exceeds its estimated additional costs. Antero respectfully submits that the Application meets this standard, and that the terms and conditions of the Unit Plan are just and reasonable

⁸ See Attachment 1 generally.

and satisfy the requirements of Ohio Revised Code § 1509.28(B). Antero therefore asks the Chief to issue an order authorizing Antero to operate the Harrison Unit according to the Unit Plan attached hereto.

Respectfully submitted,



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Attorneys for Applicant,
Antero Resources Corporation

ATTACHMENT 1

PLAN FOR UNIT OPERATIONS
THE HARRISON UNIT
MALAGA AND SOMERSET TOWNSHIPS
MONROE AND BELMONT COUNTIES, OHIO

The following shall constitute the Plan for Unit Operations applicable to the Harrison Unit in Malaga and Somerset Townships, Monroe and Belmont Counties, Ohio, and having as its purpose the unitized management, operation, and development of the Unitized Formation as herein defined, to advance the public welfare and promote conservation, to increase the ultimate recovery of oil, natural gas, and other substances therefrom, and to avoid waste and protect the correlative rights of the owners of interests therein.

ARTICLE 1: DEFINITIONS

As used in this Plan for Unit Operations:

Division refers to the Ohio Department of Natural Resources' Division of Oil and Gas Resources Management.

Effective Date is the time and date this Plan becomes effective as provided in Article 11.

Oil and Gas Rights are the rights to investigate, explore, prospect, drill, develop, produce, market, transport, and operate within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof, including without limitation the conducting of exploration, geologic and/or geophysical surveys by seismograph, core test, gravity and/or magnetic methods, the injecting of gas, water, air or other fluids into the Unitized Formation, the installation, operation and maintenance of monitoring facilities, the laying of pipelines, building of roads, tanks, power stations, telephone lines, and/or other structures.

Person is any individual, corporation, partnership, association, receiver, trustee, curator, executor, administrator, guardian, fiduciary, or other representative of any kind, any department, agency, or instrumentality of the state, or any governmental subdivision thereof, or any other entity capable of holding an interest in the Unitized Substances or Unitized Formation.

Plan means this Plan for Unit Operations for the Harrison Unit, Malaga and Somerset Townships, Monroe and Belmont Counties, Ohio, including, unless otherwise expressly mentioned, any and all attachments and exhibits hereto.

Royalty Interest means a right to or interest in any portion of the Unitized Substances or proceeds from the sale thereof, other than a Working Interest.

Royalty Owner is a Person who owns a Royalty Interest.

Tract means the land identified by a tract number in Exhibit A-2 to the Unit Operating Agreement.

Tract Participation means the fractional interest shown on Exhibit A-2 to the Unit Operating Agreement for allocating Unitized Substances to a Tract.

Uncommitted Working Interest Owner is a Working Interest Owner, other than an Unleased Mineral Owner, who has not agreed to, ratified or otherwise approved this Plan. Uncommitted Working Interest Owners are likely, but not necessarily, to have obtained their interest by lease.

Unit Area means the lands shown on the plat attached as Exhibit A-1 and identified on Exhibit A-2 to the Unit Operating Agreement, including also areas to which this Plan may be extended as herein provided.

Unit Equipment means all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for the unit account for use in Unit Operations.

Unit Expense means all cost, expense, investment and indebtedness incurred by Working Interest Owners or Unit Operator pursuant to this Plan for or on account of Unit Operations.

Unitized Formation means the subsurface portion of the Unit Area located from fifty feet above the top of the Utica Shale to fifty feet below the base of the Point Pleasant Formation, believed to be approximately 8,600 feet subsurface to 8,915 feet subsurface TVD ("True Vertical Depth").

Unit Operating Agreement means the modified A.A.P.L. Form 610-1989 Model Form Operating Agreement that is attached hereto and incorporated herein by reference as if fully rewritten herein and to which all Working Interest Owners are deemed to be parties; provided, however, that in the event two or more Working Interest Owners have agreed to a separate joint operating agreement relating to the supervision and conduct of unit operations contemplated herein, such operating agreement shall control. The Unit Operating Agreement contains provisions for credits and charges among Working Interest Owners for their respective investments in, and expenses for, Unit Operations, including a provision, if necessary, for carrying any Person unable or electing not to participate in Unit Operations. In addition, the Unit Operating Agreement also contains provisions relating to the supervision and conduct of Unit Operations and the manner in which Working Interest Owners may vote. In the event of a conflict between the terms of the Unit Operating Agreement and the other terms of this Plan, excluding the Unit Operating Agreement, such other terms of this Plan shall govern.

Unit Operations are all operations conducted pursuant to this Plan.

Unit Operator is the Person designated by Working Interest Owners under the Unit Operating Agreement to conduct Unit Operations.

Unit Participation is the sum of the interests obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

Unitized Substances are all oil, gas, gaseous substances, sulfur, condensate, distillate, and all associated and constituent liquid or liquefiable hydrocarbons within or produced from the Unitized Formation.

Unleased Mineral Owner is a Person who owns Oil and Gas Rights free of a lease or other instrument conveying all or any portion of the Working Interest in such rights to another.

Working Interest means an interest in Unitized Substances in the Unit Area by virtue of a lease, operating agreement, fee title, or otherwise, including a carried interest, the owner of which is obligated to pay, either in cash or out of production or otherwise, a portion of the Unit Expense; however, Oil and Gas Rights that are free of a lease or other instrument creating a Working Interest shall be regarded as a Working Interest to the extent of 87.5% thereof and a Royalty Interest to the extent of the remaining 12.5% thereof, such Royalty Interest to be subject to any post-production costs, taxes, assessments and other fees as may be set forth in the Unit Operating Agreement. A Royalty Interest created out of a Working Interest subsequent to the participation of, subscription to, ratification of, approval by, or consent to this Plan by the owner of such Working Interest shall continue to be subject to such Working Interest burdens and obligations that are stated in this Plan.

Working Interest Owner is a Person who owns a Working Interest.

ARTICLE 2: CREATION AND EFFECT OF UNIT

Oil and Gas Rights Unitized. All Royalty Interests and Working Interests in Oil and Gas Rights in and to the lands identified on Exhibits A-1 and A-2 to the Unit Operating Agreement are hereby unitized insofar as, and only insofar as, the respective Oil and Gas Rights pertain to the Unitized Formation, so that Unit Operations may be conducted with respect to the Unitized Formation as if the Unit Area had been included in a single lease executed by all Royalty Owners, as lessors, in favor of all Working Interest Owners, as lessees, and as if the lease contained all of the provisions of this Plan.

Personal Property Excepted. All lease and well equipment, materials, and other facilities heretofore or hereafter placed by any of the Working Interest Owners on the lands covered hereby shall be deemed to be and shall remain personal property belonging to, and may be removed by, Working Interest Owners with the prior consent of Unit Operator. The rights and interests therein, as among Working Interest Owners, are set forth in the Unit Operating Agreement.

Continuation of Leases and Term Interests. Unit Operations conducted upon any part of the Unit Area or production of Unitized Substances from any part of the Unitized Formation, except for the purpose of determining payments to Royalty Owners, shall be considered as operations upon or production from each portion of each Tract, and such production or operations shall continue in effect each lease or term, mineral or Royalty Interest, as to all Tracts and formations covered or affected by this Plan just as if such Unit Operations had been

conducted and a well had been drilled on and was producing from each portion of each Tract. Each lease shall remain in full force and effect from the date of execution hereof until the Effective Date, and thereafter in accordance with its terms and this Plan.

Titles Unaffected by Unitization. Nothing herein shall be construed to result in any transfer of title to Oil and Gas Rights by any Person to any other Person or to Unit Operator.

Pre-existing Conditions in Unit Area. Working Interest Owners shall not be liable for or assume any obligation with respect to (i) the restoration or remediation of any condition associated with the Unit Area that existed prior to the Effective Date of this Plan, or (ii) the removal and/or plugging and abandonment of any wellbore, equipment, fixtures, facilities or other property located in, on or under the Unit Area prior to the Effective Date of this Plan.

ARTICLE 3: UNIT OPERATIONS

Unit Operator. Unit Operator shall have the exclusive right to conduct Unit Operations, which shall conform to the provisions of this Plan.

Unit Expenses. All Unit Expenses shall be just and reasonable, and shall be charged as set out in the Unit Operating Agreement. Except as otherwise provided in the Unit Operating Agreement, Unit Expenses shall be allocated to each Tract based upon its Tract Participation, and shall be paid by the Tract's Working Interest Owners.

ARTICLE 4: TRACT PARTICIPATIONS

Tract Participations. The Tract Participation of each Tract is identified in Exhibit A-2 to the Unit Operating Agreement and shall be determined solely upon an acreage basis as the proportion that the Tract surface acreage inside the Unit Area bears to the total surface acreage of the Unit Area. The Tract Participation of each Tract has been calculated as follows: TRACT SURFACE ACRES WITHIN THE UNIT AREA DIVIDED BY THE TOTAL SURFACE ACRES WITHIN THE UNIT AREA.

ARTICLE 5: ALLOCATION OF UNITIZED SUBSTANCES

Allocation of Unitized Substances. All Unitized Substances produced and saved shall be allocated to the several Tracts in accordance with the respective Tract Participations effective during the period that the Unitized Substances were produced. The amount of Unitized Substances allocated to each Tract, regardless of whether the amount is more or less than the actual production of Unitized Substances from the well or wells, if any, on such Tract, shall be deemed for all purposes to have been produced from such Tract.

Distribution Within Tracts. The Unitized Substances allocated to each Tract or portion thereof shall be distributed among, or accounted for to, the Persons entitled to share in the production from such Tract or portion thereof in the same manner, in the same proportions, and upon the same conditions as they would have participated and shared in the production from such Tract, or in the proceeds thereof, had this Plan not been entered into, and with the same legal effect. If any Oil and Gas Rights in a Tract hereafter become divided and owned in severalty as to different parts of the Tract, the owners of the divided interests, in the absence of an agreement providing for a different division, shall share in the Unitized Substances allocated to the Tract, or in the proceeds thereof, in proportion to the surface acreage of their respective parts of the Tract. Any royalty or other payment which depends upon per well production or pipeline runs from a well or wells on a Tract shall, after the Effective Date, be determined by dividing the Unitized Substances allocated to the Tract by the number of wells on the Tract capable of producing Unitized Substances on the Effective Date; however, if any Tract has no well thereon capable of producing Unitized Substances on the Effective Date, the Tract shall, for the purpose of this determination, be deemed to have one (1) such well thereon.

ARTICLE 6: USE OR LOSS OF UNITIZED SUBSTANCES

Use of Unitized Substances. Working Interest Owners may use or consume Unitized Substances for Unit Operations, including but not limited to, the injection thereof into the Unitized Formation.

Royalty Payments. No royalty, overriding royalty, production, or other payments shall be payable on account of Unitized Substances used, lost, or consumed in Unit Operations,

including without limitation the testing of the productivity of any wells drilled in the Unit Area. Royalty payments shall be made to Unleased Mineral Owners beginning with the initial distribution date for production of Unitized Substances from any well within the Harrison Unit.

ARTICLE 7: TITLES

Warranty and Indemnity. Each Person who, by acceptance of produced Unitized Substances or the proceeds from a sale thereof, may claim to own a Working Interest or Royalty Interest in and to any Tract or in the Unitized Substances allocated thereto, shall be deemed to have warranted its title to such interest, and, upon receipt of the Unitized Substances or the proceeds from a sale thereof to the credit of such interest, shall indemnify and hold harmless all other Persons in interest from any loss due to failure, in whole or in part, of its title to any such interest; provided, however, that nothing in this provision shall apply to Unleased Mineral Owners.

Production Where Title is in Dispute. If the title or right of any Person claiming the right to receive in kind all or any portion of the Unitized Substances allocated to a Tract is in dispute, Unit Operator at the direction of Working Interest Owners may: Require that the Person to whom such Unitized Substances are delivered or to whom the proceeds from a sale thereof are paid furnish security for the proper accounting therefor to the rightful owner or owners if the title or right of such Person fails in whole or in part; or withhold and market the portion of Unitized Substances with respect to which title or right is in dispute, and hold the proceeds thereof until such time as the title or right thereto is established by a final judgment of a court of competent jurisdiction or otherwise to the satisfaction of Working Interest Owners, whereupon the proceeds so held shall be paid to the Person rightfully entitled thereto.

Transfer of Title. Any conveyance of all or any part of any interest owned by any Person hereto with respect to any Tract shall be made expressly subject to this Plan. No change of title shall be binding upon Unit Operator, or upon any Person hereto other than the Person so transferring, until 7:00 a.m. on the first day of the calendar month next succeeding the date of receipt by Unit Operator of a certified copy of the recorded instrument evidencing such change in ownership.

ARTICLE 8: EASEMENTS, GRANTS, OR USE OF SURFACE

Grant of Easements. Subject to the terms and conditions of the various leases, Unit Operator shall have the right of ingress and egress along with the right to use as much of the surface of the land within the Unit Area as may be reasonably necessary for Unit Operations and the removal of Unitized Substances from the Unit Area.

Use of Water. The following shall apply subject to the terms and conditions of the various leases: Unit Operator shall have and is hereby granted free use of water from the Unit Area for Unit Operations, except water from any well, lake, pond, or irrigation ditch of a Royalty Owner. Unit Operator may convert dry or abandoned wells in the Unit Area for use as water supply or disposal wells.

Surface Damages. Subject to the terms and conditions of the various leases, Working Interest Owners shall reimburse the owner for the market value prevailing in the area of growing crops, livestock, timber, fences, improvements, and structures on the Unit Area that are destroyed or damaged as a result of Unit Operations.

Unleased Property. Notwithstanding anything in this Article 8 to the contrary, and except where otherwise authorized by the Division, there shall be no Unit Operations conducted on the surface of any property located within the Harrison Unit, and there shall be no right of ingress and egress over and no right to use the surface waters of any surface lands located within the Harrison Unit, owned by a non-consenting Unleased Mineral Owner.

ARTICLE 9: CHANGE OF TITLE

Covenant Running with the Land. This Plan shall extend to, be binding upon, and inure to the benefit of the owners of the Royalty Interests and Working Interests in Oil and Gas Rights unitized hereby, and the respective heirs, devisees, legal representatives, successors, and assigns thereof, and shall constitute a covenant running with the lands, leases, and interests impacted hereby.

Waiver of Rights of Partition. No Person affected hereby shall resort to any action to, and shall not, partition Oil and Gas Rights, the Unit Area, the Unitized Formation, the Unitized Substances or the Unit Equipment.

ARTICLE 10: RELATIONSHIPS OF PERSONS

No Partnership. All duties, obligations, and liabilities arising hereunder shall be several and not joint or collective. This Plan is not intended to and shall not be construed to create an association or trust, or to impose a partnership or fiduciary duty, obligation, or liability. Each Person affected hereby shall be individually responsible for its own obligations.

No Joint or Cooperative Refining, Sale or Marketing. This Plan is not intended and shall not be construed to provide, directly or indirectly, for any joint or cooperative refining, sale or marketing of Unitized Substances.

ARTICLE 11: EFFECTIVE DATE

Effective Date. This Plan shall become effective as of, and operations may commence hereunder as of, 7:00 A.M. on the date of an effective order approving this unit by the Division in accordance with the provisions of Ohio Revised Code Section 1509.28; provided, however, that Working Interest Owners may terminate this Plan in the event of a material modification by the Division of all or any part of this Plan in such order by filing a notice of termination with the Division within thirty (30) days of such order becoming final and no longer subject to further appeal. In the event a dispute arises or exists with respect to this Plan, or the order approving this unit issued by the Division, Unit Operator may, in its sole discretion, hold the revenues from the sale of Unitized Substances until such time as such dispute is resolved or, in the Unit Operator's opinion, it is appropriate to distribute such revenues.

ARTICLE 12: TERM

Term. This Plan, unless sooner terminated in the manner hereinafter provided, shall remain in effect for five (5) years from the Effective Date and as long thereafter as Unitized Substances are produced, or are capable of being produced, in paying quantities from the Unit Area without a cessation of more than one hundred and eighty (180) consecutive days, or so long as other Unit Operations are conducted without a cessation of more than one hundred and eighty (180) consecutive days, unless sooner terminated by Working Interest Owners owning a combined Unit Participation of fifty-one percent (51%) or more whenever such Working Interest Owners determine that Unit Operations are no longer warranted. The date of any termination hereunder shall be known as the "Termination Date."

Effect of Termination. Upon termination of this Plan, the further development and operation of the Unitized Formation as a unit shall cease. Each oil and gas lease and other agreement covering lands within the Unit Area shall remain in force for one hundred eighty (180) days after the date on which this Plan terminates, and for such further period as is provided by the lease or other agreement. The relationships among owners of Oil and Gas Rights shall thereafter be governed by the terms and provisions of the leases and other instruments, not including this Plan, affecting the separate Tracts.

Certificate of Termination. Upon termination of this Plan, Unit Operator shall file with the Division and for record in the counties in which the land affected is located a certificate stating that this Plan has terminated and the Termination Date.

Salvaging Equipment Upon Termination. If not otherwise granted by the leases or other instruments affecting the separate Tracts, Working Interest Owners shall have a period of six (6) months after the Termination Date within which to salvage and remove Unit Equipment.

ARTICLE 13: APPROVAL

Original, Counterpart, or Other Instrument. An owner of Oil and Gas Rights or its agent may approve this Plan by signing the original, a counterpart thereof, or other instrument approving this Plan. The signing of any such instrument shall have the same effect as if all Persons had signed the same instrument.

Commitment of Interests to Unit. The approval of this Plan by a Person or their agent shall bind that Person and commit all interests owned or controlled by that Person as of the date of such approval, and additional interests thereafter acquired.

Joinder in Dual Capacity. Execution as herein provided by any Person, as either Working Interest Owner or a Royalty Owner, shall commit all interests owned or controlled by such Person as of the date of such execution and any additional interest thereafter acquired.

ARTICLE 14: MISCELLANEOUS

Determinations by Working Interest Owners. Each Working Interest Owner shall have a voting interest equal to its Unit Participation. All decisions, determinations, or approvals by Working Interest Owners hereunder shall be made by the affirmative vote of one or more parties having a combined voting interest of at least fifty one percent (51%). No vote, however, is required for such determinations if the Unit Operator owns or controls fifty one percent (51%) or more of the Working Interest in the Unit Area.

Severability of Provisions. The provisions of this Plan are severable and if any section, sentence, clause or part thereof is held to be invalid for any reason, such invalidity shall not be construed to affect the validity of the remaining provisions of this Plan.

Laws and Regulations. This Plan shall be governed by and subject to the laws of the State of Ohio, to the valid rules, regulations, orders and permits of the Division, and to all other applicable federal, state, and municipal laws, rules, regulations, orders, and ordinances. Any change of the Unit Area or any amendment to this Plan shall be in accordance with Ohio law.

A.A.P.L. FORM 610 - 1989

MODEL FORM OPERATING AGREEMENT

OPERATING AGREEMENT

DATED

_____, _____, Year

OPERATOR Antero Resources Corporation

CONTRACT AREA See Exhibit "A" attached hereto for description of Contract Area

COUNTY OF Monroe and Belmont, STATE OF Ohio

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AMERICAN ASSOCIATION OF PETROLEUM
LANDMEN, 4100 FOSSIL CREEK BLVD.
FORT WORTH, TEXAS, 76137, APPROVED FORM.

A.A.P.L. NO. 610 - 1989

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OPERATING AGREEMENT

THIS AGREEMENT, entered into by and between Antero Resources Corporation hereinafter designated and referred to as "Operator," and the signatory party or parties other than Operator, sometimes hereinafter referred to individually as "Non-Operator," and collectively as "Non-Operators."

WITNESSETH:

WHEREAS, the parties to this agreement are owners of Oil and Gas Leases and/or Oil and Gas Interests in the land identified in Exhibit "A," and the parties hereto have reached an agreement to explore and develop these Leases and/or Oil and Gas Interests for the production of Oil and Gas to the extent and as hereinafter provided,

NOW, THEREFORE, it is agreed as follows:

ARTICLE I.
DEFINITIONS

As used in this agreement, the following words and terms shall have the meanings here ascribed to them:

A. The term "AFE" shall mean an Authority for Expenditure prepared by a party to this agreement for the purpose of estimating the costs to be incurred in conducting an operation hereunder.

B. The term "Completion" or "Complete" shall mean a single operation intended to complete a well as a producer of Oil and Gas in one or more Zones, including, but not limited to, the setting of production casing, perforating, well stimulation and production testing conducted in such operation.

C. The term "Contract Area" shall mean all of the lands, Oil and Gas Leases and/or Oil and Gas Interests intended to be Developed and operated for Oil and Gas purposes under this agreement. Such lands, Oil and Gas Leases and Oil and Gas Interests are described in Exhibit "A." See also Article XVI.K.

D. The term "Deepen" shall mean a single operation whereby a well is drilled to an objective Zone below the deepest Zone in which the well was previously drilled, or below the Deepest Zone proposed in the associated AFE, whichever is the lesser.

E. The terms "Drilling Party" and "Consenting Party" shall mean a party who agrees to join in and pay its share of the cost of any operation conducted under the provisions of this agreement.

F. The term "Drilling Unit" shall mean the area fixed for the drilling of one well / ^{or more wells} by order or rule of any state or federal body having authority. If a Drilling Unit is not fixed by any such rule or order, a Drilling Unit shall be the drilling unit as established by the / ^{Operator in its sole discretion so long as consistent with any restrictions in the Oil and Gas Leases or by applicable law,} pattern of drilling in the Contract Area unless fixed by express agreement of the Drilling Parties. See also Article XVI.K.

G. The term "Drillsite" shall mean the Oil and Gas Lease or Oil and Gas Interest on which a proposed well is to be located.

H. The term "Initial Well" shall mean the well required to be drilled by the parties hereto as provided in Article VI.A.

I. The term "Non-Consent Well" shall mean a well in which less than all parties have conducted an operation as provided in Article VI.B.2.

J. The terms "Non-Drilling Party" and "Non-Consenting Party" shall mean a party who elects not to participate in a proposed operation.

K. The term "Oil and Gas" shall mean oil, gas, casinghead gas, gas condensate, and/or all other liquid or gaseous hydrocarbons and other marketable substances produced therewith, unless an intent to limit the inclusiveness of this term is specifically stated.

L. The term "Oil and Gas Interests" or "Interests" shall mean unleased fee and mineral interests in Oil and Gas in tracts of land lying within the Contract Area which are owned by parties to this agreement.

M. The terms "Oil and Gas Lease," "Lease" and "Leasehold" shall mean the oil and gas leases or interests therein covering tracts of land lying within the Contract Area which are owned by the parties to this agreement.

N. The term "Plug Back" shall mean / ^{except as provided in Article I.V.} a single operation whereby a deeper Zone is abandoned in order to attempt a Completion in a shallower Zone.

O. The term "Recompletion" or "Recomplete" shall mean an operation whereby a Completion in one Zone is abandoned in order to attempt a Completion in a different Zone within the existing wellbore.

P. The term "Rework" shall mean an operation conducted in the wellbore of a well after it is Completed to secure, restore, or improve production in a Zone which is currently open to production in the wellbore. Such operations include, but are not limited to, well stimulation operations but exclude any routine repair or maintenance work or drilling, Sidetracking, Deepening, Completing, Recompleting, or Plugging Back of a well.

Q. The term "Sidetrack" shall mean / ^{in the case of Vertical Wells,} the directional control and intentional deviation of a well from vertical so as to change the bottom hole location and, ^{or} in the case of Horizontal Wells (defined hereinafter), an operation by which a lateral wellbore is drilled off of the horizontal wellbore, in each case unless done to straighten the hole or drill around junk in the hole / to overcome other mechanical difficulties.

R. The term "Zone" shall mean a stratum of earth containing or thought to contain a common accumulation of Oil and Gas separately producible from any other common accumulation of Oil and Gas.

S. The term "Lateral" shall mean that portion of a wellbore that deviates from approximate vertical orientation to approximate horizontal orientation and all wellbore beyond such deviation to Total Measured Depth.

T. The term "Vertical Well" shall mean any well other than a "Horizontal Well".

U. The term "Horizontal Well" shall mean a well containing a single Lateral in which the wellbore deviates at an angle of at least eighty degrees (80°) from true vertical and with a horizontal projection exceeding one hundred feet (100') measured from the initial point of penetration into a specific geological interval.

V. The term "Multi-lateral Well" shall mean a Horizontal Well which contains more than one Lateral.

W. The term "Total Measured Depth," when used in connection with a Multi-lateral or Horizontal Well, shall mean the distance from the surface of the ground to the terminus of the wellbore, as measured along the wellbore. Each Lateral taken together with the common vertical wellbore shall be considered a single wellbore and shall have a corresponding Total Measured Depth. When the proposed operation(s) is the drilling of, or operation on, a Multi-lateral or Horizontal Well, the term "depth" or "total depth" wherever used in the Agreement shall be deemed to read "Total Measured Depth" insofar as it applies to such well.

X. The term "Deepen" when used in conjunction with a Multi-lateral or Horizontal Well shall mean an operation whereby a lateral is drilled to a distance greater than the distance set out in the well proposal approved by the participating parties. This shall include reentry of a Vertical Well to convert the well to a Horizontal Well. See also Article XVI.E.2.

1 Y. For the purposes of this Agreement, as to a Multi-lateral or Horizontal Well, the term "Plug Back" shall mean an
2 operation to test or complete the well at a stratigraphically shallower geological horizon in which the operation has been or is being
3 completed and which is not within an existing Lateral.

4 Z. The term "affiliate" shall mean any Person that, directly or indirectly, through one or more intermediaries,
5 Controls or is Controlled by, or is under common Control with, another Person.

6 AA. The term "Control" and its derivatives with respect to any Person shall mean the possession, directly or
7 indirectly, of the power, directly or indirectly, to direct or cause the direction of the management or policies of the controlled
8 Person, whether through the ownership of equity interests in or voting rights attributable to the equity interests in such Person, by
9 contract or agency, by the general partner of a Person that is a partnership, or otherwise.

10 BB. The term "Person" shall mean any individual, corporation, company, partnership, limited partnership, limited
11 liability company, trust, estate, governmental authority or any other entity.

12 Unless the context otherwise clearly indicates, words used in the singular include the plural, the word "person" includes
13 natural and artificial persons, the plural includes the singular, and any gender includes the masculine, feminine, and neuter.

14
15 **ARTICLE II**
16 **EXHIBITS**

17 The following exhibits, as indicated below and attached hereto, are incorporated in and made a part hereof:

- 18 A. Exhibit "A," shall include the following information:
19 (1) Description of lands subject to this agreement,
20 (2) Restrictions, if any, as to depths, formations, or substances,
21 (3) Parties to agreement with addresses and telephone numbers for notice purposes,
22 (4) Percentages or fractional interests of parties to this agreement,
23 (5) Oil and Gas Leases and/or Oil and Gas Interests subject to this agreement.
24 (6) Burdens on production.
25 (7) Exhibit "A-1" - Plat of Contract Area
26 (8) Exhibit "A-2" - List of Contract Area
27 (9) Exhibit "A-3" - List of Unleased Tracts
28 (10) Exhibit "A-4" - List of Non-Consenting Working Interests
29 (11) Exhibit "A-5" - List of Non-Conforming Lease Interests
30 B. Exhibit "B," Form of Lease.
31 C. Exhibit "C," Accounting Procedure.
32 D. Exhibit "D," Insurance.
33 E. Exhibit "E," Gas Balancing Agreement.
34 ~~F. Exhibit "F," Non-Discrimination and Certification of Non-Segregated Facilities.~~
35 ~~G. Exhibit "G," Tax Partnership.~~
36 F. Other: **Model Form Recording Supplement to Operating Agreement and Financing Agreement.**

1 If any provision of any exhibit, except Exhibits "E," / "F," and "G," is inconsistent with any provision contained in
2 the body of this agreement, the provisions in the body of this agreement shall prevail.

3 **ARTICLE III.**

4 **INTERESTS OF PARTIES**

5 **A. Oil and Gas Interests:**

6 If any party ^{or hereafter acquires} owns / an Oil and Gas Interest in the Contract Area, that Interest shall be treated for all purposes of this
7 agreement and during the term hereof as if it were covered by the form of Oil and Gas Lease attached hereto as Exhibit "B,"
8 and the owner thereof shall be deemed to own both royalty interest in such lease and the interest of the lessee thereunder.

9 **B. Interests of Parties in Costs and Production:**

10 Unless changed by other provisions, all costs and liabilities incurred in operations under this agreement shall be borne
11 and paid, and all equipment and materials acquired in operations on the Contract Area shall be owned, by the parties as their
12 interests are set forth in Exhibit "A." In the same manner, the parties shall also own all production of Oil and Gas from the
13 Contract Area subject, however, to the payment of royalties and other burdens on production ^{subject to burdens of record} as described hereafter.

14 ~~Regardless of which party has contributed any Oil and Gas Lease or Oil and Gas Interest on which royalty or other~~
15 ~~burdens may be payable and except as otherwise expressly provided in this agreement, each party shall pay or deliver, or~~
16 ~~cause to be paid or delivered, all burdens on its share of the production from the Contract Area up to, but not in excess of the lowest sum of~~
17 ~~royalty plus overriding royalty of any Oil and Gas Lease in the Contract Area and shall indemnify, defend and hold the other parties free~~
18 ~~from any liability therefor.~~

19 ~~Except as otherwise expressly provided in this agreement, if any party has contributed hereto any Lease or Interest which is~~
20 ~~burdened with any royalty, overriding royalty, production payment or other burden on production in excess of the amounts~~
21 ~~stipulated above, such party so burdened shall assume and alone bear all such excess obligations and shall indemnify, defend~~
22 ~~and hold the other parties hereto harmless from any and all claims attributable to such excess burden. However, so long as~~
23 ~~the Drilling Unit for the productive Zone(s) is identical with the Contract Area, Each party shall pay or deliver, or cause to~~
24 ~~be paid or delivered, all burdens on production from the Contract Area due under the terms of the Oil and Gas Lease(s)~~
25 ~~which such party has contributed to this agreement, and shall indemnify, defend and hold the other parties free from any~~
26 ~~liability therefor.~~

27 No party shall ever be responsible, on a price basis higher than the price received by such party, to any other party's
28 lessor or royalty owner, and if such other party's lessor or royalty owner should demand and receive settlement on a higher
29 price basis, the party contributing the affected Lease shall bear the additional royalty burden attributable to such higher price.

30 Nothing contained in this Article III.B. shall be deemed an assignment or cross-assignment of interests covered hereby,
31 and in the event two or more parties contribute to this agreement jointly owned Leases, the parties' undivided interests in
32 said Leaseholds shall be deemed separate leasehold interests for the purposes of this agreement.

33 **C. Subsequently Created Interests:**

34 If any party has contributed hereto a Lease or Interest that is burdened with an assignment of production given as security
35 for the payment of money, or if, after the date of this agreement, any party creates an overriding royalty, production
36 payment, net profits interest, assignment of production or other burden payable out of production attributable to its working
37 interest hereunder, such burden shall be deemed a "Subsequently Created Interest." Further, if any party has contributed
38 hereto a Lease or Interest burdened with an overriding royalty, production payment, net profits interests, or other burden
39 payable out of production created prior to the date of this agreement, and such burden is **not recorded or is not referenced by another**
40 **recorded instrument sufficient for notice purposes in the county records of the applicable county** or is not shown on Exhibit "A," such
41 burden also shall be deemed a Subsequently Created Interest to the extent such burden causes the burdens on such party's
42 Lease or Interest to exceed the amount stipulated in Article III.B. above.

43 The party whose interest is burdened with the Subsequently Created Interest (the "Burdened Party") shall assume and
44 alone bear, pay and discharge the Subsequently Created Interest and shall indemnify, defend and hold harmless the other
45 parties from and against any liability therefor. Further, if the Burdened Party fails to pay, when due, its share of expenses
46 chargeable hereunder, all provisions of Article VII.B. shall be enforceable against the Subsequently Created Interest in the
47 same manner as they are enforceable against the working interest of the Burdened Party. If the Burdened Party is required
48 under this agreement to assign or relinquish to any other party, or parties, all or a portion of its working interest and/or the
49 production attributable thereto, said other party, or parties, shall receive said assignment and/or production free and clear of
50 said Subsequently Created Interest, and the Burdened Party shall indemnify, defend and hold harmless said other party, or
51 parties, from any and all claims and demands for payment asserted by owners of the Subsequently Created Interest.

52 **ARTICLE IV.**

53 **TITLES**

54 **A. Title Examination:**

55 Title examination shall be made on the ^{wellbore path and} / Drillsite of any proposed well prior to commencement of drilling operations and, ^{thereafter}
56 if a majority in interest of the Drilling Parties so requests or Operator so elects, title examination shall be made on the entire
57 Drilling Unit, or maximum anticipated Drilling Unit, of the well. The opinion will include the ownership of the working
58 interest, minerals, royalty, overriding royalty and production payments under the applicable Leases. Each party, other than unleased
59 mineral ^{owner,} ^{contributing}
60 Leases and/or Oil and Gas Interests to be included in the Drillsite or Drilling Unit, if appropriate, shall furnish to Operator
61 all abstracts (including federal lease status reports), title opinions, title papers and curative material in its possession free of
62 charge. All such information not in the possession of or made available to Operator by the parties, but necessary for the
63 examination of the title, shall be obtained by Operator. Operator shall cause title to be examined by attorneys on its staff or
64 by outside attorneys. Copies of all title opinions shall be furnished to each Drilling Party. Costs incurred by Operator in
65 procuring abstracts, fees paid ^{and field landmen and title specialists} outside attorneys / for title examination (including preliminary, supplemental, shut-in royalty
66 opinions and division order title opinions) and other direct charges as provided in Exhibit "C" shall be borne by the Drilling
67 Parties in the proportion that the interest of each Drilling Party bears to the total interest of all Drilling Parties as such
68 interests appear in Exhibit "A." Operator shall make no charge for services rendered by its staff attorneys or other personnel
69 in the performance of the above functions- **that exceeds prevailing rates in the area. Operator may use staff field landmen and title**
70 **specialists for abstracting and staff attorneys for title examination if such personnel are employed specifically for this purpose and**
71 **are billed at rates no higher than third party rates billed for similar services in the state where the services are rendered. Operator**
72 **may also charge a reasonable digital abstracting fee per tract if Operator has imaged and indexed the county records in which the**
73 **Contract Area is located.**

74 Each party shall be responsible for securing curative matter and pooling amendments or agreements required in
75 connection with Leases or Oil and Gas Interests contributed by such party. Operator shall be responsible for the preparation
76 and recording of pooling designations or declarations and communitization agreements as well as the conduct of hearings

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1 before governmental agencies for the securing of spacing or pooling orders or any other orders necessary or appropriate to
2 the conduct of operations hereunder. This shall not prevent any party from appearing on its own behalf at such hearings.
3 Costs incurred by Operator, including fees paid to outside attorneys, which are associated with hearings before governmental
4 agencies, and which costs are necessary and proper for the activities contemplated under this agreement, shall be direct
5 charges to the joint account and shall not be covered by the administrative overhead charges as provided in Exhibit "C."

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A.A.P.L. FORM 610 - MODEL FORM OPERATING AGREEMENT - 1989

1 Operator shall make no charge for services rendered by its staff attorneys or other personnel in the performance of the above
2 functions., **except as provided herein.**

3 No well shall be drilled on the Contract Area until after (1) the title to the Drillsite / ^{and wellbore path have} or Drilling Unit, if appropriate, has
4 been examined as above provided, and (2) the title has been approved by the examining attorney / ^{engaged or employed by the operator} or title has been accepted by
5 ~~all of the Drilling Parties in such well.~~ **the Operator.**

6 **B. Loss or Failure of Title:**

7 1. Failure of Title: Should any Oil and Gas Interest or Oil and Gas Lease be lost through failure of title, which results in a
8 reduction of interest from that shown on Exhibit "A," the party credited with contributing the affected Lease or Interest
9 (including, if applicable, a successor in interest to such party) shall have ninety (90) days from final determination of title
10 failure to acquire a new lease or other instrument curing the entirety of the title failure, which acquisition will not be subject
11 to Article VIII.B., and failing to do so, this agreement, nevertheless, shall continue in force as to all remaining Oil and Gas
12 Leases and Interests; and,

13 (a) The party credited with contributing the Oil and Gas Lease or Interest affected by the title failure (including, if
14 applicable, a successor in interest to such party) shall bear alone the entire loss and it shall not be entitled to recover from
15 Operator or the other parties any development or operating costs which it may have previously paid or incurred, but there
16 shall be no additional liability on its part to the other parties hereto by reason of such title failure;

17 (b) There shall be no retroactive adjustment of expenses incurred or revenues received from the operation of the
18 Lease or Interest which has failed, but the interests of the parties contained on Exhibit "A" shall be revised on an acreage
19 basis, as of the time it is determined finally that title failure has occurred, so that the interest of the party whose Lease or
20 Interest is affected by the title failure will thereafter be reduced in the Contract Area by the amount of the Lease or Interest failed;

21 (c) If the proportionate interest of the other parties hereto in any producing well previously drilled on the Contract
22 Area is increased by reason of the title failure, the party who bore the costs incurred in connection with such well attributable
23 to the Lease or Interest which has failed shall receive the proceeds attributable to the increase in such interest (less costs and
24 burdens attributable thereto) until it has been reimbursed for unrecovered costs paid by it in connection with such well
25 attributable to such failed Lease or Interest;

26 (d) Should any person not a party to this agreement, who is determined to be the owner of any Lease or Interest
27 which has failed, pay in any manner any part of the cost of operation, development, or equipment, such amount shall be paid
28 to the party or parties who bore the costs which are so refunded;

29 (e) Any liability to account to a person not a party to this agreement for prior production of Oil and Gas which arises
30 by reason of title failure shall be borne severally by each party, other than an unleased mineral owner (including a predecessor to a current
31 party) ^{who} ^{received} production for which such accounting is required based on the amount of such production received, and each such party shall
32 severally indemnify, defend and hold harmless all other parties hereto for any such liability to account;

33 (f) No charge shall be made to the joint account for legal expenses, fees or salaries in connection with the defense of
34 the Lease or Interest claimed to have failed, but if the party contributing such Lease or Interest hereto elects to defend its title
35 it shall bear all expenses in connection therewith; and

36 (g) If any party is given credit on Exhibit "A" to a Lease or Interest which is limited solely to ownership of an
37 interest in the wellbore of any well or wells and the production therefrom, such party's absence of interest in the remainder
38 of the Contract Area shall be considered a Failure of Title as to such remaining Contract Area unless that absence of interest
39 is reflected on Exhibit "A."

40 2. Loss by Non-Payment or Erroneous Payment of Amount Due: If, through mistake or oversight, any rental, shut-in well
41 payment, minimum royalty or royalty payment, or other payment necessary to maintain all or a portion of an Oil and Gas
42 Lease or interest is not paid or is erroneously paid, and as a result a Lease or Interest terminates, there shall be no monetary
43 liability against the party who failed to make such payment. Unless the party who failed to make the required payment
44 secures a new Lease or Interest covering the same interest within ninety (90) days from the discovery of the failure to make
45 proper payment, which acquisition will not be subject to Article VIII.B., the interests of the parties reflected on Exhibit "A"
46 shall be revised on an acreage basis, effective as of the date of termination of the Lease or Interest involved, and the party
47 who failed to make proper payment will no longer be credited with an interest in the Contract Area on account of ownership
48 of the Lease or Interest which has terminated. If the party who failed to make the required payment shall not have been fully
49 reimbursed, at the time of the loss, from the proceeds of the sale of Oil and Gas attributable to the lost Lease or Interest,
50 calculated on an acreage basis, for the development and operating costs previously paid on account of such Lease or Interest,
51 it shall be reimbursed for unrecovered actual costs previously paid by it (but not for its share of the cost of any dry hole
52 previously drilled or wells previously abandoned) from so much of the following as is necessary to effect reimbursement:

53 (a) Proceeds of Oil and Gas produced prior to termination of the Lease or Interest, less operating expenses and lease
54 burdens chargeable hereunder to the person who failed to make payment, previously accrued to the credit of the lost Lease or
55 Interest, on an acreage basis, up to the amount of unrecovered costs;

56 (b) Proceeds of Oil and Gas, less operating expenses and lease burdens chargeable hereunder to the person who failed
57 to make payment, up to the amount of unrecovered costs attributable to that portion of Oil and Gas thereafter produced and
58 marketed (excluding production from any wells thereafter drilled) which, in the absence of such Lease or Interest termination,
59 would be attributable to the lost Lease or Interest on an acreage basis and which as a result of such Lease or Interest
60 termination is credited to other parties, the proceeds of said portion of the Oil and Gas to be contributed by the other parties
61 in proportion to their respective interests reflected on Exhibit "A"; and,

62 (c) Any monies, up to the amount of unrecovered costs, that may be paid by any party who is, or becomes, the owner
63 of the Lease or Interest lost, for the privilege of participating in the Contract Area or becoming a party to this agreement.

64 ~~3. Other Losses: All losses of Leases or Interests committed to this agreement, other than those set forth in Articles~~
65 ~~IV.B.1. and IV.B.2. above, shall be joint losses and shall be borne by all parties in proportion to their interests shown on~~
66 ~~Exhibit "A." This shall include but not be limited to the loss of any Lease or Interest through failure to develop or because~~
67 ~~express or implied covenants have not been performed (other than performance which requires only the payment of money),~~
68 ~~and the loss of any Lease by expiration at the end of its primary term if it is not renewed or extended. There shall be no~~
69 ~~readjustment of interests in the remaining portion of the Contract Area on account of any joint loss.~~

70 ~~4. Curing Title: In the event of a Failure of Title under Article IV.B.1. or a loss of title under Article IV.B.2. above, any~~
71 ~~Lease or Interest acquired by any party hereto (other than the party whose interest has failed or was lost) during the ninety~~
72 ~~(90) day period provided by Article IV.B.1. and Article IV.B.2. above covering all or a portion of the interest that has failed~~
73 ~~or was lost shall be offered at cost to the party whose interest has failed or was lost, and the provisions of Article VIII.B.~~
74 ~~shall not apply to such acquisition.~~

ARTICLE V.
OPERATOR

A. Designation and Responsibilities of Operator:

Antero Resources Corporation shall be the Operator of the Contract Area, and shall conduct and direct and have full control of all operations on the Contract Area as permitted and required by, and within the limits of this agreement. In its performance of services hereunder for the Non-Operators, Operator shall be an independent contractor not subject to the control or direction of the Non-Operators except as to the type of operation to be undertaken in accordance with the election procedures contained in this agreement. Operator shall not be deemed, or hold itself out as, the agent of the Non-Operators with authority to bind them to any obligation or liability assumed or incurred by Operator as to any third party. Operator shall conduct its activities under this agreement as a reasonable prudent operator, in a good and workmanlike manner, with due diligence and dispatch, in accordance with good oilfield practice, and in compliance with applicable law and regulation, but in no event shall it have any liability as Operator to the ~~other parties /~~ ^{their officers, employees or agents,} for losses sustained or liabilities incurred except such as may result from gross negligence or willful misconduct. Except as provided in Article VII.D.2, under no circumstances shall Operator be held liable to another party for punitive damages, consequential damages, loss of profits, or other indirect and unforeseen damages, either in law or equity.

B. Resignation or Removal of Operator and Selection of Successor:

1. Resignation or Removal of Operator: Operator may resign at any time by giving written notice thereof to Non-Operators. If Operator terminates its legal existence, no longer owns an interest hereunder in the Contract Area, or is no longer capable of serving as Operator, Operator shall be deemed to have resigned without any action by Non-Operators, except the selection of a successor. Operator may be removed only for good cause by the affirmative vote of Non-Operators owning a majority interest based on ownership as shown on Exhibit "A" remaining after excluding the voting interest of Operator; such vote shall not be deemed effective until a written notice has been delivered to the Operator by a Non-Operator detailing the alleged default and Operator has failed to cure the default within thirty (30) days from its receipt of the notice or, if the default concerns an operation then being conducted, within forty-eight (48) hours of its receipt of the notice. ~~For purposes hereof, "good cause" shall mean not only gross negligence or willful misconduct but also the material breach of or inability to meet the standards of operation contained in Article V.A. or material failure or inability to perform its obligations under this agreement.~~

Subject to Article VII.D.1., such resignation or removal shall not become effective until 7:00 o'clock A.M. on the first day of the calendar month following the expiration of ninety (90) days after the giving of notice of resignation by Operator or action by the Non-Operators to remove Operator, unless a successor Operator has been selected and assumes the duties of Operator at an earlier date. Operator, after effective date of resignation or removal, shall be bound by the terms hereof as a Non-Operator. A change of a corporate name or structure of Operator or transfer of Operator's interest to any ^{affiliate,} single subsidiary, parent or successor corporation shall not be the basis for removal of Operator.

2. Selection of Successor Operator: Upon the resignation or removal of Operator under any provision of this agreement, a successor Operator shall be selected by the parties. The successor Operator shall be selected from the parties owning an interest in the Contract Area at the time such successor Operator is selected. The successor Operator shall be selected by the affirmative vote of two (2) or more parties owning a majority interest based on ownership as shown on Exhibit "A"; provided, however, if an Operator which has been removed or is deemed to have resigned ^{or any of its affiliates} fails to vote or votes only to succeed ~~itself,~~ ^{for itself or an affiliate,} the successor Operator shall be selected by the affirmative vote of the party or parties owning a majority interest based on ownership as shown on Exhibit "A" remaining after excluding the voting interest of the Operator that was removed or resigned ^{and its affiliates and, provided further, that the requirement for two (2) or more parties shall not apply in the event that two (2) or fewer parties are entitled to vote.} The former Operator shall promptly deliver to the successor Operator all records and data relating to the operations conducted by the former Operator to the extent such records and data are not already in the possession of the successor operator. Any cost of obtaining or copying the former Operator's records and data shall be charged to the joint account.

3. Effect of Bankruptcy: If Operator becomes insolvent, bankrupt or is placed in receivership, it shall be deemed to have resigned without any action by Non-Operators, except the selection of a successor. ~~If a petition for relief under the federal terms of the Bankruptcy Code or actions of the federal bankruptcy court, then, to the extent allowed by law,~~ bankruptcy laws is filed by or against Operator, and the removal of Operator is prevented by the ~~/ federal bankruptcy court,~~ all Non-Operators and Operator shall comprise an interim operating committee to serve until Operator has elected to reject or assume this agreement pursuant to the Bankruptcy Code, and an election to reject this agreement by Operator as a debtor in possession, or by a trustee in bankruptcy, shall be deemed a resignation as Operator without any action by Non-Operators, except the selection of a successor. During the period of time the operating committee controls operations, all actions shall require the approval of two (2) or more parties owning a majority interest based on ownership as shown on Exhibit "A." In the event there are only two (2) parties to this agreement, during the period of time the operating committee controls operations, a third party acceptable to Operator, Non-Operator and the federal bankruptcy court shall be selected as a member of the operating committee, and all actions shall require the approval of two (2) members of the operating committee without regard for their interest in the Contract Area based on Exhibit "A."

C. Employees and Contractors:

The number of employees or contractors used by Operator in conducting operations hereunder, their selection, and the hours of labor and the compensation for services performed shall be determined Operator, and all such employees or contractors shall be the employees or contractors of Operator.

D. Rights and Duties of Operator:

1. Competitive Rates and Use of Affiliates: ~~All wells drilled on the Contract Area shall be drilled / on a competitive basis at the usual rates prevailing in the /-area. If it so desires, Operator may employ its own tools and equipment in performing such operations~~ ^{operations conducted in state where the services were rendered} ~~the drilling of wells,~~ ^{conducted} but its charges therefor shall not exceed the prevailing rates in the ~~/ area and the rate of such charges shall be agreed upon by the parties in writing before drilling operations are commenced,~~ ^{state where the services were rendered} and such work shall be performed by Operator under the same terms and conditions as are customary and usual in the area in contracts of independent contractors who are doing work of a similar nature. All work performed or materials supplied by affiliates or related parties of Operator shall be performed or supplied at competitive rates, pursuant to written agreement, and in accordance with customs and standards prevailing in the industry.

2. Discharge of Joint Account Obligations: Except as herein otherwise specifically provided, Operator shall promptly pay and discharge expenses incurred in the development and operation of the Contract Area pursuant to this agreement and shall charge each of the parties hereto with their respective proportionate shares upon the expense basis provided in Exhibit "C." Operator shall keep an accurate record of the joint account hereunder, showing expenses incurred and charges and credits made and received.

3. Protection from Liens: Operator shall pay, or cause to be paid, as and when they become due and payable, all accounts

1 of contractors and suppliers and wages and salaries for services rendered or performed, and for materials supplied on, to or in
2 respect of the Contract Area or any operations for the joint account thereof, and shall keep the Contract Area free from liens and
3 encumbrances resulting therefrom except for those resulting from a bona fide dispute as to services rendered or
4 materials supplied.

5 4. Custody of Funds: Operator shall hold for the account of the Non-Operators any funds of the Non-Operators advanced
6 or paid to the Operator, either for the conduct of operations hereunder or as a result of the sale of production from the
7 Contract Area, and such funds shall remain the funds of the Non-Operators on whose account they are advanced or paid until
8 used for their intended purpose or otherwise delivered to the Non-Operators or applied toward the payment of debts as
9 provided in Article VII.B. Nothing in this paragraph shall be construed to establish a fiduciary relationship between Operator
10 and Non-Operators for any purpose other than to account for Non-Operator funds as herein specifically provided. Nothing in
11 this paragraph shall require the maintenance by Operator of separate accounts for the funds of Non-Operators ~~unless the~~
12 ~~parties otherwise specifically agree.~~

13 5. Access to Contract Area and Records: Operator shall, except as otherwise provided herein, ^{Consenting Party} permit each ~~/ Non-Operator~~
14 ^{Consenting Party's} or its duly authorized representative, ~~at the / Non-Operator's~~ sole risk and cost, full and free access at all reasonable times to
15 all operations of every kind and character being conducted for the joint account on the Contract Area and to the records of
16 operations conducted thereon or production therefrom, including Operator's books and records relating thereto. Such access
17 rights shall not be exercised in a manner interfering with Operator's conduct of an operation hereunder and shall not obligate
18 Operator to furnish any geologic or geophysical data of an interpretive nature ~~unless the cost of preparation of such~~
19 ^{Consenting Party} interpretive data was charged to the joint account. Operator will furnish ~~to each / Non-Operator~~ upon request copies of any
20 and all reports and information obtained by Operator in connection with production and related items, including, without
21 limitation, meter and chart reports, production purchaser statements, run tickets and monthly gauge reports, but excluding
22 purchase contracts and pricing information to the extent not applicable to the production of the ~~Non-Operator~~ ^{Consenting Party} seeking
23 the
24 information. Any audit of Operator's records relating to amounts expended and the appropriateness of such expenditures
25 shall be conducted in accordance with the audit protocol specified in Exhibit "C."

26 6. Filing and Furnishing Governmental Reports: Operator will file, and upon written request promptly furnish copies to
27 each requesting ^{Consenting Party} / ~~Non-Operator~~ not in default of its payment obligations, all operational notices, reports or applications
28 required to be filed by local, State, Federal or Indian agencies or authorities having jurisdiction over operations hereunder.
29 Each ~~Non-Operator~~ ^{Consenting Party} shall provide to Operator on a timely basis all information necessary to Operator to make such
30 filings.

31 7. Drilling and Testing Operations: The following provisions shall apply to each well drilled ^{Sidetracked, Deepened, Completed, Recompleted or Plugged Back} / ~~hereunder, including but not~~
32 ~~limited to the Initial Well:~~

33 (a) Operator will promptly advise ^{each Consenting Party} / ~~Non-Operators~~ of the date on which the well is spudded, or the date on which
34 drilling operations are commenced.

35 (b) Operator will send to ^{each Consenting Party} / ~~Non-Operators~~ such reports, test results and notices regarding the progress of operations on the
36 well as the ^{Consenting Parties} / ~~Non-Operators~~ shall reasonably request, including, but not limited to, daily drilling reports, completion reports, and well logs.

37 ~~(c) Operator shall adequately test all Zones encountered which may reasonably be expected to be capable of producing~~
38 ~~Oil and Gas in paying quantities as a result of examination of the electric log or any other logs or cores or tests conducted~~
39 ~~hereunder.~~

40 8. Cost Estimates: Upon request of any Consenting Party, Operator shall furnish estimates of current and cumulative costs
41 incurred for the joint account at reasonable intervals during the conduct of any operation pursuant to this agreement.
42 Operator shall not be held liable for errors in such estimates so long as the estimates are made in good faith.

43 9. Insurance: At all times while operations are conducted hereunder, Operator shall comply with the workers
44 compensation law of the state where the operations are being conducted; provided, however, that Operator may be a self-
45 insurer for liability under said compensation laws in which event the only charge that shall be made to the joint account shall
46 be as provided in Exhibit "C." Operator shall also carry or provide insurance for the benefit of the joint account of the parties
47 as outlined in Exhibit "D" attached hereto and made a part hereof. Operator shall require all contractors engaged in work on
48 or for the Contract Area to comply with the workers compensation law of the state where the operations are being conducted
49 and to maintain such other insurance as Operator may require.

50 In the event automobile liability insurance is specified in said Exhibit "D," or subsequently receives the approval of the
51 parties, no direct charge shall be made by Operator for premiums paid for such insurance for Operator's automotive
52 equipment.

53 **ARTICLE VI.**
54 **DRILLING AND DEVELOPMENT**

55 **A. Initial Well:**

56 Operator anticipates commencing the drilling of the Initial Well within one (1) years of the effective
57 date of the Unitization Order issued by the appropriate regulatory committee,

58 and shall thereafter continue the drilling of the well with due diligence to a depth sufficient in the Operator's reasonable opinion, to
59 adequately test the Utica/Point Pleasant formation with the Initial Well.

60 In the event a Party elects not to participate (a Non-Consenting Party) in the Initial Well proposed in the Contract Area
61 pursuant to Article VI.A., upon the timely commencement of actual drilling operations on such Well, such Non-Consenting Party
62 shall be deemed to have relinquished to the Consenting Parties, and the Consenting Parties shall own and be entitled to receive, in
63 proportion to their respective interests, all of such Non-Consenting Party's interest in the well and share of production therefrom
64 until the proceeds of the sale of such share, calculated at the well, or market value thereof if such share is not sold, (after deducting
65 production taxes, excise taxes, royalty, overriding royalty and other interests not excepted by Article III.D. payable out of or
66 measured by the production from such well accruing with respect to such interest until it reverts) shall equal the total of the
67 following: (a) 500% of such Non-Consenting Party's share of the cost of any newly acquired surface equipment beyond the
68 wellhead connections (including, but not limited to, stock tanks, separators, treaters, pumping equipment and piping), plus 500%
69 of such Non-Consenting Party's share of the cost of operation of the well commencing with first production and continuing until
70 such Non-Consenting Party's relinquished interest shall revert to it under other provisions of this Article, it being agreed that such
71 Non-Consenting Party's share of such costs and equipment will be that interest which would have been chargeable to such Non-
72 Consenting Party had it participated in the well from the beginning of the operations; and (b) 500% of that portion of the costs and
73 expenses of drilling, testing and completing, after deducting any cash contributions received under Article III.C., and 500% of that
74 portion of the cost of newly acquired equipment in the well (to and including wellhead connections), which would have been

1 chargeable to such Non-Consenting Party if it had participated therein.
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B. Subsequent Operations:

The drilling of the Initial Well and the participation therein by all parties is obligatory, subject to Article VI.C.1. as to participation in Completion operations and Article VI.F. as to termination of operations and Article XI as to occurrence of force majeure.

B. Subsequent Operations:

1. Proposed Operations: If any party, except an unleased mineral owner, hereto should desire to drill any well on the Contract Area other than the Initial Well, or if any party should desire to Rework, Sidetrack, Deepen, Recomplete or Plug Back a dry hole or a well no longer capable of producing in paying quantities in which such party has not otherwise relinquished its interest in the proposed objective Zone under this agreement, the party desiring to drill, Rework, Sidetrack, Deepen, Recomplete or Plug Back such a well shall give written notice of the proposed operation to the parties who have not otherwise relinquished their interest in such objective Zone under this agreement and to all other parties in the case of a proposal for Sidetracking or Deepening, specifying the work to be performed, the location, proposed depth, objective Zone and the estimated cost of the operation. The parties to whom such a notice is delivered shall have thirty (30) days after receipt of the notice within which to notify the party proposing to do the work whether they elect to participate in the cost of the proposed operation. If a drilling rig is on location, notice of a proposal to Rework, Sidetrack, Recomplete, Plug Back or Deepen may be given by telephone and the response period shall be limited to forty-eight (48) hours, ^{inclusive} of Saturday, Sunday and legal holidays. Failure of a party to whom such notice is delivered to reply within the period above fixed shall constitute an election by that party not to participate in the cost of the proposed operation. Any proposal by a party to conduct an operation conflicting with the operation initially proposed shall be delivered to all parties within the time and in the manner provided in Article VI.B.6. **No Party may elect to participate in any well proposed pursuant to this Agreement with less than its full and undivided working interest in the Contract Area.** If all parties to whom such notice is delivered elect to participate in such a proposed operation, the parties shall be contractually committed to participate therein provided such operations are commenced within the time period hereafter set forth, and Operator shall, no later than ninety (90) days after expiration of the notice period of thirty (30) days (or as promptly as practicable after the expiration of the forty-eight (48) hour period when a drilling rig is on location, as the case may be), actually commence the proposed operation and thereafter complete it with due diligence at the risk and expense of the parties participating therein; provided, however, said commencement date may be extended upon written notice of same by Operator to the other parties, for a period of up to thirty (30) additional days if, in the sole opinion of Operator, such additional time is reasonably necessary to obtain permits from governmental authorities, surface rights (including rights-of-way) or appropriate drilling equipment, or to complete title examination or curative matter required for title approval or acceptance. If the actual operation has not been commenced within the time provided (including any extension thereof as specifically permitted herein or in the force majeure provisions of Article XI) and if any party hereto still desires to conduct said operation, written notice proposing same must be resubmitted to the other parties in accordance herewith as if no prior proposal had been made. Those parties that did not participate in the drilling of a well for which a proposal to Deepen or Sidetrack is made hereunder shall, if such parties desire to participate in the proposed Deepening or Sidetracking operation, reimburse the Drilling Parties in accordance with Article VI.B.4. in the event of a Deepening operation and in accordance with Article VI.B.5. in the event of a Sidetracking operation.

2. Operations by Less Than All Parties:

(a) Determination of Participation. If any party to whom such notice is delivered as provided in Article VI.B.1. or VI.C.1. (Option No. 2) elects not to participate in the proposed operation, then, in order to be entitled to the benefits of this Article, the Operator or parties giving the notice and such other parties as shall elect to participate in the operation shall, no later than ninety (90) days after the expiration of the notice period of thirty (30) days (or as promptly as practicable after the expiration of the forty-eight (48) hour period when a drilling rig is on location, as the case may be) actually commence the proposed operation * and complete it with due diligence. Operator shall perform all work for the account of the Consenting Parties; provided, however, if no drilling rig or other equipment is on location, and if Operator is a Non-Consenting Party, the Consenting Parties shall either: (i) request Operator to perform the work required by such proposed operation for the account of the Consenting Parties, or (ii) designate one of the Consenting Parties as Operator to perform such work. The rights and duties granted to and imposed upon the Operator under this agreement are granted to and imposed upon the party designated as Operator for an operation in which the original Operator is a Non-Consenting Party. Consenting Parties, when conducting operations on the Contract Area pursuant to this Article VI.B.2., shall comply with all terms and conditions of this agreement. ***Nothing contained herein shall prohibit Operator from actually commencing the proposed operation before the expiration of the notice period, nor shall such commencement affect in any way the validity of a party's election or deemed election.** If less than all parties approve any proposed operation, the proposing party, immediately after the expiration of the applicable notice period, shall advise all Parties of the total interest of the parties approving such operation and its recommendation as to whether the Consenting Parties should proceed with the operation as proposed. Each Consenting Party, within forty-eight (48) hours (exclusive of Saturday, Sunday, and legal holidays) after delivery of such notice, shall advise the Operator of its desire to (i) limit participation to such party's interest as shown on Exhibit "A" or (ii) carry only its proportionate part (determined by dividing such party's interest in the Contract Area by the interests of all Consenting Parties in the Contract Area) of Non-Consenting Parties' interests, or (iii) carry its proportionate part (determined as provided in (ii)) of Non-Consenting Parties' interests together with all or a portion of its proportionate part of any Non-Consenting Parties' interests that any Consenting Party did not elect to take. Any interest of Non-Consenting Parties that is not carried by a Consenting Party shall be deemed to be carried by the party proposing the operation if such party does not withdraw its proposal. Failure to advise the proposing party within the time required shall be deemed an election under (i). In the event a drilling rig is on location, notice may be given by telephone, and the time permitted for such a response shall not exceed a total of forty-eight (48) hours (exclusive of Saturday, Sunday and legal holidays). The Operator party, at its election, may withdraw such proposal if there is less than 100% participation and shall notify all parties of such decision within ten (10) days, or within twenty-four (24) hours if a drilling rig is on location, following expiration of the applicable response period. If 100% subscription to the proposed operation is obtained, the proposing party shall promptly notify the Consenting Parties of their proportionate interests in the operation and the party serving as Operator shall commence such operation within the period provided in Article VI.B.1., subject to the same extension right as provided therein.

(b) Relinquishment of Interest for Non-Participation. The entire cost and risk of conducting such operations shall be borne by the Consenting Parties in the proportions they have elected to bear same under the terms of the preceding paragraph. Consenting Parties shall keep the leasehold estates involved in such operations free and clear of all liens and encumbrances of every kind created by or arising from the operations of the Consenting Parties. If such an operation results in a dry hole, then subject to Articles VI.B.6. and VI.E.3., the Consenting Parties shall plug and abandon the well and restore the surface location at their sole cost, risk and expense; provided, however, that those Non-Consenting Parties that

1 participated in the drilling, Deepening or Sidetracking of the well shall remain liable for, and shall pay, their proportionate
 2 shares of the cost of plugging and abandoning the well and restoring the surface location insofar only as those costs were not
 3 increased by the subsequent operations of the Consenting Parties. If any well drilled, Reworked, Sidetracked, Deepened,
 4 Recompleted or Plugged Back under the provisions of this Article results in a well capable of producing Oil and/or Gas in
 5 paying quantities, the Consenting Parties shall Complete and equip the well to produce at their sole cost and risk, and the
 6 well shall then be turned over to Operator (if the Operator did not conduct the operation) and shall be operated by it at the
 7 expense and for the account of the Consenting Parties. Upon commencement of operations for the drilling, Reworking,
 8 Sidetracking, ReCompleting, Deepening or Plugging Back of any such well by Consenting Parties in accordance with the
 9 provisions of this Article, each Non-Consenting Party shall be deemed to have relinquished to Consenting Parties, and the
 10 Consenting Parties shall own and be entitled to receive, in proportion to their respective interests, all of such Non-
 11 Consenting Party's interest in the well and share of production therefrom or, in the case of a Reworking, Sidetracking, Deepening,
 12 ReCompleting or Plugging Back, or a Completion pursuant to Article VI.C.1. Option No. 2, all of such Non-
 13 Consenting Party's interest in the production obtained from the operation in which the Non-Consenting Party did not elect
 14 to participate. Such relinquishment shall be effective until the proceeds of the sale of such share, calculated at the well, or
 15 market value thereof if such share is not sold (after deducting applicable ad valorem, production, severance, and excise taxes,
 16 royalty, overriding royalty and other interests not excepted by Article III.C. payable out of or measured by the production
 17 from such well accruing with respect to such interest until it reverts), shall equal the total of the following:

18 (i) 500 % of each such Non-Consenting Party's share of the cost of any newly acquired surface equipment
 19 beyond the wellhead connections (including but not limited to stock tanks, separators, treaters, pumping equipment and
 20 piping), plus ~~100%~~^{500%} of each such Non-Consenting Party's share of the cost of operation of the well commencing with first
 21 production and continuing until each such Non-Consenting Party's relinquished interest shall revert to it under other
 22 provisions of this Article, it being agreed that each Non-Consenting Party's share of such costs and equipment will be that
 23 interest which would have been chargeable to such Non-Consenting Party had it participated in the well from the beginning
 24 of the operations; and

25 (ii) 500 % of (a) that portion of the costs and expenses of drilling, Reworking, Sidetracking, Deepening,
 26 Plugging Back, testing, Completing, and ReCompleting, after deducting any cash contributions received under Article VIII.C.,
 27 and of (b) that portion of the cost of newly acquired equipment in the well (to and including the wellhead connections),
 28 which would have been chargeable to such Non-Consenting Party if it had participated therein. See Article XVI.N for application of non-consent
 29 penalty for Non-Consenting Unleased Mineral Owner.

30 Notwithstanding anything to the contrary in this Article VI.B., if the well does not reach the deepest objective Zone
 31 described in the notice proposing the well for reasons other than the encountering of granite or practically impenetrable
 32 substance or other condition in the hole rendering further operations impracticable, Operator shall give notice thereof to each
 33 Non-Consenting Party who submitted or voted for an alternative proposal under Article VI.B.6. to drill the well to a
 34 shallower Zone than the deepest objective Zone proposed in the notice under which the well was drilled, and each such Non-
 35 Consenting Party shall have the option to participate in the initial proposed Completion of the well by paying its share of the
 36 cost of drilling the well to its actual depth, calculated in the manner provided in Article VI.B.4. (a). If any such Non-
 37 Consenting Party does not elect to participate in the first Completion proposed for such well, the relinquishment provisions
 38 of this Article VI.B.2. (b) shall apply to such party's interest.

39 (c) Reworking, ReCompleting or Plugging Back. An election not to participate in the drilling, Sidetracking or
 40 Deepening of a well shall be deemed an election not to participate in any Reworking or Plugging Back operation proposed in
 41 such a well, or portion thereof, to which the initial non-consent election applied that is conducted at any time prior to full
 42 recovery by the Consenting Parties of the Non-Consenting Party's recoupment amount. Similarly, an election not to
 43 participate in the Completing or ReCompleting of a well shall be deemed an election not to participate in any Reworking
 44 operation proposed in such a well, or portion thereof, to which the initial non-consent election applied that is conducted at
 45 any time prior to full recovery by the Consenting Parties of the Non-Consenting Party's recoupment amount. Any such
 46 Reworking, ReCompleting or Plugging Back operation conducted during the recoupment period shall be deemed part of the
 47 cost of operation of said well and there shall be added to the sums to be recouped by the Consenting Parties 500 % of
 48 that portion of the costs of the Reworking, ReCompleting or Plugging Back operation which would have been chargeable to
 49 such Non-Consenting Party had it participated therein. If such a Reworking, ReCompleting or Plugging Back operation is
 50 proposed during such recoupment period, the provisions of this Article VI.B. shall be applicable as between said Consenting
 51 Parties in said well.

52 (d) Recoupment Matters. During the period of time Consenting Parties are entitled to receive Non-Consenting Party's
 53 share of production, or the proceeds therefrom, Consenting Parties shall be responsible for the payment of all ad valorem,
 54 production, severance, excise, gathering and other taxes, and all royalty, overriding royalty and other burdens applicable to
 55 Non-Consenting Party's share of production not excepted by Article III.C.

56 In the case of any Reworking, Sidetracking, Plugging Back, ReCompleting or Deepening operation, the Consenting
 57 Parties shall be permitted to use, free of cost, all casing, tubing and other equipment in the well, but the ownership of all
 58 such equipment shall remain unchanged; and upon abandonment of a well after such Reworking, Sidetracking, Plugging Back,
 59 ReCompleting or Deepening, the Consenting Parties shall account for all such equipment to the owners thereof, with each
 60 party receiving its proportionate part in kind or in value, less cost of salvage.

61 Within ninety (90) days after the completion of any operation under this Article, the party conducting the operations
 62 for the Consenting Parties shall furnish each Non-Consenting Party with an inventory of the equipment in and connected to
 63 the well, and an itemized statement of the cost of drilling, Sidetracking, Deepening, Plugging Back, testing, Completing,
 64 ReCompleting, and equipping the well for production; or, at its option, the operating party, in lieu of an itemized statement
 65 of such costs of operation, may submit a detailed statement of monthly billings. Each month thereafter, during the time the
 66 Consenting Parties are being reimbursed as provided above, the party conducting the operations for the Consenting Parties
 67 shall furnish the Non-Consenting Parties with an itemized statement of all costs and liabilities incurred in the operation of
 68 the well, together with a statement of the quantity of Oil and Gas produced from it and the amount of proceeds realized from
 69 the sale of the well's working interest production during the preceding month. In determining the quantity of Oil and Gas
 70 produced during any month, Consenting Parties shall use industry accepted methods such as but not limited to metering or
 71 periodic well tests. Any amount realized from the sale or other disposition of equipment newly acquired in connection with
 72 any such operation which would have been owned by a Non-Consenting Party had it participated therein shall be credited
 73 against the total unreturned costs of the work done and of the equipment purchased in determining when the interest of such
 74 Non-Consenting Party shall revert to it as above provided; and if there is a credit balance, it shall be paid to such Non-
 Consenting Party.

1 If and when the Consenting Parties recover from a Non-Consenting Party's relinquished interest the amounts provided
 2 for above, the relinquished interests of such Non-Consenting Party shall automatically revert to it as of ^{first day of the month} 7:00 a.m. on the / day
 3 following the day on which such recoupment occurs, and, from and after such reversion, such Non-Consenting Party shall
 4 own the same interest in such well, the material and equipment in or pertaining thereto, and the production therefrom as
 5 such Non-Consenting Party would have been entitled to had it participated in the drilling, Sidetracking, Reworking,
 6 Deepening, Recompleting or Plugging Back of said well. Thereafter, such Non-Consenting Party shall be charged with and
 7 shall pay its proportionate part of the further costs of the operation of said well in accordance with the terms of this
 8 agreement and Exhibit "C" attached hereto.

9
 10 3. Stand-By Costs: When a well which has been drilled or Deepened has reached its authorized depth and all tests have
 11 been completed and the results thereof furnished to the parties, or when operations on the well have been otherwise
 12 terminated pursuant to Article VI.F., stand-by costs incurred pending response to a party's notice proposing a Reworking,
 13 Sidetracking, Deepening, Recompleting, Plugging Back or Completing operation in such a well (including the period required
 14 under Article VI.B.6. to resolve competing proposals) shall be charged and borne as part of the drilling or Deepening
 15 operation just completed. Stand-by costs subsequent to all parties responding, or expiration of the response time permitted,
 16 whichever first occurs, and prior to agreement as to the participating interests of all Consenting Parties pursuant to the terms
 17 of the second grammatical paragraph of Article VI.B.2. (a), shall be charged to and borne as part of the proposed operation,
 18 but if the proposal is subsequently withdrawn because of insufficient participation, such stand-by costs shall be allocated
 19 between the Consenting Parties in the proportion each Consenting Party's interest as shown on Exhibit "A" bears to the total
 20 interest as shown on Exhibit "A" of all Consenting Parties.

21 In the event that notice for a Sidetracking operation is given while the drilling rig to be utilized is on location, any party
 22 may request and receive up to five (5) additional days after expiration of the forty-eight hour response period specified in
 23 Article VI.B.1. within which to respond by paying for all stand-by costs and other costs incurred during such extended
 24 response period; Operator may require such party to pay the estimated stand-by time in advance as a condition to extending
 25 the response period. If more than one party elects to take such additional time to respond to the notice, standby costs shall be
 26 allocated between the parties taking additional time to respond on a day-to-day basis in the proportion each electing party's
 27 interest as shown on Exhibit "A" bears to the total interest as shown on Exhibit "A" of all the electing parties.

28 4. Deepening: If less than all parties elect to participate in a drilling, Sidetracking, or Deepening operation proposed
 29 pursuant to Article VI.B.1., the interest relinquished by the Non-Consenting Parties to the Consenting Parties under Article
 30 VI.B.2. shall relate only and be limited to the lesser of (i) the total depth actually drilled or (ii) the objective depth or Zone
 31 of which the parties were given notice under Article VI.B.1. (^{Except as provided in Article XVI.E.2, such} "Initial Objective"). / Such well shall not be Deepened beyond the
 32 Initial Objective without first complying with this Article to afford the Non-Consenting Parties the opportunity to participate
 33 in the Deepening operation.

34 In the event any Consenting Party desires to drill or Deepen a Non-Consent Well ~~to a depth below the Initial Objective,~~
 35 such party shall give notice thereof, complying with the requirements of Article VI.B.1., to all parties (including Non-
 36 Consenting Parties). Thereupon, Articles VI.B.1. and 2. shall apply and all parties receiving such notice shall have the right to
 37 participate or not participate in the Deepening of such well pursuant to said Articles VI.B.1. and 2. If a Deepening operation
 38 is approved pursuant to such provisions, and if any Non-Consenting Party elects to participate in the Deepening operation,
 39 such Non-Consenting party shall pay or make reimbursement (as the case may be) of the following costs and expenses.

40 (a) If the proposal to Deepen is made prior to the Completion of such well as a well capable of producing in paying
 41 quantities, such Non-Consenting Party shall pay (or reimburse Consenting Parties for, as the case may be) that share of costs
 42 and expenses incurred in connection with the drilling of said well from the surface to the Initial Objective which Non-
 43 Consenting Party would have paid had such Non-Consenting Party agreed to participate therein, plus the Non-Consenting
 44 Party's share of the cost of Deepening and of participating in any further operations on the well in accordance with the other
 45 provisions of this Agreement; provided, however, all costs for testing and Completion or attempted Completion of the well
 46 incurred by Consenting Parties prior to the point of actual operations to Deepen beyond the Initial Objective shall be for the
 47 sole account of Consenting Parties.

48 (b) If the proposal is made for a Non-Consent Well that has been previously Completed as a well capable of producing
 49 in paying quantities, but is no longer capable of producing in paying quantities, such Non-Consenting Party shall pay (or
 50 reimburse Consenting Parties for, as the case may be) its proportionate share of all costs of drilling, Completing, and
 51 equipping said well from the surface to the Initial Objective, calculated in the manner provided in paragraph (a) above, less
 52 those costs recouped by the Consenting Parties from the sale of production from the well. The Non-Consenting Party shall
 53 also pay its proportionate share of all costs of re-entering said well. The Non-Consenting Parties' proportionate part (based
 54 on the percentage of such well Non-Consenting Party would have owned had it previously participated in such Non-Consent
 55 Well) of the costs of salvable materials and equipment remaining in the hole and salvable surface equipment used in
 56 connection with such well shall be determined in accordance with Exhibit "C." If the Consenting Parties have recouped the
 57 cost of drilling, Completing, and equipping the well at the time such Deepening operation is conducted, then a Non-
 58 Consenting Party may participate in the Deepening of the well with no payment for costs incurred prior to re-entering the
 59 well for Deepening

60 The foregoing shall not imply a right of any Consenting Party to propose any Deepening for a Non-Consent Well prior
 61 to the drilling of such well to its Initial Objective without the consent of the other Consenting Parties as provided in Article
 62 VI.F.

63 5. Sidetracking: Any party having the right to participate in a proposed Sidetracking operation that does not own an
 64 interest in the affected wellbore at the time of the notice shall, upon electing to participate, tender to the wellbore owners its
 65 proportionate share (equal to its interest in the Sidetracking operation) of the value of that portion of the existing wellbore
 66 to be utilized as follows:

67 (a) If the proposal is for Sidetracking an existing dry hole, reimbursement shall be on the basis of the actual costs
 68 incurred in the initial drilling of the well down to the depth at which the Sidetracking operation is initiated.

69 (b) If the proposal is for Sidetracking a well which has previously produced, reimbursement shall be on the basis of
 70 such party's proportionate share of drilling and equipping costs incurred in the initial drilling of the well down to the depth
 71 at which the Sidetracking operation is conducted, calculated in the manner described in Article VI.B.4(b) above. Such party's
 72 proportionate share of the cost of the well's salvable materials and equipment down to the depth at which the Sidetracking
 73 operation is initiated shall be determined in accordance with the provisions of Exhibit "C."

74 6. Order of Preference of Operations. Except as otherwise specifically provided in this agreement, if any party desires to

1 propose the conduct of an operation that conflicts with a proposal that has been made by a party under this Article VI, such
 2 party shall have fifteen (15) days from delivery of the initial proposal, in the case of a proposal to drill a well or to perform
 3 an operation on a well where no drilling rig is on location, or twenty-four (24) hours, exclusive of Saturday, Sunday and legal
 4 holidays, from delivery of the initial proposal, if a drilling rig is on location for the well on which such operation is to be
 5 conducted, to deliver to all parties entitled to participate in the proposed operation such party's alternative proposal, such
 6 alternate proposal to contain the same information required to be included in the initial proposal. Each party receiving such
 7 proposals shall elect by delivery of notice to Operator within five (5) days after expiration of the proposal period, or within
 8 twenty-four (24) hours (exclusive of Saturday, Sunday and legal holidays) if a drilling rig is on location for the well that is the
 9 subject of the proposals, to participate in one of the competing proposals. Any party not electing within the time required
 10 shall be deemed not to have voted. The proposal receiving the vote of parties owning the largest aggregate percentage
 11 interest of the parties voting shall have priority over all other competing proposals; in the case of a tie vote, the initial proposal shall prevail.
 12 Operator shall deliver notice of such result to all parties entitled to participate in the operation
 13 within five (5) days after expiration of the election period (or within twenty-four (24) hours, exclusive of Saturday, Sunday
 14 and legal holidays, if a drilling rig is on location). Each party shall then have two (2) days (or twenty-four (24) hours if a rig
 15 is on location) from receipt of such notice to elect by delivery of notice to Operator to participate in such operation or to
 16 relinquish interest in the affected well pursuant to the provisions of Article VI.B.2.; failure by a party to deliver notice within
 17 such period shall be deemed an election not to participate in the prevailing proposal.

18 **7. Conformity to Spacing Pattern.** Notwithstanding the provisions of this Article VI.B.2., it is agreed that no wells shall be
 19 proposed to be drilled to or Completed in or produced from a Zone from which a well located elsewhere on the Contract
 20 Area is producing, unless such well conforms to the then-existing well spacing pattern for such Zone, or such well has been approved as an
 21 exception to the then-existing spacing pattern or zone by the appropriate regulatory agency.

22 **8. Paying Wells.** No party shall conduct any Reworking, Deepening, Plugging Back, Completion, Recompletion, or
 23 Sidetracking operation under this agreement with respect to any well then capable of producing in paying quantities except
 24 with the consent of all parties that have not relinquished interests in the well at the time of such operation.

25 **C. Completion of Wells; Reworking and Plugging Back:**

26 **1. Completion:** Without the consent of all parties, no well shall be drilled, Deepened or Sidetracked, except any well
 27 drilled, Deepened or Sidetracked pursuant to the provisions of Article VI.B.2. of this agreement. Consent to the drilling,
 28 Deepening or Sidetracking shall include:

29 **Option No. 1:** All / necessary expenditures for the drilling, Deepening, equipping of the well, including tankage and/or surface
 30 facilities. **See also Article XVI.E.**
 31 **For Horizontal Wells and Multi-Lateral Wells, all**

32 **Option No. 2:** All / necessary expenditures for the drilling, Deepening or Sidetracking and testing of the well. When
 33 such well has reached its authorized depth, and all logs, cores and other tests have been completed, and the results
 34 thereof furnished to the parties, Operator shall give immediate notice to the Non-Operators having the right to
 35 participate in a Completion attempt whether or not Operator recommends attempting to Complete the well,
 36 together with Operator's AFE for Completion costs if not previously provided. The parties receiving such notice
 37 shall have forty-eight (48) hours (exclusive of Saturday, Sunday and legal holidays) in which to elect by delivery of
 38 notice to Operator to participate in a recommended Completion attempt or to make a Completion proposal with an
 39 accompanying AFE. Operator shall deliver any such Completion proposal, or any Completion proposal conflicting
 40 with Operator's proposal, to the other parties entitled to participate in such Completion in accordance with the
 41 procedures specified in Article VI.B.6. Election to participate in a Completion attempt shall include consent to all
 42 necessary expenditures for the Completing and equipping of such well, including necessary tankage and/or surface
 43 facilities but excluding any stimulation operation not contained on the Completion AFE. Failure of any party
 44 receiving such notice to reply within the period above fixed shall constitute an election by that party not
 45 to participate in the cost of the Completion attempt; provided, that Article VI.B.6. shall control in the case of
 46 conflicting Completion proposals. If one or more, but less than all of the parties, elect to attempt a Completion, the
 47 provision of Article VI.B.2. hereof (the phrase "Reworking, Sidetracking, Deepening, Recompleting or Plugging
 48 Back" as contained in Article VI.B.2. shall be deemed to include "Completing") shall apply to the operations
 49 thereafter conducted by less than all parties; provided, however, that Article VI.B.2. shall apply separately to each
 50 separate Completion or Recompletion attempt undertaken hereunder, and an election to become a Non-Consenting
 51 Party as to one Completion or Recompletion attempt shall not prevent a party from becoming a Consenting Party
 52 in subsequent Completion or Recompletion attempts regardless whether the Consenting Parties as to earlier
 53 Completions or Recompletion have recouped their costs pursuant to Article VI.B.2.; provided further, that any
 54 recoupment of costs by a Consenting Party shall be made solely from the production attributable to the Zone in
 55 which the Completion attempt is made. Election by a previous Non-Consenting party to participate in a subsequent
 56 Completion or Recompletion attempt shall require such party to pay its proportionate share of the cost of salvable
 57 materials and equipment installed in the well pursuant to the previous Completion or Recompletion attempt,
 58 insofar and only insofar as such materials and equipment benefit the Zone in which such party participates in a
 59 Completion attempt. **See also Article XVI.E.**

60 **2. Rework, Recomplete or Plug Back:** No well shall be Reworked, Recompleted or Plugged Back except a well Reworked,
 61 Recompleted, or Plugged Back pursuant to the provisions of Article VI.B.2. of this agreement. Consent to the Reworking,
 62 Recompleting or Plugging Back of a well shall include all necessary expenditures in conducting such operations and
 63 Completing and equipping of said well, including necessary tankage and/or surface facilities.

64 **D. Other Operations:**

65 Operator shall not undertake any single project reasonably estimated to require an expenditure in excess of Two Hundred
 66 and Fifty Thousand

67 _____ Dollars (\$ 250,000.00) except in connection with the
 68 drilling, Sidetracking, Reworking, Deepening, Completing, Recompleting or Plugging Back of a well that has been previously
 69 authorized by or pursuant to this agreement; provided, however, that, in case of explosion, fire, flood or other sudden
 70 emergency, whether of the same or different nature, Operator may take such steps and incur such expenses as in its opinion
 71 are required to deal with the emergency to safeguard life and property but Operator, as promptly as possible, shall report the
 72 emergency to the other parties. If Operator prepares an AFE for its own use, Operator shall furnish any Non-Operator so
 73 requesting an information copy thereof for any single project costing in excess of Two Hundred and Fifty Thousand Dollars
 74 (\$250,000.00). Any party who has not relinquished its interest in a well shall have the right to propose that
 Operator perform repair work or undertake the installation of artificial lift equipment or ancillary production facilities such as
 salt water disposal wells or to conduct additional work with respect to a well drilled hereunder or other similar project (but

1 not including the installation of gathering lines or other transportation or marketing facilities, the installation of which shall
 2 be governed by separate agreement between the parties) reasonably estimated to require an expenditure in excess of the
 3 amount first set forth above in this Article VI.D. (except in connection with an operation required to be proposed under
 4 Articles VI.B.1. or VI.C.1. Option No. 2, which shall be governed exclusively by those Articles). Operator shall deliver such
 5 proposal to all parties entitled to participate therein. If within thirty (30) days thereof Operator secures the written consent
 6 of any party or parties owning at least 80 % of the interests of the parties entitled to participate in such operation,
 7 each party having the right to participate in such project shall be bound by the terms of such proposal and shall be obligated
 8 to pay its proportionate share of the costs of the proposed project as if it had consented to such project pursuant to the terms
 9 of the proposal.

10
 11 **E. Abandonment of Wells:**

12 1. Abandonment of Dry Holes: Except for any well drilled or Deepened pursuant to Article VI.B.2., any well which has
 13 been drilled or Deepened under the terms of this agreement and is proposed to be completed as a dry hole shall not be plugged and
 14 abandoned without the consent of all parties who participated in the costs of drilling the well. Should Operator, after diligent effort, be
 15 unable to contact any party, or should any party fail to reply within forty-eight (48) hours (exclusive of Saturday, Sunday and legal holidays) after
 16 delivery of notice of the proposal to plug and abandon such well, such party shall be deemed to have consented to the
 17 proposed abandonment. All such wells shall be plugged and abandoned in accordance with applicable regulations and at the
 18 cost, risk and expense of the parties who participated in the cost of drilling or Deepening such well. Any party who objects to
 19 plugging and abandoning such well by notice delivered to Operator within forty-eight (48) hours (exclusive of Saturday,
 20 Sunday and legal holidays) after delivery of notice of the proposed plugging shall take over the well as of the end of such
 21 forty-eight (48) hour notice period and conduct further operations in search of Oil and/or Gas subject to the provisions of
 22 Article VI.B.; failure of such party to provide proof reasonably satisfactory to Operator of its financial capability to conduct
 23 such operations or to take over the well within such period or thereafter to conduct operations on such well or plug and
 24 abandon such well shall entitle Operator to retain or take possession of the well and plug and abandon the well. The party
 25 taking over the well shall indemnify Operator (if Operator is an abandoning party) and the other abandoning parties against
 26 liability for any further operations conducted on such well except for the costs of plugging and abandoning the well and
 27 restoring the surface, for which the abandoning parties shall remain proportionately liable.

28 2. Abandonment of Wells That Have Produced: Except for any well in which a Non-Consent operation has been
 29 conducted hereunder for which the Consenting Parties have not been fully reimbursed as herein provided, any well which has
 30 been completed as a producer shall not be plugged and abandoned without the consent of all parties ^{who participated in the cost of drilling the well}. If all parties consent to
 31 such abandonment, the well shall be plugged and abandoned in accordance with applicable regulations and at the cost, risk
 32 and expense of all the parties hereto. Failure of a party to reply within sixty (60) days of delivery of notice of proposed
 33 abandonment shall be deemed an election to consent to the proposal. If, within sixty (60) days after delivery of notice of the
 34 proposed abandonment of any well, all parties do not agree to the abandonment of such well, those wishing to continue its
 35 operation from the Zone then open to production shall be obligated to take over the well as of the expiration of the
 36 applicable notice period and shall indemnify Operator (if Operator is an abandoning party) and the other abandoning parties
 37 ^{with respect to the well, including the costs of plugging and abandoning the well and restoring the surface} against liability for any further operations ~~on the well conducted by such parties.~~ Failure of such party or parties to provide
 38 proof reasonably satisfactory to Operator of their financial capability to conduct such operations or to take over the well
 39 within the required period or thereafter to conduct operations on such well shall entitle operator to retain or take possession
 40 of such well and plug and abandon the well.

41 Parties taking over a well as provided herein shall tender to each of the other parties its proportionate share of the value of
 42 the well's salvable material and equipment, determined in accordance with the provisions of Exhibit "C," less the estimated cost
 43 of salvaging and the estimated cost of plugging and abandoning and restoring the surface; provided, however, that in the event
 44 the estimated plugging and abandoning and surface restoration costs and the estimated cost of salvaging are higher than the
 45 value of the well's salvable material and equipment, each of the abandoning parties shall tender to the parties continuing
 46 operations their proportionate shares of the estimated excess cost. Each abandoning party shall assign to the non-abandoning
 47 parties, without warranty, express or implied, as to title or as to quantity, or fitness for use of the equipment and material, all
 48 of its interest in the wellbore of the well and related equipment, together with its interest in the Leasehold insofar and only
 49 insofar as such Leasehold covers the right to obtain production from that wellbore in the Zone then open to production. If the
 50 interest of the abandoning party is or includes an Oil and Gas Interest, such party shall execute and deliver to the non-
 51 abandoning party or parties an oil and gas lease, limited to the wellbore and the Zone then open to production, for a term of
 52 one (1) year and so long thereafter as Oil and/or Gas is produced from the Zone covered thereby, such lease to be on the form
 53 attached as Exhibit "B." The assignments or leases so limited shall encompass the Drilling Unit upon which the well is located.
 54 The payments by, and the assignments or leases to, the assignees shall be in a ratio based upon the relationship of their
 55 respective percentage of participation in the Contract Area to the aggregate of the percentages of participation in the Contract
 56 Area of all assignees. There shall be no readjustment of interests in the remaining portions of the Contract Area.

57 Thereafter, abandoning parties shall have no further responsibility, liability, or interest in the operation of or production
 58 from the well in the Zone then open other than the royalties retained in any lease made under the terms of this Article. Upon
 59 request, Operator shall continue to operate the assigned well for the account of the non-abandoning parties at the rates and
 60 charges contemplated by this agreement, plus any additional cost and charges which may arise as the result of the separate
 61 ownership of the assigned well. Upon proposed abandonment of the producing Zone assigned or leased, the assignor or lessor
 62 shall then have the option to repurchase its prior interest in the well (using the same valuation formula) and participate in
 63 further operations therein subject to the provisions hereof.

64 3. Abandonment of Non-Consent Operations: The provisions of Article VI.E.1. or VI.E.2. above shall be applicable as
 65 between Consenting Parties in the event of the proposed abandonment of any well excepted from said Articles; provided,
 66 however, no well shall be permanently plugged and abandoned unless and until all parties having the right to conduct further
 67 operations therein have been notified of the proposed abandonment and afforded the opportunity to elect to take over the well
 68 in accordance with the provisions of this Article VI.E.; and provided further, that Non-Consenting Parties who own an interest
 69 in a portion of the well shall pay their proportionate shares of abandonment and surface restoration cost for such well as
 70 provided in Article VI.B.2.(b).

71 **F. Termination of Operations:**

72 Upon the commencement of an operation for the drilling, Reworking, Sidetracking, Plugging Back, Deepening, testing,
 73 Completion or plugging of a well, including but not limited to the Initial Well, such operation shall not be terminated without
 74

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1 consent of parties bearing 80 % of the costs of such operation; provided, however, that in the event granite or other
2 practically impenetrable substance or condition in the hole is encountered which renders further operations impractical,
3 Operator may discontinue operations and give notice of such condition in the manner provided in Article VI.B.1, and the
4 provisions of Article VI.B. or VI.E. shall thereafter apply to such operation, as appropriate.

5 **G. Taking Production in Kind:**

6 **Option No. 1: Gas Balancing Agreement Attached**

7 Gas Each party, other than an unleased mineral owner, shall take in kind or separately dispose of its proportionate share of all Oil and
8 Gas produced from the

9 Contract Area, exclusive of production which may be used in development and producing operations and in preparing and
10 treating Oil and Gas for marketing purposes and production unavoidably lost. Any extra expenditure incurred in the taking
11 in kind or separate disposition by any party of its proportionate share of the production shall be borne by such party. Any
12 party taking its share of production in kind shall be required to pay for only its proportionate share of such part of
13 Operator's surface facilities which it uses.

14 Each party shall execute such division orders and contracts as may be necessary for the sale of its interest in
15 production from the Contract Area, and, except as provided in Article VII.B., shall be entitled to receive payment directly from the
16 purchaser thereof for its share of all production.

17 If any party fails to make the arrangements necessary to take in kind or separately dispose of its proportionate
18 share of the Oil produced from the Contract Area, Operator shall have the right, subject to the revocation at will by
19 the party owning it, but not the obligation, to purchase such Oil or sell it to others at any time and from time to
20 time, for the account of the non-taking party. Any such purchase or sale by Operator may be terminated by
21 Operator upon at least ten (10) days written notice to the owner of said production and shall be subject always to
22 the right of the owner of the production upon at least ten (10) days written notice to Operator to exercise at any
23 time its right to take in kind, or separately dispose of, its share of all Oil not previously delivered to a purchaser.
24 Any purchase or sale by Operator of any other party's share of Oil shall be only for such reasonable periods of time
25 as are consistent with the minimum needs of the industry under the particular circumstances, but in no event for a
26 period in excess of one (1) year.

27 Any such sale by Operator shall be in a manner commercially reasonable under the circumstances but Operator
28 shall have no duty to share any existing market or to obtain a price equal to that received under any existing
29 market. The sale or delivery by Operator of a non-taking party's share of Oil under the terms of any existing
30 contract of Operator shall not give the non-taking party any interest in or make the non-taking party a party to said
31 contract. No purchase shall be made by Operator without first giving the non-taking party at least ten (10) days
32 written notice of such intended purchase and the price to be paid or the pricing basis to be used.

33 All parties shall give timely written notice to Operator of their Gas marketing arrangements for the following
34 month, excluding price, and shall notify Operator immediately in the event of a change in such arrangements.
35 Operator shall maintain records of all marketing arrangements, and of volumes actually sold or transported, which
36 records shall be made available to Non-Operators upon reasonable request.

37 In the event one or more parties' separate disposition of its share of the Gas causes split-stream deliveries to separate
38 pipelines and/or deliveries which on a day-to-day basis for any reason are not exactly equal to a party's respective proportion-
39 ate share of total Gas sales to be allocated to it, the balancing or accounting between the parties shall be in accordance with
40 any Gas balancing agreement between the parties hereto, whether such an agreement is attached as Exhibit "E" or is a
41 separate agreement. Operator shall give notice to all parties of the first sales of Gas from any well under this agreement.

42 **Option No. 2: No Gas Balancing Agreement:**

43 ~~Each party shall take in kind or separately dispose of its proportionate share of all Oil and Gas produced from
44 the Contract Area, exclusive of production which may be used in development and producing operations and in
45 preparing and treating Oil and Gas for marketing purposes and production unavoidably lost. Any extra expenditures
46 incurred in the taking in kind or separate disposition by any party of its proportionate share of the production shall
47 be borne by such party. Any party taking its share of production in kind shall be required to pay for only its
48 proportionate share of such part of Operator's surface facilities which it uses.~~

49 ~~Each party shall execute such division orders and contracts as may be necessary for the sale of its interest in
50 production from the Contract Area, and, except as provided in Article VII.B., shall be entitled to receive payment
51 directly from the purchaser thereof for its share of all production.~~

52 ~~If any party fails to make the arrangements necessary to take in kind or separately dispose of its proportionate
53 share of the Oil and/or Gas produced from the Contract Area, Operator shall have the right, subject to the
54 revocation at will by the party owning it, but not the obligation, to purchase such Oil and/or Gas or sell it to others
55 at any time and from time to time, for the account of the non-taking party. Any such purchase or sale by Operator
56 may be terminated by Operator upon at least ten (10) days written notice to the owner of said production and shall
57 be subject always to the right of the owner of the production upon at least ten (10) days written notice to Operator
58 to exercise its right to take in kind, or separately dispose of, its share of all Oil and/or Gas not previously delivered
59 to a purchaser; provided, however, that the effective date of any such revocation may be deferred at Operator's
60 election for a period not to exceed ninety (90) days if Operator has committed such production to a purchase
61 contract having a term extending beyond such ten (10) day period. Any purchase or sale by Operator of any other
62 party's share of Oil and/or Gas shall be only for such reasonable periods of time as are consistent with the
63 minimum needs of the industry under the particular circumstances, but in no event for a period in excess of one (1)
64 year.~~

65 ~~Any such sale by Operator shall be in a manner commercially reasonable under the circumstances, but Operator
66 shall have no duty to share any existing market or transportation arrangement or to obtain a price or transportation
67 fee equal to that received under any existing market or transportation arrangement. The sale or delivery by
68 Operator of a non-taking party's share of production under the terms of any existing contract of Operator shall not
69 give the non-taking party any interest in or make the non-taking party a party to said contract. No purchase of Oil
70 and Gas and no sale of Gas shall be made by Operator without first giving the non-taking party ten days written
71 notice of such intended purchase or sale and the price to be paid or the pricing basis to be used. Operator shall give
72 notice to all parties of the first sale of Gas from any well under this Agreement.~~

73 ~~All parties shall give timely written notice to Operator of their Gas marketing arrangements for the following
74 month, excluding price, and shall notify Operator immediately in the event of a change in such arrangements.~~

~~Operator shall maintain records of all marketing arrangements, and of volumes actually sold or transported, which records shall be made available to Non-Operators upon reasonable request.~~

ARTICLE VII.

EXPENDITURES AND LIABILITY OF PARTIES

A. Liability of Parties:

The liability of the parties shall be several, not joint or collective. Each party shall be responsible only for its obligations, and shall be liable only for its proportionate share of the costs of developing and operating the Contract Area. Accordingly, the liens granted among the parties in Article VII.B. are given to secure only the debts of each severally, and no party shall have any liability to third parties hereunder to satisfy the default of any other party in the payment of any expense or obligation hereunder. It is not the intention of the parties to create, nor shall this agreement be construed as creating, a mining or other partnership, joint venture, agency relationship or association, or to render the parties liable as partners, co-venturers, or principals. In their relations with each other under this agreement, the parties shall not be considered fiduciaries or to have established a confidential relationship but rather shall be free to act on an arm's-length basis in accordance with their own respective self-interest, subject, however, to the obligation of the parties to act in good faith in their dealings with each other with respect to activities hereunder.

B. Liens and Security Interests:

Each party, other than an unleased mineral owner, grants to the other parties hereto a lien upon any interest it now owns or hereafter acquires in Oil and Gas Leases and Oil and Gas Interests in the Contract Area, and a security interest and/or purchase money security interest in any interest it now owns or hereafter acquires in the personal property and fixtures on or used or obtained for use in connection therewith, to secure performance of all of its obligations under this agreement including but not limited to payment of expense, interest and fees, the proper disbursement of all monies paid hereunder, the assignment or relinquishment of interest in Oil and Gas Leases as required hereunder, and the proper performance of operations hereunder. Such lien and security interest granted by each party hereto shall include such party's leasehold interests, working interests, operating rights, and royalty and overriding royalty interests in the Contract Area now owned or hereafter acquired and in lands pooled or unitized therewith or otherwise becoming subject to this agreement, the Oil and Gas when extracted therefrom and equipment situated thereon or used or obtained for use in connection therewith (including, without limitation, all wells, tools, and tubular goods), and accounts (including, without limitation, accounts arising from gas imbalances or from the sale of Oil and/or Gas at the wellhead), contract rights, inventory and general intangibles relating thereto or arising therefrom, and all proceeds and products of the foregoing.

To perfect the lien and security agreement provided herein, each party hereto shall execute and acknowledge the recording supplement and/or any financing statement prepared and submitted by any party hereto in conjunction herewith or at any time following execution hereof, and Operator is authorized to file this agreement or the recording supplement executed herewith as a lien or mortgage in the applicable real estate records and as a financing statement with the proper officer under the Uniform Commercial Code in the state in which the Contract Area is situated and such other states as Operator shall deem appropriate to perfect the security interest granted hereunder. Any party may file this agreement, the recording supplement executed herewith, or such other documents as it deems necessary as a lien or mortgage in the applicable real estate records and/or a financing statement with the proper officer under the Uniform Commercial Code.

Each party represents and warrants to the other parties hereto that the lien and security interest granted by such party to the other parties shall be a first and prior lien, and each party hereby agrees to maintain the priority of said lien and security interest against all persons acquiring an interest in Oil and Gas Leases and Interests covered by this agreement by, through or under such party. All parties acquiring an interest in Oil and Gas Leases and Oil and Gas Interests covered by this agreement, whether by assignment, merger, mortgage, operation of law, or otherwise, shall be deemed to have taken subject to the lien and security interest granted by this Article VII.B. as to all obligations attributable to such interest hereunder whether or not such obligations arise before or after such interest is acquired.

To the extent that parties have a security interest under the Uniform Commercial Code of the state in which the Contract Area is situated, they shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by a party for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In addition, upon default by any party in the payment of its share of expenses, interests or fees, or upon the improper use of funds by the Operator, the other parties shall have the right, without prejudice to other rights or remedies, to collect from the purchaser the proceeds from the sale of such defaulting party's share of Oil and Gas until the amount owed by such party, plus interest as provided in "Exhibit C," has been received, and shall have the right to offset the amount owed against the proceeds from the sale of such defaulting party's share of Oil and Gas. All purchasers of production may rely on a notification of default from the non-defaulting party or parties stating the amount due as a result of the default, and all parties waive any recourse available against purchasers for releasing production proceeds as provided in this paragraph.

If any party fails to pay its share of cost within one hundred twenty (120) days after rendition of a statement therefor by Operator, the non-defaulting parties, including Operator, shall upon request by Operator, pay the unpaid amount in the proportion that the interest of each such party bears to the interest of all such parties. The amount paid by each party so paying its share of the unpaid amount shall be secured by the liens and security rights described in Article VII.B., and each paying party may independently pursue any remedy available hereunder or otherwise.

If any party does not perform all of its obligations hereunder, and the failure to perform subjects such party to foreclosure or execution proceedings pursuant to the provisions of this agreement, to the extent allowed by governing law, the defaulting party waives any available right of redemption from and after the date of judgment, any required valuation or appraisal of the mortgaged or secured property prior to sale, any available right ^{or moratorium} to stay execution or to require a marshaling of assets ~~or sale in inverse order of alienation~~ / and any required bond in the event a receiver is appointed. In addition, to the extent permitted by applicable law, each party hereby grants to the other parties a power of sale as to any property that is subject to the lien and security rights granted hereunder, such power to be exercised in the manner provided by applicable law or otherwise in a commercially reasonable manner and upon reasonable notice.

Each party agrees that the other parties shall be entitled to utilize the provisions of Oil and Gas lien law or other lien law of any state in which the Contract Area is situated to enforce the obligations of each party hereunder. Without limiting the generality of the foregoing, to the extent permitted by applicable law, Non-Operators agree that Operator may invoke or utilize the mechanics' or materialmen's lien law of the state in which the Contract Area is situated in order to secure the

1 payment to Operator of any sum due hereunder for services performed or materials supplied by Operator.

2 **C. Advances:**

3 Operator, at its election, shall have the right from time to time to demand and receive from one or more of the other
 4 Parties, other than unleased mineral owners, payment in advance of their respective shares of the estimated amount of the expense to be
 5 incurred in operations
 6 hereunder during the next succeeding month, which right may be exercised only by submission to each such party of an
 7 itemized statement of such estimated expense, together with an invoice for its share thereof. Each such statement and invoice
 8 for the payment in advance of estimated expense shall be submitted on or before the 20th day of the next preceding month.
 9 Each party shall pay to Operator its proportionate share of such estimate within ~~fifteen (15)~~ ^{thirty (30)} after such estimate and
 10 invoice is received. If any party fails to pay its share of said estimate within said time, the amount due shall bear interest as
 11 provided in Exhibit "C" until paid. Proper adjustment shall be made monthly between advances and actual expense to the end
 12 that each party shall bear and pay its proportionate share of actual expenses incurred, and no more.

13 **D. Defaults and Remedies:**

14 If any party fails to discharge any financial obligation under this agreement, including without limitation the failure to
 15 make any advance under the preceding Article VII.C. or any other provision of this agreement, within the period required for
 16 such payment hereunder, then in addition to the remedies provided in Article VII.B. or elsewhere in this agreement, the
 17 remedies specified below shall be applicable. For purposes of this Article VII.D., all notices and elections shall be delivered
 18 only by Operator, except that Operator shall deliver any such notice and election requested by a non-defaulting Non-Operator,
 19 and when Operator is the party in default, the applicable notices and elections can be delivered by any Non-Operator.
 20 Election of any one or more of the following remedies shall not preclude the subsequent use of any other remedy specified
 21 below or otherwise available to a non-defaulting party.

22 1. Suspension of Rights: Any party may deliver to the party in default a Notice of Default, which shall specify the default,
 23 specify the action to be taken to cure the default, and specify that failure to take such action will result in the exercise of one
 24 or more of the remedies provided in this Article. If the default is not cured within thirty (30) days of the delivery of such
 25 Notice of Default, all of the rights of the defaulting party granted by this agreement may upon notice be suspended until the
 26 default is cured, without prejudice to the right of the non-defaulting party or parties to continue to enforce the obligations of
 27 the defaulting party previously accrued or thereafter accruing under this agreement. If Operator is the party in default, the
 28 Non-Operators shall have in addition the right, by vote of Non-Operators owning a majority in interest in the Contract Area
 29 after excluding the voting interest of Operator, to appoint a new Operator effective immediately. The rights of a defaulting
 30 party that may be suspended hereunder at the election of the non-defaulting parties shall include, without limitation, the right
 31 to receive information as to any operation conducted hereunder during the period of such default, the right to elect to
 32 participate in an operation proposed under Article VI.B. of this agreement, the right to participate in an operation being
 33 conducted under this agreement even if the party has previously elected to participate in such operation, and the right to
 34 receive proceeds of production from any well subject to this agreement.

35 2. Suit for Damages: Non-defaulting parties or Operator for the benefit of non-defaulting parties may sue (at joint
 36 account expense) to collect the amounts in default, plus interest accruing on the amounts recovered from the date of default
 37 until the date of collection at the rate specified in Exhibit "C" attached hereto. Nothing herein shall prevent any party from
 38 suing any defaulting party to collect consequential damages accruing to such party as a result of the default.

39 3. Deemed Non-Consent: The non-defaulting party may deliver a written Notice of Non-Consent Election to the
 40 defaulting party at any time after the expiration of the thirty-day cure period following delivery of the Notice of Default, in
 41 which event if the billing is for the drilling a new well or the Plugging Back, Sidetracking, Reworking or Deepening of a
 42 well which is to be or has been plugged as a dry hole, or for the Completion or Recompletion of any well, the defaulting
 43 party will be conclusively deemed to have elected not to participate in the operation and to be a Non-Consenting Party with
 44 respect thereto under Article VI.B. or VI.C., as the case may be, to the extent of the costs unpaid by such party,
 45 notwithstanding any election to participate theretofore made. If election is made to proceed under this provision, then the
 46 non-defaulting parties may not elect to sue for the unpaid amount pursuant to Article VII.D.2.

47 Until the delivery of such Notice of Non-Consent Election to the defaulting party, such party shall have the right to cure
 48 its default by paying its unpaid share of costs plus interest at the rate set forth in Exhibit "C," provided, however, such
 49 payment shall not prejudice the rights of the non-defaulting parties to pursue remedies for damages incurred by the non-
 50 defaulting parties as a result of the default. Any interest relinquished pursuant to this Article VII.D.3. shall be offered to the
 51 non-defaulting parties in proportion to their interests, and the non-defaulting parties electing to participate in the ownership
 52 of such interest shall be required to contribute their shares of the defaulted amount upon their election to participate therein.

53 4. Advance Payment: If a default is not cured within thirty (30) days of the delivery of a Notice of Default, Operator, or
 54 Non-Operators if Operator is the defaulting party, may thereafter require advance payment from the defaulting
 55 party of such defaulting party's anticipated share of any item of expense for which Operator, or Non-Operators, as the case may
 56 be, would be entitled to reimbursement under any provision of this agreement, whether or not such expense was the subject of
 57 the previous default. Such right includes, but is not limited to, the right to require advance payment for the estimated costs of
 58 drilling a well or Completion of a well as to which an election to participate in drilling or Completion has been made. If the
 59 defaulting party fails to pay the required advance payment, the non-defaulting parties may pursue any of the remedies provided
 60 in the Article VII.D. or any other default remedy provided elsewhere in this agreement. Any excess of funds advanced remaining
 61 when the operation is completed and all costs have been paid shall be promptly returned to the advancing party.

62 ~~5. Costs and Attorneys' Fees: In the event any party is required to bring legal proceedings to enforce any financial
 63 obligation of a party hereunder, the prevailing party in such action shall be entitled to recover all court costs, costs of
 64 collection, and a reasonable attorney's fee, which the lien provided for herein shall also secure.~~

65 **E. Rentals, Shut-in Well Payments and Minimum Royalties:**

66 Rentals, shut-in well payments and minimum royalties which may be required under the terms of any lease shall be paid
 67 by the party or parties who subjected such lease to this agreement at its or their expense. In the event two or more parties
 68 own and have contributed interests in the same lease to this agreement, such parties may designate one of such parties to
 69 make said payments for and on behalf of all such parties. Any party may request, and shall be entitled to receive, proper
 70 evidence of all such payments. In the event of failure to make proper payment of any rental, shut-in well payment or
 71 minimum royalty through mistake or oversight where such payment is required to continue the lease in force, any loss which
 72 results from such non-payment shall be borne in accordance with the provisions of Article IV.B.2.

73 Operator shall notify Non-Operators of the anticipated completion of a shut-in well, or the shutting in or return to
 74 production of a producing well, at least five (5) days (excluding Saturday, Sunday, and legal holidays) prior to taking such

1 action, or at the earliest opportunity permitted by circumstances, but assumes no liability for failure to do so. In the event of
2 failure by Operator to so notify Non-Operators, the loss of any lease contributed hereto by Non-Operators for failure to make
3 timely payments of any shut-in well payment shall be borne jointly by the parties hereto under the provisions of Article
4 IV.B.3.

5 **F. Taxes:**

6 Beginning with the first calendar year after the effective date hereof, Operator shall render for ad valorem taxation all
7 property subject to this agreement which by law should be rendered for such taxes and assessments, and it shall pay all such taxes assessed
8 thereon before they become delinquent. Prior to the rendition date, each Non-Operator shall furnish Operator information as
9 to burdens (to include, but not be limited to, royalties, overriding royalties and production payments) on Leases and Oil and
10 Gas Interests contributed by such Non-Operator. If the assessed valuation of any Lease is reduced by reason of its being
11 subject to outstanding excess royalties, overriding royalties or production payments, the reduction in ad valorem taxes
12 resulting therefrom shall inure to the benefit of the owner or owners of such Lease, and Operator shall adjust the charge to
13 such owner or owners so as to reflect the benefit of such reduction. If the ad valorem taxes are based in whole or in part
14 upon separate valuations of each party's working interest, then notwithstanding anything to the contrary herein, charges to
15 the joint account shall be made and paid by the parties hereto in accordance with the tax value generated by each party's
16 working interest. Operator shall bill the other parties for their proportionate shares of all tax payments in the manner
17 provided in Exhibit "C."

18 If Operator considers any tax assessment improper, Operator may, at its discretion, protest within the time and manner
19 prescribed by law, and prosecute the protest to a final determination, unless all parties agree to abandon the protest prior to final
20 determination. During the pendency of administrative or judicial proceedings, Operator may elect to pay, under protest, all such taxes
21 and any interest and penalty. When any such protested assessment shall have been finally determined, Operator shall pay the tax for
22 the joint account, together with any interest and penalty accrued, and the total cost shall then be assessed against the parties, and be
23 paid by them, as provided in Exhibit "C."

24 Each party shall pay or cause to be paid all production, severance, excise, gathering and other taxes and assessments imposed upon or
25 with respect to the production or handling of such party's share of Oil and Gas produced under the terms of this agreement.

26 **ARTICLE VIII.**

27 **ACQUISITION, MAINTENANCE OR TRANSFER OF INTEREST**

28 **A. Surrender of Leases:**

29 The Leases covered by this agreement, insofar as they embrace acreage in the Contract Area, shall not be surrendered in whole
30 or in part unless all parties consent thereto; however, no consent shall be necessary to release a lease which has expired or otherwise
31 terminated in accordance with its terms.

32 ~~However, should~~ ^{Should} any party, other than an unleased mineral owner, desire to surrender its interest in any Lease or in any portion
33 thereof, ~~such~~ ^{such} party shall ~~give~~ ^{give} written
34 notice of the proposed surrender to all parties, and the parties to whom such notice is delivered shall have thirty (30) days after
35 delivery of the notice within which to notify the party proposing the surrender whether they elect to consent thereto. Failure of a
36 party to whom such notice is delivered to reply within said 30-day period shall constitute a consent to the surrender of the Leases
37 described in the notice. If all parties do not agree or consent thereto, the party desiring to surrender shall assign, without express or
38 implied warranty of title, all of its interest in such Lease, or portion thereof, and any well, material and equipment which may be
39 located thereon and any rights in production thereafter secured, to the parties not consenting to such surrender. If the interest of the
40 assigning party is or includes an Oil and Gas Interest, the assigning party shall execute and deliver to the party or parties not
41 consenting to such surrender an oil and gas lease covering such Oil and Gas Interest for a term of one (1) year and so long
42 thereafter as Oil and/or Gas is produced from the land covered thereby, such lease to be on the form attached hereto as Exhibit "B."
43 Upon such assignment or lease, the assigning party shall be relieved from all obligations thereafter accruing, but not theretofore
44 accrued, with respect to the interest assigned or leased and the operation of any well attributable thereto, and the assigning party
45 shall have no further interest in the assigned or leased premises and its equipment and production other than the royalties retained
46 in any lease made under the terms of this Article. The party assignee or lessee shall pay to the party assignor or lessor the
47 reasonable salvage value of the latter's interest in any well's salvable materials and equipment attributable to the assigned or leased
48 acreage. The value of all salvable materials and equipment shall be determined in accordance with the provisions of Exhibit "C," less
49 the estimated cost of salvaging and the estimated cost of plugging and abandoning and restoring the surface. If such value is less
50 than such costs, then the party assignor or lessor shall pay to the party assignee or lessee the amount of such deficit. If the
51 assignment or lease is in favor of more than one party, the interest shall be shared by such parties in the proportions that the
52 interest of each bears to the total interest of all such parties. If the interest of the parties to whom the assignment is to be made
53 varies according to depth, then the interest assigned shall similarly reflect such variances.

54 Any assignment, lease or surrender made under this provision shall ~~not reduce or change~~ ^{not reduce or change} the assignor's, lessor's or surrendering
55 party's interest as it was immediately before the assignment, lease or surrender in the balance of the Contract Area; ~~and the acreage~~ ^{pursuant to Article XVI.M}
56 assigned, leased or surrendered, and subsequent operations thereon, shall ~~not thereafter be subject to the terms and provisions of this~~
57 agreement but shall be deemed subject to an Operating Agreement in the form of this agreement.

58 **B. Renewal or Extension of Leases:**

59 ~~If any party, other than an unleased mineral owner, secures a renewal or replacement of an Oil and Gas Lease or Interest subject to this~~
~~agreement, then all other parties~~
60 shall be notified promptly upon such acquisition or, in the case of a replacement Lease taken before expiration of an existing Lease,
61 promptly upon expiration of the existing Lease. The parties notified shall have the right for a period of thirty (30) days following
62 delivery of such notice in which to elect to participate in the ownership of the renewal or replacement Lease, insofar as such Lease
63 affects lands within the Contract Area, by paying to the party who acquired it their proportionate shares of the acquisition cost
64 allocated to that part of such Lease within the Contract Area, which shall be in proportion to the interest held at that time by the
65 parties in the Contract Area. ~~Each party who participates in the purchase of a renewal or replacement Lease shall be given an~~
66 ~~assignment of its proportionate interest therein by the acquiring party,~~ ^{without warranty of title, except as to acts by, through or under the acquiring party,}

67 ~~If some, but less than all, of the parties elect to participate in the purchase of a renewal or replacement Lease, it shall be owned~~
68 ~~by the parties who elect to participate therein, in a ratio based upon the relationship of their respective percentage of participation in~~
69 ~~the Contract Area to the aggregate of the percentages of participation in the Contract Area of all parties participating in the~~
70 ~~purchase of such renewal or replacement Lease. The acquisition of a renewal or replacement Lease by any or all of the parties hereto~~
71 ~~shall not cause a readjustment of the interests of the parties stated in Exhibit "A" / but and any renewal or replacement Lease in which~~
72 ~~less than all parties elect to participate shall not be subject to this agreement but shall be deemed subject to a separate Operating~~
73 ~~Agreement in the form of this agreement.~~ ^{pursuant to Article XVI.L}

74 ~~If the interests of the parties in the Contract Area vary according to depth, then their right to participate proportionately in~~

1 renewal or replacement Leases and their right to receive an assignment of interest shall also reflect such depth variances.
 2 ~~The provisions of this Article shall apply to renewal or replacement Leases whether they are for the entire interest covered by~~
 3 ~~the expiring Lease or cover only a portion of its area or an interest therein. Any renewal or replacement Lease taken before the~~
 4 ~~expiration of its predecessor Lease, or taken or contracted for or becoming effective within six (6) months after the expiration of the~~
 5 ~~existing Lease, shall be subject to this provision so long as this agreement is in effect at the time of such acquisition or at the time~~
 6 ~~the renewal or replacement Lease becomes effective; but any Lease taken or contracted for more than six (6) months after the~~
 7 ~~expiration of an existing Lease shall not be deemed a renewal or replacement Lease and shall not be subject to the provisions of this~~
 8 ~~agreement.~~

9 ~~The provisions in this Article shall ^{not} also be applicable to extensions of Oil and Gas Leases.~~

11 **C. Acreage or Cash Contributions:**

12 While this agreement is in force, if any party contracts for a contribution of cash towards the drilling of a well or any other
 13 operation on the Contract Area, such contribution shall be paid to the party who conducted the drilling or other operation and shall
 14 be applied by it against the cost of such drilling or other operation. If the contribution be in the form of acreage, the party to whom
 15 the contribution is made shall promptly tender an assignment of the acreage, without warranty of title, to the Drilling Parties in the
 16 proportions said Drilling Parties shared the cost of drilling the well. Such acreage shall become a separate Contract Area and, to the
 17 extent possible, be governed by provisions identical to this agreement. Each party shall promptly notify all other parties of any
 18 acreage or cash contributions it may obtain in support of any well or any other operation on the Contract Area. The above
 19 provisions shall also be applicable to optional rights to earn acreage outside the Contract Area which are in support of well drilled
 20 inside Contract Area.

21 If any party contracts for any consideration relating to disposition of such party's share of substances produced hereunder,
 22 such consideration shall not be deemed a contribution as contemplated in this Article VIII.C.

23 **D. Assignment; Maintenance of Uniform Interest:**

24 For the purpose of maintaining uniformity of ownership in the Contract Area in the Oil and Gas Leases, Oil and Gas
 25 Interests, wells, equipment and production covered by this agreement no party shall sell, encumber, transfer or make other
 26 disposition of its interest in the Oil and Gas Leases and Oil and Gas Interests embraced within the Contract Area or in wells,
 27 equipment and production unless such disposition covers either:

- 28 1. the entire interest of the party in all Oil and Gas Leases, Oil and Gas Interests, wells, equipment and production; or
- 29 2. an equal undivided percent of the party's present interest in all Oil and Gas Leases, Oil and Gas Interests, wells,
 30 equipment and production in the Contract Area.

31 Any sale, encumbrance, transfer or other disposition made by any party affecting any of that party's interest in the contract area shall
 32 be made expressly subject to this agreement
 33 and shall be made without prejudice to the right of the other parties, and any transferee of an ownership interest in any Oil and
 34 Gas Lease or Interest shall be deemed a party to this agreement as to the interest conveyed from and after the effective date of
 35 the transfer of ownership; provided, however, that the other parties shall not be required to recognize any such sale,
 36 encumbrance, transfer or other disposition for any purpose hereunder until thirty (30) days after they have received a copy of the
 37 instrument of transfer or other satisfactory evidence thereof in writing from the transferor or transferee. No assignment or other
 38 disposition of interest by a party shall relieve such party of obligations previously incurred by such party hereunder with respect
 39 to the interest transferred, including without limitation the obligation of a party to pay all costs attributable to an operation
 40 conducted hereunder in which such party has agreed to participate prior to making such assignment, and the lien and security
 41 interest granted by Article VII.B. shall continue to burden the interest transferred to secure payment of any such obligations.

42 If, at any time the interest of any party is divided among and owned by four or more co-owners, Operator, at its discretion,
 43 may require such co-owners to appoint a single trustee or agent with full authority to receive notices, approve expenditures,
 44 receive billings for and approve and pay such party's share of the joint expenses, and to deal generally with, and with power to
 45 bind, the co-owners of such party's interest within the scope of the operations embraced in this agreement; however, all such co-
 46 owners shall have the right to enter into and execute all contracts or agreements for the disposition of their respective shares of
 47 the Oil and Gas produced from the Contract Area and they shall have the right to receive, separately, payment of the sale
 48 proceeds thereof.

49 **E. Waiver of Rights to Partition:**

50 If permitted by the laws of the state or states in which the property covered hereby is located, each party hereto owning an
 51 undivided interest in the Contract Area waives any and all rights it may have to partition and have set aside to it in severalty its
 52 undivided interest therein.

53 **F. Preferential Right to Purchase**

54 (Optional: Check if applicable)

55 ~~Should any party desire to sell all or any part of its interests under this agreement, or its rights and interests in the Contract~~
 56 ~~Area, it shall promptly give written notice to the other parties, with full information concerning its proposed disposition, which~~
 57 ~~shall include the name and address of the prospective transferee (who must be ready, willing and able to purchase), the purchase~~
 58 ~~price, a legal description sufficient to identify the property, and all other terms of the offer. The other parties shall then have an~~
 59 ~~optional prior right, for a period of ten (10) days after notice is delivered, to purchase for the stated consideration on the~~
 60 ~~same terms and conditions the interest which the other party proposes to sell; and, if this optional right is exercised, the~~
 61 ~~purchasing parties shall share the purchased interest in the proportions that the interest of each bears to the total interest of all~~
 62 ~~purchasing parties. However, there shall be no preferential right to purchase in those cases where any party wishes to mortgage~~
 63 ~~its interests, or to transfer title to its interest to its mortgagee in lieu of or pursuant to foreclosure of a mortgage of its interests,~~
 64 ~~or to dispose of its interests by merger, reorganization, consolidation, or by sale of all or substantially all of its Oil and Gas assets~~
 65 ~~to any party, or by transfer of its interests to a subsidiary or parent company or to a subsidiary of a parent company, or to any~~
 66 ~~company in which such party owns a majority of the stock.~~

67 **ARTICLE IX.**

68 **INTERNAL REVENUE CODE ELECTION**

69 If, for federal income tax purposes, this agreement and the operations hereunder are regarded as a partnership, and if the
 70 parties have not otherwise agreed to form a tax partnership pursuant to Exhibit "G" or other agreement between them, each
 71 party thereby affected elects to be excluded from the application of all of the provisions of Subchapter "K," Chapter 1, Subtitle
 72 "A," of the Internal Revenue Code of 1986, as amended ("Code"), as permitted and authorized by Section 761 of the Code and
 73 the regulations promulgated thereunder. Operator is authorized and directed to execute on behalf of each party hereby affected
 74 such evidence of this election as may be required by the Secretary of the Treasury of the United States or the Federal Internal

A.A.P.L. FORM 610 - MODEL FORM OPERATING AGREEMENT - 1989

1 Revenue Service, including specifically, but not by way of limitation, all of the returns, statements, and the data required by
2 Treasury Regulation §1.761. Should there be any requirement that each party hereby affected give further evidence of this
3 election, each such party shall execute such documents and furnish such other evidence as may be required by the Federal Internal
4 Revenue Service or as may be necessary to evidence this election. No such party shall give any notices or take any other action
5 inconsistent with the election made hereby. If any present or future income tax laws of the state or states in which the Contract
6 Area is located or any future income tax laws of the United States contain provisions similar to those in Subchapter "K," Chapter
7 1, Subtitle "A," of the Code, under which an election similar to that provided by Section 761 of the Code is permitted, each party
8 hereby affected shall make such election as may be permitted or required by such laws. In making the foregoing election, each
9 such party states that the income derived by such party from operations hereunder can be adequately determined without the
10 computation of partnership taxable income.

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14 **ARTICLE X.**
15 **CLAIMS AND LAWSUITS**

16 Operator may settle any single uninsured third party damage claim or suit arising from operations hereunder if the expenditure
17 does not exceed Two Hundred and Fifty Thousand Dollars (\$250,000.00) and if the payment is in complete settlement
18 of such claim or suit. If the amount required for settlement exceeds the above amount, the parties hereto shall assume and take over
19 the further handling of the claim or suit, unless such authority is delegated to Operator. All costs and expenses of handling settling,
20 or otherwise discharging such claim or suit shall be a the joint expense of the parties participating in the operation from which the
21 claim or suit arises. If a claim is made against any party or if any party is sued on account of any matter arising from operations
22 hereunder over which such individual has no control because of the rights given Operator by this agreement, such party shall
23 immediately notify all other parties, and the claim or suit shall be treated as any other claim or suit involving operations hereunder.

24
25 **ARTICLE XI.**
26 **FORCE MAJEURE**

27 If any party is rendered unable, wholly or in part, by force majeure to carry out its obligations under this agreement, other
28 than the obligation to indemnify or make money payments or furnish security, that party shall give to all other parties
29 prompt written notice of the force majeure with reasonably full particulars concerning it; thereupon, the obligations of the
30 party giving the notice, so far as they are affected by the force majeure, shall be suspended during, but no longer than, the
31 continuance of the force majeure. The term "force majeure," as here employed, shall mean an act of God, strike, lockout, or
32 other industrial disturbance, act of the public enemy, war, blockade, public riot, lightening, fire, storm, flood or other act of
33 nature, explosion, governmental action, governmental delay, restraint or inaction, unavailability of equipment, and any other
34 cause, whether of the kind specifically enumerated above or otherwise, which is not reasonably within the control of the party
35 claiming suspension.

36 The affected party shall use all reasonable diligence to remove the force majeure situation as quickly as practicable. The
37 requirement that any force majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes,
38 lockouts, or other labor difficulty by the party involved, contrary to its wishes; how all such difficulties shall be handled shall
39 be entirely within the discretion of the party concerned.

40 **ARTICLE XII.**
41 **NOTICES**

42 All notices authorized or required between the parties by any of the provisions of this agreement, unless otherwise
43 specifically provided, shall be in writing and delivered in person or by United States mail, courier service, ^{electronic mail,} / telegram, telex,
44 telecopier or any other form of facsimile, postage or charges prepaid, and addressed to such parties at the addresses listed on
45 Exhibit "A." All telephone or oral notices permitted by this agreement shall be confirmed immediately thereafter by written
46 notice. The originating notice given under any provision hereof shall be deemed delivered only when received by the party to
47 whom such notice is directed, and the time for such party to deliver any notice in response thereto shall run from the date
48 the originating notice is received. "Receipt" for purposes of this agreement with respect to written notice delivered hereunder
49 shall be actual delivery of the notice to the address of the party to be notified specified in accordance with this agreement, or
50 to the telecopy, ^{electronic mail} / or telex machine of such party. The second or any responsive notice shall be deemed delivered when
51 deposited in the United States mail or at the office of the courier or telegraph service, or upon transmittal by ^{electronic mail,} / telex, / telecopy
52 or facsimile, or when personally delivered to the party to be notified, provided, that when response is required within 24 or
53 48 hours, such response shall be given orally or by telephone, ^{electronic mail,} / telex, / telecopy or other facsimile within such period. Each party
54 shall have the right to change its address at any time, and from time to time, by giving written notice thereof to all other
55 parties. If a party is not available to receive notice orally or by telephone when a party attempts to deliver a notice required
56 to be delivered within 24 or 48 hours, the notice may be delivered in writing by any other method specified herein and shall
57 be deemed delivered in the same manner provided above for any responsive notice.

58 **ARTICLE XIII.**
59 **TERM OF AGREEMENT**

60 This agreement shall remain in full force and effect as to the Oil and Gas Leases and/or Oil and Gas Interests subject
61 hereto for the period of time selected below; provided, however, no party hereto shall ever be construed as having any right, title
62 or interest in or to any Lease or Oil and Gas Interest contributed by any other party beyond the term of this agreement.

63 ~~Option No. 1: So long as any of the Oil and Gas Leases subject to this agreement remain or are continued in force as to any part~~
64 ~~of the Contract Area, whether by production, extension, renewal or otherwise~~
65 **Option No. 2:** In the event the well described in Article VI.A., or any subsequent well drilled under any provision
66 of this agreement, results in the Completion of a well as a well capable of production of Oil and/or Gas in paying
67 quantities, this agreement shall continue in force so long as any such well is capable of production, and for an
68 additional period of ninety (90) days thereafter; provided, however, if, prior to the expiration of such
69 additional period, one or more of the parties hereto are engaged in drilling, Reworking, Deepening, Sidetracking,
70 Plugging Back, testing or attempting to Complete or Re-complete a well or wells hereunder, this agreement shall
71 continue in force until such operations have been completed and if production results therefrom, this agreement
72 shall continue in force as provided herein. In the event the well described in Article VI.A., or any subsequent well
73 drilled hereunder, results in a dry hole, and no other well is capable of producing Oil and/or Gas from the
74 Contract Area, this agreement shall terminate unless drilling, Deepening, Sidetracking, Completing, Re-

1 completing, Plugging Back or Reworking operations are commenced within ninety (90) days from the
2 date of abandonment of said well. "Abandonment" for such purposes shall mean either (i) a decision by all parties
3 not to conduct any further operations on the well or (ii) the elapse of 180 days from the conduct of any
4 operations on the well, whichever first occurs.

5 The termination of this agreement shall not relieve any party hereto from any expense, liability or other obligation or any
6 remedy therefor which has accrued or attached prior to the date of such termination.

7 Upon termination of this agreement and the satisfaction of all obligations hereunder, in the event a memorandum of this
8 Operating Agreement has been filed of record, Operator is authorized to file of record in all necessary recording offices a
9 notice of termination, and each party hereto agrees to execute such a notice of termination as to Operator's interest, upon
10 request of Operator, if Operator has satisfied all its financial obligations.

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13 **ARTICLE XIV.**
14 **COMPLIANCE WITH LAWS AND REGULATIONS**

15 **A. Laws, Regulations and Orders:**

16 This agreement shall be subject to the applicable laws of the state in which the Contract Area is located, to the valid rules,
17 regulations, and orders of any duly constituted regulatory body of said state; and to all other applicable federal, state,
18 and local laws, ordinances, rules, regulations and orders.

19 **B. Governing Law:**

20 This agreement and all matters pertaining hereto, including but not limited to matters of performance, non-
21 performance, breach, remedies, procedures, rights, duties, and interpretation or construction, shall be governed and
22 determined by the law of the state in which the Contract Area is located. ~~If the Contract Area is in two or more states,~~
23 ~~the law of the state of _____ shall govern.~~

24 **C. Regulatory Agencies:**

25 Nothing herein contained shall grant, or be construed to grant, Operator the right or authority to waive or release any
26 rights, privileges, or obligations which Non-Operators may have under federal or state laws or under rules, regulations or
27 orders promulgated under such laws in reference to oil, gas and mineral operations, including the location, operation, or
28 production of wells, on tracts offsetting or adjacent to the Contract Area.

29 With respect to the operations hereunder, Non-Operators agree to release Operator from any and all losses, damages,
30 injuries, claims and causes of action arising out of, incident to or resulting directly or indirectly from Operator's interpretation
31 or application of rules, rulings, regulations or orders of the Department of Energy or Federal Energy Regulatory Commission
32 or predecessor or successor agencies to the extent such interpretation or application was made in good faith and does not
33 constitute gross negligence. Each Non-Operator further agrees to reimburse Operator for such Non-Operator's share of
34 production or any refund, fine, levy or other governmental sanction that Operator may be required to pay as a result of such
35 an incorrect interpretation or application, together with interest and penalties thereon owing by Operator as a result of such
36 incorrect interpretation or application.

37
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39 **ARTICLE XV.**
40 **MISCELLANEOUS**

41 **A. Execution:**

42 This agreement shall be binding upon each Non-Operator, other than an unleased mineral owner, when this agreement or a counterpart
43 thereof ^{has} _{been} executed by such Non-Operator and Operator notwithstanding that this agreement is not then or thereafter executed by all of
44 the parties to which it is tendered or which are listed on Exhibit "A" as owning an interest in the Contract Area or which
45 own, in fact, an interest in the Contract Area. Operator may, however, by written notice to all Non-Operators who have
46 become bound by this agreement as aforesaid, given at any time prior to the actual spud date of the Initial Well but in no
47 event later than five days prior to the date specified in Article VI.A. for commencement of the Initial Well, terminate this
48 agreement if Operator in its sole discretion determines that there is insufficient participation to justify commencement of
49 drilling operations. In the event of such a termination by Operator, all further obligations of the parties hereunder shall cease
50 as of such termination. In the event any Non-Operator has advanced or prepaid any share of drilling or other costs
51 hereunder, all sums so advanced shall be returned to such Non-Operator without interest. In the event Operator proceeds
52 with drilling operations for the Initial Well without the execution hereof by all persons listed on Exhibit "A" as having a
53 current working interest in such well, Operator shall indemnify Non-Operators with respect to all costs incurred for the
54 Initial Well which would have been charged to such person under this agreement if such person had executed the same and
55 Operator shall receive all revenues which would have been received by such person under this agreement if such person had
56 executed the same.

57 **B. Successors and Assigns:**

58 This agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective heirs,
59 devisees, legal representatives, successors and assigns, and the terms hereof shall be deemed to run with the Leases or
60 Interests included within the Contract Area.

61 **C. Counterparts:**

62 This instrument may be executed in any number of counterparts, each of which shall be considered an original for all
63 purposes.

64 **D. Severability:**

65 For the purposes of assuming or rejecting this agreement as an executory contract pursuant to federal bankruptcy laws,
66 this agreement shall not be severable, but rather must be assumed or rejected in its entirety, and the failure of any party to
67 this agreement to comply with all of its financial obligations provided herein shall be a material default.

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70 **ARTICLE XVI.**
71 **OTHER PROVISIONS**

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74 **A. Conflicts:**

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1 Notwithstanding anything herein contained to the contrary, it is understood and agreed that if there is any conflict between any
2 part of or all of the terms and provisions of Article XVI and any other terms and provisions of this agreement, the terms and
3 provisions of this Article XVI shall prevail and control.
4

5 **B. Priority of Operations:**

6 If at any time there is more than one operation proposed in connection with any well subject to this agreement and if the
7 Consenting Parties do not agree on the sequence of proposed operations, such proposed operations shall be conducted in the
8 following sequence:
9

- 10 First: testing, coring or logging;
- 11 Second: completion attempts without plugging back in ascending order from
12 deepest to shallowest depths;
- 13 Third: sidetracking in the order of least deviation from the original bottom hole location to the greatest deviation;
- 14 Fourth: deepening of a well below the authorized depth in descending order from shallowest to deepest depths;
- 15 Fifth: plugging back and completion attempts in ascending order from deepest to shallowest depths.

16 **C. Netting and Setoff:**

17 Except for any payments related to charges on any joint interest billing that a Non-Operator has disputed in good faith, in the
18 event that Non-Operator does not remit payment for any operating costs or charges assessable to Non-Operators and permitted
19 under this Operating Agreement within forty five (45) days after the date payment is due, Operator is authorized to deduct such
20 costs or charges, and to remit to such Non-Operators their respective net share of any proceeds attributable to the interest of such
21 Non-Operators being received directly from any purchasers of production from the Contract Area. The foregoing provisions shall
22 not diminish Operator's lien rights contained within this agreement.
23

24 **D. Multiple Billing:**

25 In no event shall Operator be required to make more than four billings for the entire interest credited to each Non-Operator on
26 Exhibit "A". If any Non-Operator to this agreement disposes of any part or all of the interest credited to it on Exhibit "A", hereinafter
27 referred to as "Selling Party," such Selling Party shall be solely responsible for billing its assignee or assignees and shall remain primarily
28 liable to the other Parties for the interest or interests assigned until such time as Selling Party has (1) designated and qualified the
29 assignees to receive the billing for its interest, (2) designated assignees have been approved and accepted by Operator, and (3) has
30 furnished to Operator written notice of the conveyance and photocopy of the recorded assignments by which the transfer is made. The
31 sale or other disposition of any interest in the leases covered by this agreement shall be made specifically subject to the provisions of this
32 Article. Operator's approval shall not be unreasonably withheld.
33

34 **E. Horizontal Wells:**

35 1. Notwithstanding anything contained herein to the contrary, (i) the provisions of Article VI.C.I Option No. 1 shall apply to
36 any Horizontal Well or Multi-lateral Well proposed hereunder, and (ii) the provisions of Article VI.C.1. Option No. 2 shall apply to
37 all other wells proposed hereunder that are not expressly proposed as Horizontal Wells or Multi-lateral Wells. To be effective as a
38 Horizontal Well Proposal, such proposal must include an AFE, the corresponding anticipated Unit and Contract Area size and
39 dimensions within which the well will be drilled, and other accompanying documents that clearly indicate the well being proposed is
40 a Horizontal Well or Multi-lateral Well. As to any possible conflicts that may arise during the completion phase of a Horizontal
41 Well or Multi-lateral Well, priority shall be given first to a Lateral drain hole of the authorized depth, and then to objective
42 formations in ascending order above the authorized depth, and then to objective formations in descending order below the
43 authorized depth.

44 2. Operator shall have the right to cease drilling a Horizontal Well or Multi-lateral Well at any time, for any reason, and such
45 Horizontal Well or Multi-lateral Well shall be deemed to have reached its objective depth so long as Operator has drilled such
46 Horizontal Well or Multi-lateral Well to the objective formation and has drilled laterally in the objective formation for a distance
47 which is at least equal to fifty percent (50%) of the length of the total horizontal drainhole displacement (displacement from true
48 vertical) proposed for the operation. In like manner, Operator may continue drilling to extend a proposed lateral in a Horizontal
49 Well or Multi-lateral Well up to 10% longer than the length proposed in the proposal approved by the Parties if in Operator's sole
50 judgment, it would be reasonably prudent to do so.
51

52 **F. Sidetracking:**

53 Notwithstanding the provisions of Article VI.B(5), "Sidetracking", such paragraph shall not be applicable to operations in the
54 lateral portion of a Horizontal Well or Multi-lateral Well. Drilling operations which are intended to recover penetration of the
55 target interval which are conducted in a Horizontal Well or Multi-lateral Well shall be considered as included in the original
56 proposed drilling operations.
57

58 **G. Further Assurances:**

59 In connection with this agreement, the parties agree to execute and deliver such additional documents and instruments and to
60 perform such additional acts as may be necessary or appropriate to effectuate, carry out, and perform all the terms, provisions and
61 conditions of this agreement. Without limiting the generality of the foregoing, the parties agree to execute and deliver to Operator one or
62 more Recording Supplement to Operating Agreement and Financing Statement in the form of Exhibit "H" in recordable form, giving
63 notice of the existence of this Operating Agreement, which Operator shall cause to be recorded in the county or counties in which any
64 portion of the Contract Area is located.
65

66 **H. Covenants Running with the Land:**

67 The terms, provisions, covenants and conditions of this agreement shall be deemed to be covenants running with the lands, the
68 lease or leases and leasehold estate covered hereby, and all of the terms, provisions, covenants and conditions of this agreement shall
69 be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.
70

71 **I. Headings:**

72 All headings in this agreement are for reference purposes only and have no binding effect on the terms, conditions or
73 provisions of this agreement.
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J. Indemnity for Access to Contract Area:

Each Non-Operator shall indemnify and hold Operator harmless against any and all liability in excess of insurance coverage carried for the joint account for injury to each such Non-Operator's officers, employees and/or agents resulting from and in any way relating to such officers', employees', and/or agents' presence on the Contract Area. The Non-Operators indemnity to Operator shall also apply to any other person whose presence on the Contract Area is at the insistence of such Non-Operator.

K. Contract Area and Drilling Unit:

"Contract Area" shall mean a contiguous area in size and configuration as determined by the Operator in order to accommodate anticipated wells, wellbore paths and wellbore lengths located or to be located within the anticipated Drilling Unit. The Contract Area shall be, to the extent practicable, the same as the Drilling Unit, and shall include all Oil and Gas Leases and Oil and Gas Interests within the boundary of the Contract Area, and may include oil and gas leases or oil and gas interests not controlled or owned by the Parties to this Agreement or other interests which cannot be included in the Drilling Unit at the time the Drilling Unit is formed or created but are reasonably anticipated to be controlled or acquired by the Parties in the future. The Parties shall make good faith efforts to include otherwise stranded acreage in a Contract Area where reasonably practical.

L. Working Interest Adjustment:

Any recalculation or adjustment of the Parties' Exhibit "A" working interests pursuant to Articles VIII.A, VIII.B or XVI.M of this Agreement shall be recalculated or adjusted after written notice is provided to the affected party(ies) of such recalculation or adjustment of working interest. Such recalculation or adjustment shall be made effective as of the date of the lease surrender, renewal, acquisition and/or Contract Area / Drilling Unit Adjustment; provided, however, any such recalculation or adjustment to the Parties' working interests prior to the date of the first sale of production from such Drilling Unit shall be made effective as of the date first costs were incurred on and for such Drilling Unit.

This Article XVI.L shall not apply to loss or failure of title pursuant to Article IV.B of this Agreement.

M. Contract Area / Drilling Unit Adjustment:

It is recognized by the Parties that it may be prudent and/or necessary to enlarge or reduce the size of an existing Contract Area / Drilling Unit and/or include within an existing Contract Area / Drilling Unit acreage which was not initially included therein. Without the consent of the Parties, an existing Contract Area / Drilling Unit may not be enlarged or reduced in size. Such consent shall not be unreasonably withheld, delayed or conditioned. The party proposing such enlargement or reduction to an existing Contract Area / Drilling Unit shall notify the other party(ies) in writing, providing an explanation for the Contract Area / Drilling Unit modification proposal. To the extent a Contract Area / Drilling Unit is modified pursuant to this Agreement, the working interests of the Parties shall be recalculated in the manner set forth in Article XVI.L and a modified declaration of pooled unit shall be prepared and filed of record.

To the extent the Contract Area is modified pursuant to this Agreement, this Agreement shall be amended with revised Exhibits "A," "A-1," and "A-2" and a new Recording Supplement to Operating Agreement and Financing Agreement shall be prepared and filed of record.

This Article XVI.M shall not apply to the loss or failure of title pursuant to Article IV.B of this Agreement.

N. Non-Consent Penalty for Unleased Mineral Owners

In the event an unleased mineral owner elects not to participate in a well proposed in the Contract Area, upon timely commencement of actual drilling operations on such Well, such Non-Consenting Unleased Mineral Owner shall be deemed to have relinquished to the Consenting Parties, and the Consenting Parties shall own and be entitled to receive, in proportion to their respective interests, all of such Non-Consenting Unleased Mineral Owner's interest in the well and share of production therefrom.

All of such Non-Consenting Unleased Mineral Owner's interest in the production obtained from the operation in which the Non-Consenting Unleased Mineral Owner did not elect to participate shall be owned by the Consenting parties who will be entitled to receive, in proportion to their respective interests, all of such Non-Consenting Unleased Mineral Owner's interest. Such relinquishment shall be effective until the proceeds of the sale of such share, calculated at the well, or market value thereof if such share is not sold (after deducting applicable ad valorem, production, severance, and excise taxes, royalty, overriding royalty and other interests not excepted by Article III.C payable out of or measured by the production from such well accruing with respect to such interest until it reverts), shall equal the total of the following:

- (i) 200 % of each such Non-Consenting Unleased Mineral Owner's share of the cost of any newly acquired surface equipment beyond the wellhead connections (including but not limited to stock tanks, separators, treaters, pumping equipment and piping), plus 200% of each such Non-Consenting Mineral Owner's share of the cost of operation of the well commencing with first production and continuing until each such Non-Consenting Mineral Owner's relinquished interest shall revert to it under other provisions of this Article, it being agreed that each Non-Consenting Mineral Owner's share of such costs and equipment will be that interest which would have been chargeable to such Non-Consenting Mineral Owner had it participated in the well from the beginning of the operations; and
- (ii) 200 % of (a) that portion of the costs and expenses of drilling, Reworking, Sidetracking, Deepening, Plugging Back, testing, Completing, and Recompleting, after deducting any cash contributions received under Article VIII.C., and of (b) that portion of the cost of newly acquired equipment in the well (to and including the wellhead connections), which would have been chargeable to such Non-Consenting Mineral Owner if it had participated therein.

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A.A.P.L. FORM 610 - MODEL FORM OPERATING AGREEMENT - 1989

1 IN WITNESS WHEREOF, this agreement shall be effective as of the _____ day of _____,
2
3 _____.

4 Antero Resources Corporation, who has prepared and circulated this form for execution, represents and warrants
5 that the form was printed from and, with the exception(s) listed below, is identical to the AAPL Form 610-1989 Model Form
6 Operating Agreement, as published in computerized form by Forms On-A-Disk, Inc. No changes, alterations, or
7 modifications, other than those made by strikethrough and/or insertion and that are clearly recognizable as changes, in
8 ~~Articles _____, have been made to the form.~~
9

10
11 OPERATOR

12 ATTEST OR WITNESS

13 Antero Resources Corporation
14 _____

15
16 By: Brian A. Kuhn
17 _____

18 Title: Senior Vice President - Land
19 Address: 1615 Wynkoop Street, Denver, Colorado 80202
20 _____

21
22
23 NON-OPERATORS

24 ATTEST OR WITNESS

25 _____
26 _____

27
28 By: _____
29 _____

30 Title: _____
31 Address: _____
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ACKNOWLEDGMENT

STATE OF COLORADO)
) §
COUNTY OF DENVER)

On this, the ____ day of _____, 20____, before me _____, the undersigned officer, personally appeared Brian A. Kuhn, who acknowledged himself to be the Senior Vice President - Land of Antero Resources Corporation an Delaware corporation, and that he as such Senior Vice President - Land, being authorized to do so, executed the foregoing instrument for the purpose therein contained by signing the name of the limited liability company by himself as Senior Vice President - Land.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission Expires: _____
Signature/Notary Public: _____
Name/Notary Public (print): _____

STATE OF _____)
) §
COUNTY OF _____)

On this, the ____ day of _____, 20____, before me _____, the undersigned officer, personally appeared _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged that he/she/they executed the same for purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission Expires: _____
Signature/Notary Public: _____
Name/Notary Public (print): _____

HARRISON UNIT - EXHIBIT "A"

LANDS SUBJECT TO CONTRACT:

See attached Exhibit A-1
Monroe and Belmont Counties, Ohio, containing 457.371 acres, more or less

RESTRICTIONS AS TO DEPTHS, FORMATIONS AND SUBSTANCES:

This agreement covers rights to the Unitized Formation, described as that portion of the Unit Area from fifty feet above the top of the Utica Shale to fifty feet below the base of the Point Pleasant Formation (as more particularly defined in Article 1 of the Unit Plan).

INTERESTS OF THE PARTIES TO THIS AGREEMENT:

<u>OPERATOR</u>	<u>WI</u>
Antero Resources Corporation	95.325%
Northwood Energy Corporation	4.373%
Elizabeth Simons	0.0755%
William R. Didier	0.0755%
Kunk Family Trust	<u>0.1510%</u> 100.000%

ADDRESSES OF PARTIES FOR NOTICE PURPOSES:

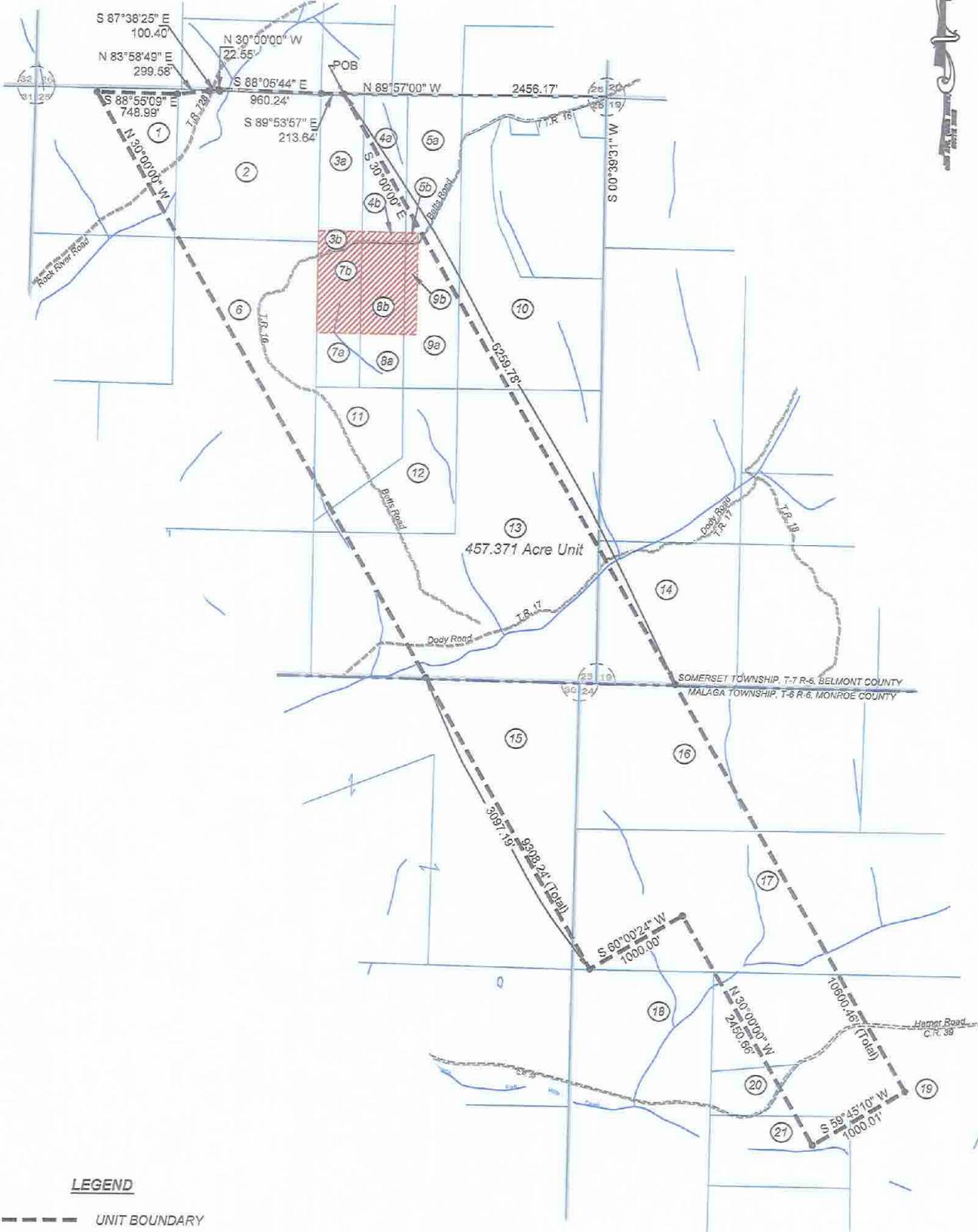
Antero Resources Corporation
Attn: Vice President of Land
1615 Wynkoop Street
Denver, Colorado 80202

Northwood Energy Corporation
941 Chatham Lane Suite 100
Columbus, Ohio 43221 Attention: John DiFrangia

Elizabeth Simons
9039 Long Rd.
Versailles, OH 45380

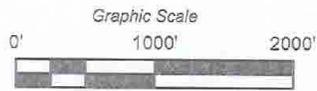
William R. Didier
7666 Chase Rd.
Versailles, OH 45380

Kunk Family Trust
C/O Diane R. and Ralph L. Kunk
23430 Purcel Rd.
South Bloomingville, OH 43152



LEGEND

- UNIT BOUNDARY
- SECTION LINE
- PROPERTY LINE
- COUNTY LINE
- PUBLIC ROAD
- STREAM
- EXISTING DRILLING UNITS



R:\Projects\HARRISON\AREA\B\CADD\Harrison Unit\Harrison DOU Plat.dwg, Harrison DOU SH 1, 9/8/2016 10:12:01 AM

Prepared For: Antero Resources Corporation
1615 Wynkoop Street
Denver, CO 80202

Location: Sections: 19, 25 / 24, 30
Township & Range: T-7 R-6 / T-8 R-6
Township: Somerset / Malaga
County: Belmont / Monroe (Coal Bearing Counties)
U.S.G.S. Quad: Lewisville & Barnesville

PROJECT: HARRISON UNIT	SCALE: 1" = 1000'
DATE: 9/08/2016	SHEET 1 OF 2
REVISED:	
DRAWN: SSU	
CHECKED: CMB, DSK	
CAD FILE: Harrison DOU Plat.dwg	

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Fax: (740) 449-2343

**PARCELS WITHIN THE HARRISON UNIT
(457.371 Acres)**

Map No.	Unit Acreage	Parcel Number	Surface Owner	Deed Volume and Page	Deed Acreage	Calculated Acreage	Mineral Owner Name	Mineral Deed Volume and Page
1	11.051	37-00617.000	David D. Shaulis & Jeffrey Steven Searles	O.R. 550, P. 165	40.400	41.578	Siltstone Resources, LLC	O.R. 409, P. 470
2	41.276	37-00363.000	Hothem Family Properties, LP	V. 789, P. 431	40.000	41.579	Same as Surface	
3a	10.935	37-00290.002	Daniel A. Davies	V. 719, P. 794	13.249	13.249	Same as Surface	
3b	1.583	37-00290.002	Daniel A. Davies	V. 719, P. 794	20.000	20.000	Same as Surface	
4a	5.397	37-00290.004	Daniel A. Davies	V. 719, P. 794	12.651	12.651	Same as Surface	
4b	0.947	37-00290.004	Daniel A. Davies	V. 719, P. 794	20.000	20.000	Same as Surface	
5a	0.425	37-00290.003	Daniel A. Davies	V. 719, P. 794	12.744	12.740	Same as Surface	
5b	0.259	37-00290.003	Daniel A. Davies	V. 719, P. 794	20.000	20.000	Same as Surface	
6	33.546	37-00365.000	Hothem Family Properties, LP	V. 789, P. 431	100.00	103.92	Same as Surface	
7a	4.675	37-00290.001	Russell Tansey	O.R. 160, P. 10	11.862	11.859	Golden Eagle Resources II, LLC	O.R. 577, P. 701
7b	7.184	37-00290.001	Russell Tansey	O.R. 160, P. 10	20.000	20.000	Golden Eagle Resources II, LLC	O.R. 577, P. 701
8a	4.649	37-00290.005	William H. McChesney	V. 766, P. 210	12.468	12.470	Same as Surface	
8b	7.821	37-00290.005	William H. McChesney	V. 766, P. 210	20.000	20.000	Same as Surface	
9a	11.534	37-00290.000	William H. McChesney	V. 766, P. 210	18.699	18.669	Same as Surface	
9b	2.205	37-00290.000	William H. McChesney	V. 766, P. 210	20.000	20.000	Same as Surface	
10	4.332	37-01212.002	Shawn H. & Loretta McChesney	O.R. 129, P. 850	43.305	43.270	Shawn H. & Loretta McChesney; Flatiron Energy Partners, LLC; Cooper Island Investments, LLC; Highpoint Energy, VI; Four HC Utica, LLC; Tejas Resources, LLC	O.R. 129, P. 850 O.R. 450, P. 60
11	17.096	37-00289.000	William H. McChesney	V. 766, P. 210	17.734	17.736	Same as Surface	
12	22.312	37-00289.001	William H. McChesney	V. 766, P. 210	23.136	23.138	Same as Surface	
13	88.921	37-00373.000	Hothem Family Properties, LP	V. 789, P. 431	120.800	124.430	Same as Surface	
14	10.440	37-00360.000	Hothem Family Properties, LP	V. 789, P. 431	40.000	40.188	Marjorie Schumacher	Probate Case No. 5693
15	39.424	12-007003.0000	Hothem Family Properties, LP	O.R. 105, P. 105	308.000	311.514	Same as Surface	
16	39.882	12-008004.0000	Leonard A. & Donna J. Williams	O.R. 81, P. 197	82.100	81.756	Same as Surface	
17	55.476	12-008006.0000	Hothem Family Properties, LP	O.R. 105, P. 105	121.700	121.000	Same as Surface	
18	0.001	12-008008.0000	Andrew E. & Rachel D. Miller	O.R. 279, P. 426	80.000	80.241	Andrew E. & Rachel D. Miller Daniel & Sarah Gingerich	O.R. 279, P. 426 V. 207, P. 719
19	33.305	12-008011.0000	Theodore J. Tamasovich	O.R. 168, P. 784	120.287	116.419	Tamasovich Estate Division, LLC	O.R. 317, P. 381
20	0.711	12-008013.0000	Theodore J. Tamasovich	V. 176, P. 709 O.R. 66, P. 854	6.636	6.372	Tamasovich Estate Division, LLC	O.R. 317, P. 381
21	1.984	12-008007.0000	Norris F. Whittaker, Sr.	V. 175, P. 434 V. 183, P. 773	20.250	20.032	Same as Surface	

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Prepared For: Antero Resources Corporation
1615 Wynkoop Street
Denver, CO 80202

Location: Sections: 19, 25 / 24, 30
Township & Range: T-7 R-6 / T-8 R-6
Township: Somerset / Malaga
County: Belmont / Monroe (Coal Bearing Counties)
U.S.G.S. Quad: Lewisville & Barnesville

PROJECT: **HARRISON UNIT**

DATE: 9/08/2016

REVISED:

DRAWN: SSU

CHECKED: CMB, DSK

CAD FILE: Harrison DOU Plat.dwg

SCALE: N/A

SHEET 2 OF 2



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Exhibit A-2
All Interest Owners

Tract	Current Mineral Owner	Leased/Fee Yes or No	Current Mineral Owner Interest in Tract	Total Acres in Unit	Current Mineral Owner Acres in Unit	Tract Participation	Antero Working Interest	Antero Unit Participation	Northwood Energy Corporation Working Interest	Northwood Energy Corporation Unit Participation	Unleased Working Interest	Unleased Unit Participation	Parcel ID	Township	Current Mineral Owner Address
1	Siltstone Resources, LLC	Yes	100.000%	11.051	11.051	2.416%	100.000%	2.416%	0.000%	0.000%	0.000%	0.000%	37-00617.000	Somerset	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung
2	Hothem Family Properties, LP	Yes	100.000%	41.276	41.276	9.025%	100.000%	9.025%	0.000%	0.000%	0.000%	0.000%	37-00363.000	Somerset	999 East Lake Drive Gainesville, GA 30506-1729 Attn: Arden L. Hothem
3a	Daniel A. Davies	Yes	100.000%	10.935	10.935	2.391%	100.000%	2.391%	0.000%	0.000%	0.000%	0.000%	37-00290.002	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
3b	Daniel A. Davies	Yes	100.000%	1.583	1.583	0.346%	0.000%	0.000%	100.000%	0.346%	0.000%	0.000%	37-00290.002	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
4a	Daniel A. Davies	Yes	100.000%	5.397	5.397	1.180%	100.000%	1.180%	0.000%	0.000%	0.000%	0.000%	37-00290.004	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
4b	Daniel A. Davies	Yes	100.000%	0.947	0.947	0.207%	0.000%	0.000%	100.000%	0.207%	0.000%	0.000%	37-00290.004	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
5a	Daniel A. Davies	Yes	100.000%	0.425	0.425	0.093%	100.000%	0.093%	0.000%	0.000%	0.000%	0.000%	37-00290.003	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
5b	Daniel A. Davies	Yes	100.000%	0.259	0.259	0.057%	0.000%	0.000%	100.000%	0.057%	0.000%	0.000%	37-00290.003	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
6	Hothem Family Properties, LP	Yes	100.000%	33.546	33.546	7.335%	100.000%	7.335%	0.000%	0.000%	0.000%	0.000%	37-00365.000	Somerset	999 East Lake Drive Gainesville, GA 30506-1729 Attn: Arden L. Hothem
7a	Golden Eagle Resources II, LP	Yes	100.000%	4.675	4.675	1.022%	100.000%	1.022%	0.000%	0.000%	0.000%	0.000%	37-00290.001	Somerset	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung
7b	Golden Eagle Resources II, LP	Yes	100.000%	7.184	7.184	1.571%	0.000%	0.000%	100.000%	1.571%	0.000%	0.000%	37-00290.001	Somerset	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung
8a	William H. McChesney	Yes	100.000%	4.649	4.649	1.016%	100.000%	1.016%	0.000%	0.000%	0.000%	0.000%	37-00290.005	Somerset	268 Richland Drive Avon Lake, OH 44012
8b	William H. McChesney	Yes	100.000%	7.821	7.821	1.710%	0.000%	0.000%	100.000%	1.710%	0.000%	0.000%	37-00290.005	Somerset	268 Richland Drive Avon Lake, OH 44012
9a	William H. McChesney	Yes	100.000%	11.534	11.534	2.522%	100.000%	2.522%	0.000%	0.000%	0.000%	0.000%	37-00290.000	Somerset	268 Richland Drive Avon Lake, OH 44012
9b	William H. McChesney	Yes	100.000%	2.205	2.205	0.482%	0.000%	0.000%	100.000%	0.482%	0.000%	0.000%	37-00290.000	Somerset	268 Richland Drive Avon Lake, OH 44012
10	Shawn H. & Loretta McChesney	Yes	66.670%		2.888	0.631%	100.000%	0.631%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	3280 Webber Road Avon Lake, OH 44012
10	Flatiron Energy Partners, LLC	Yes	4.666%		0.202	0.044%	100.000%	0.044%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	5646 Milton Street Suite 900 Dallas, TX 75206 Attn: Austin Eudaly
10	Cooper Island Investments, LLC	Yes	8.333%		0.361	0.079%	100.000%	0.079%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	5910 N Central Expy Suite 1350 Dallas, TX 75206 Attn: F. C. Vickers

Exhibit A-2
All Interest Owners

10	Highpoint Energy, VI	Yes	18.888%	4.332	0.818	0.179%	100.000%	0.179%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	2236 Cahaba Valley Road Suite 100 Birmingham, AL 35342 Jeffrey D. Brooks
10	Four HC Utica, LLC	Yes	1.110%		0.048	0.011%	100.000%	0.011%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	5910 N Central Expy Suite 1350 Dallas, TX 75206 Attn: F. C. Vickers
10	Tejas Resources, LLC	Yes	0.333%		0.014	0.003%	100.000%	0.003%	0.000%	0.000%	0.000%	0.000%	37-01212.002	Somerset	8351 Deerwood Forest Drive Fort Worth, TX 76126 Attn: Alan Paschal
11	William H. McChesney	Yes	100.000%	17.096	17.096	3.738%	100.000%	3.738%	0.000%	0.000%	0.000%	0.000%	37-00289.000	Somerset	268 Richland Drive Avon Lake, OH 44012
12	William H. McChesney	Yes	100.000%	22.312	22.312	4.878%	100.000%	4.878%	0.000%	0.000%	0.000%	0.000%	37-00289.001	Somerset	268 Richland Drive Avon Lake, OH 44012
13	Hothem Family Properties, LP	Yes	100.000%	88.921	88.921	19.442%	100.000%	19.442%	0.000%	0.000%	0.000%	0.000%	37-00373.000	Somerset	999 East Lake Drive Gainesville, GA 30506-1729 Attn: Arden L. Hothem
14	Marjorie Schumacher	Yes	100.000%	10.440	10.440	2.283%	100.000%	2.283%	0.000%	0.000%	0.000%	0.000%	37-00360.000	Somerset	428 Eastern Avenue Woodsfield, OH 43793
15	Hothem Family Properties, LP	Yes	100.000%	39.424	39.424	8.620%	100.000%	8.620%	0.000%	0.000%	0.000%	0.000%	12-007003.0000	Malaga	999 East Lake Drive Gainesville, GA 30506-1729 Attn: Arden L. Hothem
16	Leonard A. & Donna J. Williams	Yes	100.000%	39.882	39.882	8.720%	100.000%	8.720%	0.000%	0.000%	0.000%	0.000%	12-008004.0000	Malaga	9514 Clover Valley Road Johnstown, OH 43031
17	Hothem Family Properties, LP	Yes	100.000%	55.476	55.476	12.129%	100.000%	12.129%	0.000%	0.000%	0.000%	0.000%	12-008006.0000	Malaga	999 East Lake Drive Gainesville, GA 30506-1729 Attn: Arden L. Hothem
18	Andrew E. & Rachel D. Miller	Yes	10.000%	0.001	0.0001	0.00002%	100.000%	0.00002%	0.000%	0.000%	0.000%	0.000%	12-008008.0000	Malaga	34104 Harper Ridge Road Woodsfield, OH 43793
18	Daniel & Sarah Gingerich	Yes	90.000%		0.0009	0.0002%	100.000%	0.0002%	0.000%	0.000%	0.000%	0.000%	12-008008.0000	Malaga	296 Creek Road Curwentsville, PA 16833
19	Tamasovich Estate Division, LLC	Yes	100.000%	33.305	33.305	7.282%	100.000%	7.282%	0.000%	0.000%	0.000%	0.000%	12-008011.0000	Malaga	34630 Harper Ridge Road Woodsfield, OH 43793 Attn: Theodore J. Tamasovich
20	Tamasovich Estate Division, LLC	Yes	100.000%	0.711	0.711	0.155%	100.000%	0.155%	0.000%	0.000%	0.000%	0.000%	12-008013.0000	Malaga	34630 Harper Ridge Road Woodsfield, OH 43793 Attn: Theodore J. Tamasovich
21	Norris F. Whittaker, Sr.	Yes	100.000%	1.984	1.984	0.434%	100.000%	0.434%	0.000%	0.000%	0.000%	0.000%	12-008007.0000	Malaga	34631 Harper Ridge Road Woodsfield, OH 43793
				457.371	457.371	100.000%	95.627%		4.373%			0.000%			
100.000%															

Exhibit A-3
Unleased Mineral Owners

Tract	Current Mineral Owner	Leased/Fee Yes or No	Current Mineral Owner Interest in Tract	Total Acres in Unit	Current Mineral Owner Acres in Unit	Tract Participation	Antero Working Interest	Antero Unit Participation	Northwood Energy Corporation Working Interest	Northwood Energy Corporation Unit Participation	Unleased Working Interest	Unleased Unit Participation	Parcel ID	Township	Current Mineral Owner Address
No Unleased Owners															

Exhibit A-4
Outstanding Working Interest

Tract	Current Mineral Owner	Leased/Fee Yes or No	Current Mineral Owner Interest in Tract	Total Acres in Unit	Current Mineral Owner Acres in Unit	Tract Participation	Antero Working Interest	Antero Unit Participation	Northwood Energy Corporation Working Interest	Northwood Energy Corporation Unit Participation	Unleased Working Interest	Unleased Unit Participation	Parcel ID	Township	Current Mineral Owner Address
3b	Daniel A. Davies	Yes	100.000%	1.583	1.583	0.346%	0.000%	0.000%	100.000%	0.346%	0.000%	0.000%	37-00290.002	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
4b	Daniel A. Davies	Yes	100.000%	0.947	0.947	0.207%	0.000%	0.000%	100.000%	0.207%	0.000%	0.000%	37-00290.004	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
5b	Daniel A. Davies	Yes	100.000%	0.259	0.259	0.057%	0.000%	0.000%	100.000%	0.057%	0.000%	0.000%	37-00290.003	Somerset	1900 Rebel Ridge Road La Grange, KY 40031
7b	Golden Eagle Resources II, LP	Yes	100.000%	7.184	7.184	1.571%	0.000%	0.000%	100.000%	1.571%	0.000%	0.000%	37-00290.001	Somerset	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung
8b	William H. McChesney	Yes	100.000%	7.821	7.821	1.710%	0.000%	0.000%	100.000%	1.710%	0.000%	0.000%	37-00290.005	Somerset	268 Richland Drive Avon Lake, OH 44012
9b	William H. McChesney	Yes	100.000%	2.205	2.205	0.482%	0.000%	0.000%	100.000%	0.482%	0.000%	0.000%	37-00290.000	Somerset	268 Richland Drive Avon Lake, OH 44012
				19.999	19.999	4.373%			0.000%	4.373%			0.000%		

4.373%

Exhibit A-5
Non Conforming Leases

Tract	Current Mineral Owner	Leased/Fee Yes or No	Current Mineral Owner Interest in Tract	Total Acres in Unit	Current Mineral Owner Acres in Unit	Tract Participation	Antero Working Interest	Antero Unit Participation	Northwood Energy Corporation Working Interest	Northwood Energy Corporation Unit Participation	Unleased Working Interest	Unleased Unit Participation	Parcel ID	Township	Current Mineral Owner Address
1	Siltstone Resources, LLC	Yes	100.000%	11.051	11.051	2.416%	100.000%	2.416%	0.000%	0.000%	0.000%	0.000%	37-00617.000	Somerset	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung

11.051 11.051 2.416% 2.416% 0.000% 0.000%

2.416%

Oil and Gas Lease

THIS OIL AND GAS LEASE (hereinafter, "Lease") made and entered into on this ____ day of _____ 2016, by and between _____, whose address is _____ (hereinafter, "Lessor") (collectively if there is more than one) and **ANTERO RESOURCES CORPORATION**, whose address is 1615 Wynkoop Street, Denver, Colorado 80202 (hereinafter, "Lessee").

GRANT OF LEASE

- 1) That the Lessor, for and in consideration of paid-up annual rentals commonly known as a signing cash bonus of _____ (\$XXX.XX) for each net mineral acre covered by this Lease, paid by the Lessee (the "Bonus"), and of the royalties as provided, the covenants and agreements contained herein does hereby exclusively grant, convey, lease and let unto the Lessee, all of the oil, gas, liquid and gaseous hydrocarbons and their constituents and by-products thereof (together or any individual constituent thereof being referred to hereafter as "Oil and Gas"), in and under the Leased Premises, for the exclusive right to drill, explore, conduct seismic prospect, operate for, produce, remove and market Oil and Gas, and to otherwise conduct all such secondary, enhanced, or tertiary operations as may be required in the opinion of the Lessee and the right to transport, use and maintain, by pipelines or otherwise across and through said lands, Oil and Gas, water, brine or any other fluid or substances, only from formations underlying the Leased Premises and from other lands unitized or pooled therewith, and the right to enter thereon at all times and to occupy and use so much of the Leased Premises as is necessary or convenient for only the aforesaid purposes. Lessee shall act as a reasonable prudent operator exercising good faith in all of its activities with the Lessor. The above grant excludes any right to store gas, or inject any fluids or brine of any kind into the Leased Premises for any purpose of storage or disposal.

DESCRIPTION OF THE LAND INCLUDED IN THIS LEASE

- 2) The land included in this Lease, herein called the "Leased Premises" is identified as follows:

County	Township	Sec/Twp/Range	Acreage	Tax Number	Prior Deed Reference

OIL AND GAS ONLY

- 3) This Lease covers only Oil and Gas produced through a well bore. Thus, this Lease does not include and there is hereby excepted and reserved unto Lessor all the sulfur, coal, lignite, uranium and other fissionable material, geothermal energy, base and precious metals, rock, stone, gravel, and any other mineral substances (excepting those described above) presently owned by Lessor in, under, or upon the Leased Premises, together with right of ingress and egress and use of the Leased Premises by Lessor or its lessees or assignees for the purpose of exploration for and production and marketing of materials and minerals reserved hereby; provided, however, Lessor's right to develop the reserved minerals shall not interfere with the rights herein granted to Lessee.

NO STORAGE RIGHTS

- 4) Notwithstanding anything herein contained to the contrary, Lessee agrees the herein described Leased Premises shall not be used for the purpose of gas storage.

NO DISPOSAL AND/OR INJECTION WELLS

- 5) Lessee shall not use the Leased Premises for the permanent disposal of any drilled cuttings or residual wastes. No disposal or injection wells are permitted on the Leased Premises.

NO DELAY RENTAL

- 6) Lessor shall not receive any paid annual rentals since this is a paid-up in advance Lease.

TERMS

- 7)
- A) This Lease shall continue in force and the rights granted hereunder shall be quietly enjoyed by the Lessee during the primary term of five (5) years from the Effective Date of the Lease ("Primary Term") and so long thereafter as Oil and Gas are produced on the Leased Premises or land contiguously pooled or unitized herewith, in paying quantities or for as long as Lessee is conducting Operations to explore, develop, and produce Oil and Gas.
 - B) If Lessee drills a well which is incapable of producing in paying quantities (hereinafter called "dry hole") on the Leased Premises or lands pooled or unitized therewith, or if all production (whether or not in paying quantities) permanently ceases from any cause, including a revision of Unit boundaries pursuant to the provisions of this lease or the action of any governmental authority, then in the event this lease is not otherwise being maintained in force it shall nevertheless remain in force if Lessee commences further Operations for reworking an existing well, drilling an additional well or, otherwise obtaining or restoring production on the Leased Premises or lands pooled or unitized therewith within 180 days after completion of Operations on such dry hole or within 180 days after such cessation of all production. If after the primary term this lease is not otherwise being maintained in force, but Lessee is then engaged in Operations, as defined below, then this lease shall remain in force so long as any one or more Operations are prosecuted with no interruption of more than 180 consecutive days. If any such Operations result in the production of Oil and Gas, this lease will remain in force for as long thereafter as there is production in paying quantities from the Leased Premises or lands pooled or unitized therewith.
 - C) Lessee is hereby given the option to extend by renewal the Primary Term of this Lease for one additional five (5) year period. This option may be exercised by Lessee at any time up to thirty (30) calendar days before the expiration of the original Primary Term by notifying Lessor in writing of Lessee's intent to exercise its option and simultaneously therewith paying to Lessor prior to the termination of the Primary Term a lease bonus in an amount equal to the original signing bonus of Five Thousand Dollars (\$5,000.00) per net acre paid to Lessor by Lessee. Such payment shall be based upon the net acres that are covered by this Lease and are not otherwise being maintained by other provisions hereof. Should this option be exercised, it shall be considered for all purposes as though this Lease originally provided for a Primary Term of ten (10) years.

ROYALTY AND GAS MEASUREMENT

- 8) As royalties, Lessee covenants and agrees:
- A) Oil. Lessee shall pay Lessor Twelve and one half Percent (20%) of the gross proceeds of all oil, other liquid hydrocarbons and by-products produced from or on the Leasehold Estate and sold by Lessee in an arms' length transaction. In the event that Lessee sells all or part of the oil and other liquid hydrocarbons produced from the Leasehold Estate to an Affiliated Entity, the value thereof shall be the highest price offered to Lessee through Lessee's bidding process for the sale of such oil.
 - B) Gas. Lessee shall pay Lessor Twenty Percent (20%) of the gross proceeds received by Lessee for all gas and other hydrocarbons and by-products produced from or on the Leasehold Estate and sold by Lessee in an arms length transaction of or through an Affiliated Entity on the sales or re-sales of such gas, the value thereof shall be the higher of (a) the sales price received by Lessee, or (b) the sale price received on all of the Affiliated Entity's sales of the aggregated production volumes, where such aggregated production volumes include production from the Leasehold Estate during applicable months of sales.

- C) Market Enhancement Clause. It is agreed between the Lessor and Lessee that, notwithstanding any language herein to the contrary, all royalties for oil, gas or other production (including but not limited to natural gas liquids and/or condensate, such as ethane, propane and butane) accruing to the Lessor under this Lease shall be paid without deduction, directly or indirectly, for the costs or expenses of Lessee (or an Affiliate of Lessee) relating to producing, gathering, storing, separating, treating, dehydrating, compressing, processing, transporting, and marketing the oil, gas and other products produced hereunder; *provided, however*, Lessee may deduct from Lessor's royalties accruing under the Lease, Lessor's proportionate share of any cost or expense actually incurred and charged to Lessee by a third party that is not owned or controlled by Lessee and relating thereto on the express condition such costs or expenses are necessarily incurred to enhance the value of the oil, gas or other products, including transforming product into a marketable form, and in any such case, the computation of the Lessor's royalty shall include the additional consideration, if any, paid to Lessee as a result of any enhancement of the market value of such products.
- D) When Royalties Must Be Paid: All royalties that may become due hereunder shall commence to be paid on the first well completed on the Leased Premises within one hundred-eighty (180) days after the first day of the month following the month during which any well is completed and commences production into a pipeline for sale of such production. On each subsequent well, royalty payments must commence within one hundred-twenty (120) days after the first day of the month following the month during which any well is completed and commences production into a pipeline for sale of such production. Thereafter, all royalties on oil shall be paid to the Lessor on or before the last day the second month following the month of production, and all royalties on gas shall be paid to Lessor on or before the last day of the third month following the month of production. Royalties not paid when due shall bear interest at the prime rate, plus five percent (5%) per annum. Lessor may withhold royalties without obligation to pay interest in the event of a *bona fide* dispute or a good faith question of royalty entitlement (either as to ownership or as to amount).

LESSOR'S INTEREST

- 9) Notwithstanding any other actual or constructive knowledge or notice thereof to Lessee, it successors or assigns, no change or division in the ownership of the Leased Premises or the royalties or other monies, or the right to receive the same, howsoever affected, shall be binding upon the then record owner of this Lease until thirty (30) days after there has been furnished to such record owner at his or its principal place of business by Lessor or Lessor's heirs, successors, or assigns, notice by certified mail of such change or division, supported by either originals or copies of the instruments which have been properly filed for record and which evidences such change or division, and of such court records and proceedings, transcript, or other documents as shall be necessary in the opinion of such record owner to establish the validity of such change or division. If any such change in ownership occurs by reason of the death of the Lessor, Lessee may nevertheless pay or tender such royalties or other moneys, or part thereof, to Lessor. Lessee shall not be bound by any change of the address of Lessor until furnished by certified mail with such documentation from Lessor as Lessee may reasonably require.

TOP LEASE/RIGHT OF FIRST REFUSAL

- 10) In the event Lessor chooses to grant any remaining rights reserved by Lessor under this Lease to any party other than Lessee, then before any such grant Lessor shall provide Lessee with a written notice by certified mail setting forth all terms and conditions of such other grant, or a true copy of any lease or other document reflecting such proposed grant. Lessee shall be afforded a period of thirty (30) calendar days following receipt of such written notice during which time Lessee may elect to exercise a right of first refusal to assume the obligations of lessee or grantee under such other proposed grant on the same terms and conditions contained therein. Should Lessee so elect, Lessee shall notify Lessor in writing within such thirty (30) day period and submit therewith any upfront payments or other consideration described in said proposal, along with a signed lease or grant documents accordingly. Lessor covenants that, during the term of this Lease and any extension thereof, Lessor will not execute any additional lease, top lease or successor

lease, with any third party, for the rights included in the terms of this Lease on the Leased Premises.

DEFINITIONS

11)

- A) Division Order. Documents setting forth the proportional ownership of Lessor in Lease products.
- B) Effective Date and Primary Term. This Lease shall become effective on the date that Lessee pays the Bonus in full, pursuant to Paragraph 59 of this Lease ("Effective Date"). Except as provided herein, this Lease shall remain in full force and effect for a period of five (5) years from the Effective Date.
- C) Oil or Gas. The term "Oil" shall mean crude oil, condensate, and other liquid hydrocarbons separated from gas on the Leased Premises by a field-type separator or other comparable equipment. The term "Gas" shall mean all substances, whether similar or dissimilar, produced in a gaseous state, including without limitation, casinghead gas, coal bed methane gas (including coalbed gas, coal mine methane, methane gas, occluded gas and other naturally occurring gases contained in or produced from any coal seam or formation), gob gas, helium, carbon dioxide, and gaseous sulfur compounds.

AUDIT RIGHTS

- 12) Lessee further grants to Lessor or Lessor's designee the right, at Lessor's expense, to examine, audit, copy or inspect books, records and accounts of Lessee pertinent to the purpose of verifying the accuracy of the reports and statements furnished to the Lessor, and for checking the amount of payments lawfully due the Lessor under the terms of this agreement; however, such audit rights shall be limited to not more than one audit every twelve (12) months. In exercising this right, Lessor shall give reasonable notice to Lessee of its intended audit and such audit shall be conducted during normal business hours at the office of Lessee at the sole cost and expense of Lessor. In the event the audit reveals deficiencies in royalty payments that are in excess of ten percent (10%) of the total royalties paid to Lessor during the audit period, then Lessee shall bear the cost and expense of the audit, and all monies due shall be payable within thirty (30) days of the final determination of the amounts due, and that Lessor shall be allowed to perform, at Lessor's discretion, a follow-up audit within twelve months of the completion of the audit that revealed the excessive deficiencies.

METHOD OF PAYMENTS

- 13) All rents and royalties (except payment by gas in kind at the election of Lessor as may be provided herein) and any and all sums due hereunder from Lessee to Lessor shall be paid by one of the following methods:
 - A) By check or draft tendered directly from Lessee to Lessor at Lessor's address as stated in this Lease.
 - B) By direct deposit, depositing the payment to the credit of the Lessor in the bank and account number as provided in writing by Lessor to Lessee prior to such payment (which bank shall continue as depository for all sums payable hereunder until any subsequent written notice otherwise is provided by Lessor to Lessee). Any payment not timely made or not made in the correct amount shall not constitute a waiver by Lessor of any rights or remedies of Lessor under this Lease. A payment submitted electronically shall be considered timely paid if such payment is successfully transmitted to Lessor's account on or before the due date. A payment not submitted electronically shall be considered timely paid if delivered to the Lessor on or before the applicable due date or if deposited in a postpaid, properly addressed wrapper with a post office or official depository marked as so deposited by the United States postal service before the applicable due date.

EXISTING WELLS

- 14) Lessee shall give due regard to existing Oil and Gas wells, the wells operations, tanks, lines and equipment on the Leased Premises, regardless of the drilling date, and Lessee, in conducting its Operations hereunder, shall take such commercially reasonable precautions necessary to protect the use and operation of the Oil and Gas wells by Lessor or other Lessees. Lessor reserves all rights to any production from any existing Oil and Gas well.

COMMENCEMENT OF OPERATION

- 15) The term "Operations" as used in this Lease shall mean (a) the operations associated with producing Oil and Gas subsequent to drilling or (b) the constructing of a well site, drilling, fracturing, fracing, hydrofracing, completing, reworking, recompleting, deepening, plugging back or repairing of a well to obtain or re-establish production of Oil and Gas, conducted in good faith and with due diligence, whether on the Leased Premises or any lands unitized or contiguously pooled therewith. The term "Operations" shall not include conducting seismic or other similar testing, or the laying of pipeline across the Leased Premises. Commencement of Operations shall be defined as Lessee having secured a drilling permit from the State and further entering upon the Leased Premises or any lands unitized or contiguously pooled therewith with equipment necessary to conduct one or more of the Operations.

FORCE MAJEURE

- 16) Should Lessee be prevented by reason of Force Majeure from complying with any express or implied covenant of this Lease (except payment of money), from conducting Operations at the Leased Premises or any lands unitized or contiguously pooled therewith, then while so prevented, (a) that covenant will be suspended; (b) Lessee will not be liable for damages for failure to comply therewith; (c) this Lease will be extended so long as Lessee is prevented from conducting such Operations under or from producing Oil and Gas from the Leased Premises; and (d) the time while Lessee is so prevented from complying will not be considered a breach of the applicable covenants of this Leases and any applicable time limitations shall be extended for the period of such Force Majeure. For purposes of this Lease, "Force Majeure" shall mean any cause that is not within the control of Lessee, and which, even with the exercise of reasonable due diligence, Lessee could not have prevented. Examples of Force Majeure include, without limitation: legal and lawful strikes, lockouts or other industrial disturbances; sabotage, wars, blockades, insurrections and riots; epidemics; landslides, lightning, earthquakes, fires, storms, warnings of imminent storms, floods, washouts and other events of nature or the elements (exclusive of normal weather patterns); restraints of governments and people and civil disturbances; and legislative, governmental or judicial actions that are resisted in good faith and temporary or permanent regulatory restraints or prohibitions applicable to the entire oil and gas industry in the area. This paragraph is, however, in all things subject to the limitations of time during which this Lease may be continued in force by the payment of shut-in royalties. Notwithstanding the foregoing, this period of extension by reason of a Force Majeure shall be limited to a cumulative total of three (3) years.

SURFACE USE/SPUD FEE

- 17) Lessee shall pay Lessor an additional Twenty Thousand Dollars (\$20,000.00) as consideration for each well pad(s) of ten (10) acres or less of disturbed land included in the Leased Premises. For each additional acre of disturbed land on the Leased Premises, or part thereof, Lessee shall pay Lessor an additional Six Thousand Dollars (\$6,000.00) per acre. In no event shall a pad exceed thirty (30) acres on the Leased Premises, without the prior written consent of Lessor. Disturbed land shall include acreage for tanks, well pad(s), equipment, roadways and other operations servicing the wells covered by this Lease.

LOCATION APPROVAL

- 18) In order to minimize disruption of the Lessor's current or future use of the Leased Premises and to maintain the aesthetic value of the Leased Premises, in the opinion of the Lessor, and before Lessee commences surface disturbing operations, the final location of well pads, access roads, pipelines, canals, ditches, ponds, levees, dams, fences, telephone

and power lines, compressors, dehydration facilities, pits and waterlines shall be approved by the Lessor in writing. Said approval shall not be unreasonably withheld or delayed.

In any event, Lessee shall not drill a well or locate any portion of the drilling pad, road, gate, pipeline, tank battery, any phone, electric and data collection line or other surface disturbances within three hundred (300) feet of any structure or improvements located upon the Leased Premises without the prior written consent of the Lessor. Lessor's agreement shall not be unreasonably withheld, conditioned or delayed assuming the preceding standards are followed. For purpose of this paragraph, the three hundred (300) foot restriction contained herein, as it pertains to well pad, shall be measured from the edge of the well pad nearest to the structure in question, and not from the bore hole.

Without a separate written agreement between Lessor and Lessee, no roadways, pipelines, tank battery, utilities or other surface disturbances shall be located, constructed or maintained on the Leased Premises unless they are for the sole purpose of producing and transporting produced materials from the Leased Premises or lands contiguously pooled or unitized therewith.

NO COMPRESSOR OR PROCESSING

- 19) This Lease does not grant Lessee the right to construct central compression facilities on the Leased Premises other than those necessary and electrically powered for the production and transportation of products produced from the Leasehold or lands contiguously pooled or unitized therewith. Lessee agrees that the Leased Premises described herein will not be used as a central processing facility or storage area for equipment and materials. All pump jacks shall use an electric motor, where electric is reasonably available. Any motorized equipment that may remain on the Leased Premises after the drilling and fracing operations are completed shall be designed and installed utilizing means to minimize noise, including but not limited to, sound enclosures and barriers, and electrical motors if reasonably possible.

ROADWAYS

- 20) Any roadways constructed by or for Lessee shall not exceed twenty-five (25) feet in width for the actually traveled roadbed and following the existing contours of the surrounding surface, together with a reasonable width, not to exceed six (6) feet from either edge of the actually traveled roadbed for fills, shoulders, and crosses. Lessee shall maintain said roadways to the reasonable satisfaction of Lessor, which maintenance may include shaling, ditching, graveling, blading, installing and cleaning culverts, suppressing dust and spraying for noxious weeds. To the degree practicable, operations shall be designed and laid out to be concentrated in a single area so as to avoid unnecessary utilization of surface areas. To the degree practicable, pipelines and roadways are to be within the same corridor. Lessee shall make reasonable efforts to use existing logging and township roads.

PIPELINES/NO FOREIGN GAS

- 21) A) The Lessee shall bury to a depth below forty-eight (48) inches all pipelines used to transport Oil and Gas, including water, brine or any other fluid or substances, produced from wells on the Leased Premises or lands contiguously pooled or unitized therewith. All pipelines shall be conspicuously marked by Lessee. If Lessee chooses to lay plastic lines, said lines shall be marked by a tracer wire for purposes of electronically locating such lines. This right may not be assigned to a utility company, pipeline company or anyone else who owns no interest in the Leased Premises or not otherwise contracted or affiliated with Lessee for the purpose of carrying out the rights and obligations under this Lease. No right is granted to piggyback or expand on this term of the Lease to install electric, telephone or data lines. Lessee shall allow Lessor unrestricted access to and crossing of the surface by equipment typically utilized in local agricultural and timbering activities, including but not limited to, tractors, plows, combines, harvesters, forwarders, loaded trucks and loaded trailers. Lessee shall "double ditch" all soil disturbances so that all topsoil will be replaced on the surface. The width of the graded subsurface pipeline right-of-

way shall not exceed thirty (30) feet, with reasonable additional width required for construction, reclamation, repair and maintenance purposes. Lessee agrees that the location of any and all pipelines shall be subject to the terms of paragraph 18 herein, and in any case shall be subject to the prior consent of the Lessor, which consent shall not to be unreasonably withheld.

- B) Unless Lessor and Lessee enter into a separate written agreement, any pipelines constructed pursuant to the terms of this Lease shall be limited to transporting Oil and Gas, including water, brine or any other fluid or substances, produced from wells on the Leased Premises or lands contiguously pooled or unitized therewith.

POOLED PRODUCTION UNIT LIMITED

22)

- A) The production of Oil or Gas under the terms of this Lease will maintain this Lease beyond its primary term including any extensions thereto only as to that portion of the Leased Premises that is actually included within a Unit or Units that contains a well or wells then producing in paying quantities for so long as such well(s) are producing in paying quantities. A Unit shall mean a unit determined by a well spacing unit, a spacing order or other density requirements issued by ODNR's Mineral Resources Management (or other government entity with jurisdiction) for a particular well. In the absence of such order from the ODNR's Mineral Resources Management (or other government entity with jurisdiction), Lessee shall designate and file a "well plat production unit", which for the purpose of this Lease, shall contain only the acreage overlaying that portion of the target formation or pool under a well that a prudent operator would deem capable of being most efficiently drained by that well while utilizing the best production technology in common use at the time of drilling. Notwithstanding any density rules applicable to any well, however, no production unit or pooled acreage assigned to any well shall exceed the following unit acreage sizes:
- (i) If the well is classified as a vertical Oil or Gas well, the maximum size of the pooled production unit shall be 40 contiguous acres, without the written consent of Lessor. The well shall be located in the center of the production unit to the extent practical, and such unit shall be of a square or rectangular shape consistent with state regulations.
 - (ii) If the well is classified as a horizontal Oil or Gas well drilled to any geologic formations containing a horizontal component of the drain hole in the target formation, whether Oil or Gas, then the maximum size of the pooled production unit shall not exceed 640 contiguous acres, except said pooled production unit may exceed 640 contiguous acres, but in no event larger than 1,000 contiguous acres, if the lateral extent of horizontal bore hole(s) in said formation shall extend beyond the boundary of a 640 contiguous acre unit and such that a reasonably prudent operator would expect that the entire acreage within such larger unit will be effectively and efficiently developed and drained from a central pad site location. The Unit shall, to the extent practical, parallel and be centered on the lateral boreholes to be drilled within the Unit, and such Unit shall be of a square or rectangular shape consistent with state regulations.
- B) Any well drilled on said Unit whether or not the well(s) are located on the Leased Premises, shall, nevertheless be deemed to be located upon the Leased Premises within the meaning and for the provisions and covenants of this Lease to the same effect as if all the lands comprising said Unit were described in and subject to this Lease; and provided further that the Lessor agrees to accept that proportion of such royalties and shut-in payments, which the amount of Lessor's acreage placed in the unit or his/her/its royalty interests therein on the acreage basis, bears to the total acreage in the Unit. The Lessee shall effect such consolidation by executing a declaration of consolidation with the same formality as this Lease setting forth the lease or portions thereof consolidated and respective royalty distribution, and recording the same in the recorder's office at the courthouse in the county in which the Leased Premises are located and by mailing a copy thereof to the Lessor at the address hereinabove set forth unless the Lessee is furnished with another address. Lessee shall have the right to amend, alter, change, correct, or cancel any such consolidation Unit or amended consolidation Unit, in the sole opinion of

the Lessee, the amended Unit would be beneficial in connection with the conservation and development of Oil and Gas, so long as such amendment satisfies the restrictions set forth above.

- C) This Lease shall automatically terminate and be of no further force or effect as to any portion of the Leased Premises which is not included within a producing or drilling Unit at the expiration of the Primary Term, or any extension thereof, from which Oil and Gas are being produced in paying quantities from the geologic formations leased herein or Operations are being conducted in such Unit. Upon termination of this Lease, and Lessor's written request, as to any portion of the Leased Premises as provided in this paragraph, Lessee shall promptly deliver to Lessor a plat showing the designated Unit(s) around each well and a partial release containing a satisfactory description of the acreage not retained, suitable for recording.

REASONABLE DEVELOPMENT

- 23) If Oil and Gas is discovered on the Leased Premises, Lessee shall develop the Leased Premises as a reasonable and prudent operator and exercise due diligence in drilling such additional well or wells as may be necessary to fully develop the Leased Premises.

PUGH CLAUSE

- 24)
- A) Horizontal Pugh Clause. Production from, or Operations conducted on, one Unit will not maintain this Lease in force as to any other acreage, outside the Unit and such production or Operations will maintain this Lease only as to the acreage within the Unit or Units upon which such production or Operations are being maintained or conducted. Upon expiration of the Primary Term or any extension thereof, in the event a portion or portions of the Leased Premises is pooled or unitized with other land so as to form a Unit or Units; Operations on, completion of a well upon, or production from such pooled Unit(s) will not maintain this Lease in force as to the land not included in such Unit or Units. However, this Lease may be maintained in force as to any land covered hereby and not included in such Unit or Units, in any manner that complies with this Lease's terms.
- B) Vertical Pugh Clause. Despite anything to the contrary set forth elsewhere in this Lease, at the end of the Primary Term or any extension thereto, including continuous Operations, as to each Unit this Lease shall terminate as to all strata, depths, and horizons lying two hundred (200') feet below the stratigraphic equivalent of the base of the deepest formation from which production of Oil and Gas is being produced, or in the case of a shut-in well is capable of being produced in paying quantities.
- C) Release of Acreage. Within thirty (30) days after termination of this Lease as to all or any portion of the Leased Premises, and after Lessor's written request, Lessee shall promptly deliver to Lessor and record with the county or counties in which the Leased Premises is located a partial release of the Lease containing a metes and bounds description (including a map) of the acreage and/or depths not retained and a plat showing the designated Unit(s).

SHUT-IN PAYMENT/LIMITATION

- 25) In the event all wells drilled on the Leased Premises or on land pooled or unitized hereunder are shut-in because Lessee is unable to market the production therefrom, or should production in paying quantities cease from all such wells, or should the Lessee desire to shut-in all such producing wells, the Lessee agrees to pay the Lessor, commencing on the date six (6) months from the beginning of the period with no production being sold, or the cessation of production, or the shutting-in of each producing well, a shut-in payment in the amount of fifty dollars (\$50.00) per acre every six (6) months until the earlier of: production is marketed and sold off the Leased Premises, or such wells are plugged and abandoned according to law, or six (6) months after making the fourth (4) shut-in payment. Notwithstanding the making of such shut-in payments, Lessee shall be and remain under the continuing obligation to (a) use all reasonable efforts to find a market for said Gas and/or Oil and to commence or resume marketing the same when a market is available, (b) reasonably develop the Leased Premises as provided

in this Lease. Upon delivery of the shut-in payment as provided herein, the Lease will continue in force and effect while production is shut-in. It is understood and agreed that, in the sole discretion of the Lessor, this Lease may not be maintained in force for any continuous period of time longer than thirty (30) months, or a cumulative period of forty-eight (48) months after the expiration of the Primary Term hereof solely by the provision of this shut-in clause.

FIREWALLING AND MAINTENANCE

- 26) Dikes, firewalls or other methods of secondary containment must be constructed and maintained at all times around all tanks, separators and other receptacles so as to contain a volume of liquid equal to at least 1.25 times the total volume of such tanks, separators and other receptacles located within the boundaries of the firewall and comply with State of Ohio regulations. Lessee shall keep all tanks and other equipment at each well location painted, and shall keep the well site and all roads leading thereto free of all noxious weeds and debris.

PITS

- 27) Lessee shall have no right to dig any pits on the Leased Premises except with Lessor's prior written consent; provided, however, that Lessee may, without Lessor's consent, dig and use pits or impoundments for drilling and completion Operations if (a) such pits or impoundments conform to State of Ohio requirements, (b) each pit or impoundment is planned to be deep enough to allow at least thirty-six (36) inches of backfill over the liner after grading to the surrounding pre-drill contours, and (c) pits or impoundments are drained and all pit liners and pit contents are removed from the Leased Premises and disposed of at Lessee's cost within ninety(90) days (weather permitting) promptly after completion of Operations. Lessee shall immediately notify Lessor and the State of Ohio if any pit lining is torn, punctured, or otherwise breached, allowing any fluid contained in or designated to be contained in, a pit or impoundment to seep, leak or overflow through or around the liner.

FENCE CLAUSE

- 28) The Lessee shall promptly replace any barriers, including but not limited to fences and walls removed by Lessee during its Operations on the Leased Premises. Upon Lessor's written request, Lessee shall, at its sole cost and expense, design, install and maintain fencing around any well site(s), tank battery(ies), or facility(ies) installed on the Leased Premises by Lessee. All cattle guards and fences installed by Lessee shall be kept clean and in good repair and shall be capable of turning horses, sheep, goats, and cattle.

GATE CLAUSE

- 29) Upon the written request of Lessor, Lessee shall install, at its sole cost and expense, a gate at the entrance of any access road on the Leased Premises. Lessor shall be provided a key to the gate and allowed free use.

WATER DAMAGE

- 30) Lessee shall not be the cause of the diminution of the quality or quantity of Lessor's water supplies as set forth below (including but not limited to all supplies, wells, creeks, streams, ponds, and springs) for domestic and livestock use to be measured by testing Lessor's water supplies: (a) prior to the commencement of drilling the first well upon the Leased Premises (or within a drilling unit in which the Leased Premises is located within two thousand five-hundred (2,500) feet of any well bore); (b) at the completion of the drilling and completion of all wells upon the Leased Premises (or within a drilling unit in which the Leased Premises is located within two thousand five-hundred (2,500) feet of any well bore); and, (c) as deemed necessary by Lessor due to changes in water flow or quality, including but not limited to color, smell or taste. Should any of Lessor's water supply(ies) located within 2,500 feet of any well bore be diminished in quality or diminished in volume so as to violate maximum allowable concentration levels for constituents pursuant to federal or state drinking/water quality standards or be insufficient in volume for domestic household and/or livestock use as set forth below, Lessee shall take steps to restore water quality and quantity to its pre-existing condition (remediation)

at Lessee's cost and fully compensate Lessor for the damage caused thereby; provided, that initial baseline water quality data did not already show the existence of the constituent(s) above maximum allowable concentration levels for the constituent(s) pursuant to federal or state drinking/water quality standards and there is evidence of a clear diminution of volume of water produced by the water supply(ies) not attributable to natural fluctuations in quantity. Remediation of water quality shall be considered complete when testing shows the concentration(s) of the constituent(s) are at or below federal or state maximum allowable concentration levels. During the period of remediation, Lessee shall supply Lessor with an adequate supply of potable water at Lessee's cost consistent with Lessor's use of the damaged water supply prior to Lessee's Operation. Any diminution in the quality or quantity of the above described water supply(ies) , unless shown to have occurred more than 6 months after the drilling and completion of all wells upon the Leased Premises (or within a drilling unit in which the Leased Premises is located within two thousand five-hundred (2,500) feet an any well bore, will be presumed to be the result of Lessee's Operations unless Lessee can prove otherwise, with Lessee having the burden of proof by the preponderance of the evidence. Until Lessee can prove otherwise as to cause, Lessee shall provide the required replacement supply; beginning immediately upon Lessor's providing evidence to Lessee of the water quality and quantity condition causing concern. Testing of Lessor's water supply(ies) as set forth above shall be at Lessee's cost, and shall be conducted by an independent testing laboratory certified by the Ohio Environmental Protection Agency and/or the Ohio Department of Health. Lessor's water supply(ies) shall be tested for the parameters included on the attached water quality parameters list. Lessor shall be provided complete copies of any and all testing results and data and shall have full rights to contact the testing lab for inquiry and information.

NO USE OF WATER

- 31) Lessee shall not use water from Lessor's surface, subsurface, wells, ponds, lakes, springs, creeks or reservoirs ("Water") located on the Leased Premises without first obtaining the prior written consent of Lessor. Lessor and Lessee contemplate negotiations and agreement for the cost for onsite water usage but neither party is bound to offer to pay, or accept said offer, for any reason. Lessee shall be fully responsible for any material damage caused to Lessor's Water by any operations conducted pursuant to this Lease.

POWERLINES

- 32)
- A) Overhead Lines: Lessee will consult with Lessor and with the independent power company supplying power to Lessee with respect to the location of overhead power lines prior to construction. Overhead power lines will be constructed so as to cause the least possible interference with Lessor's visual landscape and Lessor's existing and future use of the Leased Premises, and to the maximum extent possible overhead power lines will be constructed along fence lines or property lines. All overhead lines shall not hang lower than fourteen (14) feet above the terrain.
- B) Buried Lines: All power lines constructed by Lessee downstream of the independent power company's meters shall be buried and all power line trenches shall be fully reclaimed and reseeded to the satisfaction of Lessor. For buried lines, Lessee shall pay Lessor a one-time payment of fifty dollars (\$50.00) per rod (16.5 ft.) unless such power line is installed in the same ditch and the same time as the pipelines described herein, in which case there will be no duplication of payment. Any lines authorized under this paragraph shall be buried to a depth of at least forty-eight (48) inches below grade, and at a location consented to by Lessor, however such consent shall not be unreasonably withheld, conditioned or delayed.

HUNTER

- 33) Lessee agrees that its employees, agents, subcontractors, and independent contractors shall have no right to and are prohibited from firing any firearms, hunting or fishing, on the Leased Premises, without the written permission of the Lessor.

TIMBER REMOVAL

- 34) Lessee shall notify Lessor prior to the removal of any standing timber in a sufficiently timely manner, and in no event later than thirty (30) calendar days prior to any removal of timber, so as to allow Lessor to obtain an appraisal of such timber by a certified, professional forester. Lessor shall have the option to take payment from Lessee for said timber at the appraised value prior to its removal or to take possession of said timber after its removal by Lessee, or at the option of Lessor, the timber may be harvested by Lessor. If Lessor opts to take possession after Lessee removes any timber, Lessee shall cut and set aside logs so as to be accessible, exercising due care in cutting and handling said timber so as to preserve its market value. Lessee shall remove any uprooted stumps from the Leased Premises at Lessor's request. Upon Lessee giving Lessor the thirty (30) day notice, Lessor can exercise within said thirty (30) day period of time to remove the timber as necessary for Lessee's use of the Leased Premises.

CROP DAMAGE

- 35) Lessee shall plan surface operations in a manner that will reduce or minimize the intrusion to crop and timber fields. In the event that such intrusion cannot be avoided, Lessee shall compensate either Lessor or any tenant (but not both) for the damage at current market value for the projected yield at full maturity.

NO HAZARDOUS MATERIAL

- 36) Lessee shall not use, dispose, or release on the Leased Premises or to permit to be used, disposed of or released on the Leased Premises as a result of its operations, any substances (other than those Lessee has been licensed or permitted by applicable public authorities or governmental entities with jurisdiction to use on the Leased Premises) which are defined as a "hazardous material" or "toxic substance" or "solid waste" in applicable federal, state, or local laws, statutes or ordinances. Should any hazardous material, toxic substance or solid waste be released on the Leased Premises in quantities that would require Lessee to report such incident to any Federal, State or local authority, Lessee shall notify all appropriate governmental entities of such an event, and then immediately thereafter notify the Lessor.

RECLAMATION CLAUSE

- 37) Lessee shall restore the Leased Premises to as near as possible to its original condition within ninety (90) days after well completion or within thirty (30) days after any pipeline is installed, weather permitting; however, in the case of a multi-well pad location, within ninety (90) days after the completion of the final well completed from the pad location, weather permitting. Restoring the Leased Premises to its original condition shall include, but not be limited to, reseeding any areas that were kept in grass or pasture, or allowing the well site pad(s) and access road(s) to remain for normal and customary operational purposes. A well once commenced shall be completed and placed into production with due diligence. If at any time during the existence of a Lessee surface operation or at any time for one (1) year following the existence of a Lessee's surface operation, the soil should settle, wash or erode, causing a depression, and such depression cannot reasonably be attributed to any other cause than Lessee's operation, Lessee shall level such depression and smooth the surface to substantially the same level as existed before construction. Under such circumstances, at any time and from time to time while this Lease or any of its terms and provisions is in full force and effect, upon request of Lessor, Lessee agrees to correct, level and restore to the original ground level with topsoil or material specified by Lessor if such other material is of a lesser cost than topsoil, any further settlement of the soil that may occur following the previous filling or leveling of the same, by the Lessee so as to fully restore and maintain the surface of Lessor's property, and protect Lessor's property against erosion.

RESEEDING

- 38) All reseeding shall be done with suitable grasses selected by Lessor and during a planting period selected by Lessor. Reseeding shall be performed in a manner to place the Leased Premises in a condition that is as close as possible to its pre-drilling condition. In the absence of direction from the Lessor, no reseeding (except for barrow pits) will be required on any existing access roads. It shall be the duty of Lessee to insure that a growing ground cover is established upon the disturbed soils and Lessee shall reseed as

necessary to accomplish that duty, Lessee shall inspect disturbed areas at such times as Lessor shall reasonably request in order to determine the growth of ground cover and/or noxious weeds, and Lessee shall reseed ground cover and control noxious weeds from time to time to the extent necessary to accomplish its obligations hereunder.

SURFACE DAMAGE

- 39) Unless specifically otherwise set forth herein, Lessee will pay Lessor for all damages to the surface or subsurface of the Leased Premises as a result of Lessee's operations and/or exercise of any rights granted in this Lease at the value determined by a mutually agreeable third party, or in the event no such party can be agreed upon, a court of law. In all cases, Lessee agrees that it shall keep the Leased Premises in a neat and clean condition.

INSURANCE/HOLD HARMLESS

- 40) A) Insurance: A company licensed by the Ohio Department of Commerce-Division of Insurance to do business within the State of Ohio shall underwrite all policies required by this paragraph. Provided, however, such insurance requirements maybe met by a combination of self-insurance, primary and excess insurance Policies. Lessee shall carry the following insurance with one or more insurance carriers at any and all times such party or person is on or about the Leased Premises or acting pursuant to this Lease in such amounts as from time to time reasonably required by Lessor. Lessee shall endeavor to assure that any person acting on Lessee's behalf under this lease shall carry substantially similar insurance:

- i. Workers' Compensation and Employer's Liability Insurance
- ii. Commercial General Liability and Umbrella Liability Insurance (\$5,000,000.00 Minimum Coverage) which shall include liability coverage for sudden and accidental pollution incidents;
- iii. Business auto and Umbrella Liability Insurance (\$5,000,000.00 Minimum Coverage).

Upon Lessor's request, the Lessee shall cause Certificates of Insurance evidencing the above coverage to be provided promptly upon request to Lessor.

- B) Indemnity: Lessee and its successors and assigns, shall defend, indemnify, release and hold harmless Lessor and Lessor's heirs, successors, representatives, agents and assigns ("Indemnitees"), from and against any and all claims, liabilities, judgments, fines, penalties, interests, demands and causes of action for injury (including death) or damages and losses to persons or property, including attorneys' fees and court costs, arising out of, incidental to or resulting from the operations conducted on the Leased Premises or caused by operations of the Lessee or Lessee's servants, agents, employees, guests, licensees, invitees or independent contractors, and each assignee of this Lease, or an interest holder therein, agrees to indemnify and hold harmless Indemnitees in the same manner provided above. Each assignee of the Lessee, or any interest therein, agrees to indemnify and hold harmless to the Indemnitees as if said assignee were party to this Lease when executed. The provisions of this paragraph shall survive the termination of this Lease.

NON DISTURBANCE

- 41) Lessee and its employees and authorized agents shall not disturb, use or travel upon any of the Leased Premises not being used in accordance with the terms of this Lease.

WARRANTY OF TITLE

- 42) Lessor hereby warrants and agrees to defend the title to the lands and interest described in Paragraph 1, but if the interest of Lessor covered by this Lease is expressly stated to be less than the entire fee or mineral estate, Lessor's warranty shall be limited to the interest so stated. Lessor further warrants that the Leased Premises are not subject to any valid

prior oil and gas leases. Lessee may purchase or lease the rights of any party claiming any interest in said land and exercise such rights as may be obtained thereby and Lessee shall not suffer any forfeiture nor incur any liability to Lessor by reason thereof. Lessee shall have the right at any time to pay for Lessor, any mortgage, taxes or other lien on said lands, in the event of default of payment by Lessor, and then be subrogated to the rights of the holder thereof. Any such payments made by Lessee for Lessor may be deducted from any amounts of money which may become due Lessor under this Lease.

SUBORDINATION

- 43) Lessee agrees and acknowledges that any unsubordinated pre-existing mortgage on the Leased Premises that covers Lessor's oil and gas rights may constitute a title defect, except to the extent cured by Ohio Codified Laws and if there does exist said title defect and the well or well bore is on or directly under the Leased Premises, or any lands unitized or contiguously pooled therewith, the title defect must be cured at Lessor's expense by Lessor obtaining a subordination of that mortgage.

BINDING ON SUCCESSORS AND ASSIGNS

- 44) This Lease and all of its terms, conditions, covenants and stipulations shall extend to and be binding on all heirs, personal representatives, successors and assigns of Lessor and Lessee.

ADDITIONAL DOCUMENTS

- 45) Lessor further agrees to sign such additional documents as may be reasonably requested by Lessee to perfect Lessee's title to the Oil and Gas leased herein, as described in paragraph 1, and such other documents relating to the sale of production as may be required by Lessee or others. Said obligation includes but is not limited to modifying or amending any legal descriptions to release acreage which does not have marketable title or correcting any inaccurate legal descriptions.

FUTURE MORTGAGES AND ENCUMBRANCES

- 46) Lessor may at any time, without providing notice to Lessee, mortgage Lessor's interest in all or any part of the Leased Premises, or grant any easement or other servitude, including but not limited to other leases, as Lessor deems necessary and appropriate, and which do not interfere with Lessee's rights herein.

CONDEMNATION

- 47) Any and all payments made by a Condemner on account of taking by eminent domain shall be the property of the Lessor, except a taking or diminishment of Lessee's interest in either the rights and privileges granted in the leasehold estate created hereby or the oil and gas reserves located within the Leased Premises, and in the event of such a taking or diminishment of Lessee's interests and/or rights, Lessee shall be entitled to its proportionate share of any payments, and shall further have a right of standing in any proceeding of Condemnation.

PARTIAL RELEASE

- 48) Lessee shall have the right at any time during this Lease to release from the lands covered hereby any lands subject to this Lease and thereby may be relieved of all obligations hereafter accruing to the acreage so released, provided that (a) Lessee may not release any portion of this Lease included in a pooled Unit so long as Operations are being conducted on such Unit, and (b) any such partial release must release all depths in and under the lands so released.

TERMINATION OF RECORD AND MEMORANDUM OF LEASE

- 49) A) Upon termination of the Lease as to any portion of the Leased Premises, and Lessor's written request, Lessee shall promptly deliver to Lessor a release of the Lease as provided

in Section __ above. In addition, Lessee shall peaceably surrender the Leased Premises to Lessor and remove any and all facilities, equipments and machinery from the site within ninety (90) days at Lessee's expense. Further, the affected land shall be reclaimed in accordance with the terms of this Lease.

B) This Lease shall not be recorded by either party hereto. Lessor and Lessee shall execute a Memorandum of Lease for recording which shall set forth the names and addresses of the parties hereto, the description of the Leased Premises, the term of this Lease and the rest of the provisions hereof shall be incorporated by reference. Lessee shall be entitled to immediately record the Memorandum of Lease in the applicable county records, *provided however*, that recording of the Memorandum of Lease shall not be deemed to be an acceptance by Lessee of this Lease unless and until Lessee pays the Bonus in full prior to the Payment Date, pursuant to Paragraph 59. If Lessee determines to its reasonable satisfaction after its title due diligence review that the Lessor does not have marketable title to the Leased Premises, or if Lessee does not pay the Bonus payment in full prior to the Payment Date for any reason, and upon Lessor's written request, then Lessee shall promptly release any recorded Memorandum of Lease it may have filed and this Lease shall terminate.

DEFAULT

50)

A) In addition to any incidents of default described throughout this Lease, the occurrence of any of the following constitutes a default hereunder:

- i. If any creditor of Lessee and/or assigns shall take any action to execute on, garnish, or attach the assets of the Lessee covering the Leased Premises, or
- ii. If a request or a petition for liquidation, reorganization, adjustment of debts, arrangement, or similar relief under the bankruptcy, insolvency or similar laws of the United States or any state or territory thereof or any foreign jurisdiction shall be filed by or against Lessee or any formal or informal proceeding for the reorganization, dissolution or liquidation of settlement of claims against, or winding up of affairs of the Lessee; or the garnishment, attachment, or taking by governmental authority of all of Lessee's collateral or other property.

B) Upon default by Lessee, Lessor shall be entitled to exercise any and all remedies available at law, in equity or otherwise, each such remedy being considered cumulative. No single exercise of any remedy set forth herein shall be deemed an election to forego any other remedy and any failure to pursue a remedy shall not prevent, restrict or otherwise modify its exercise subsequently.

SEVERABILITY

51) If any provision of this Lease is held invalid or unenforceable by any court of competent jurisdiction, the other provisions of this Lease will remain in full force and effect. Any provision of this Lease held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

GOVERNING LAW

52) This Lease shall be governed and construed in accordance with the laws of the State of Ohio. Any and all disputes must be resolved, in a common pleas court located solely in the State of Ohio, and shall not be resolved by arbitration.

LESSER INTEREST

53) In case the Lessor owns a lesser interest in the Leased Premises than the entire or undivided fee simple interest therein, then the royalties, delay rentals and other payments herein provided for shall be paid to the Lessor in the proportion which such interest bears to the whole or undivided fee.

REPORTS AND DOCUMENTS

54) As required by law, Lessee shall notify Lessor of any judicial proceedings brought to the attention of Lessee affecting its possession under the Lease or the interest of Lessor in the Leased Premises.

AUTHORSHIP AND WAIVER

55) For the purpose of construction, interpretation and/or adjudication, it shall be deemed that Lessee and Lessor contributed equally to the drafting of this instrument. The failure of either party to enforce or exercise any provision of this Lease shall not constitute or be considered as a waiver of the provision in the future unless the same is expressed in writing and signed by the respective parties.

DOWER

56) In consideration of the execution of this Lease, Lessor hereby releases and relinquishes all Lessor's rights and expectancies of dower in the Lease.

ASSIGNMENT

57) Lessee, and any successor Lessee, shall have the right to assign and transfer the within Lease, in whole or in part.

NOTICE

58) If at any time after the execution of the Lease, it shall become necessary or convenient for one of the parties to serve any notice, demand or communication upon the other party, such notice, demand or communication shall be in writing signed by the party serving notice, sent by nationally recognized overnight carrier or registered or certified United States mail, return receipt requested and postage or other charges prepaid. Any such notice if intended for Lessor shall be addressed to the address set forth in the first paragraph of this Lease, and if intended for Lessee, the notice shall be addressed to the address set forth in the first paragraph of this Lease, or to such other address as either party may have furnished to the other in writing as a place for the service of notice. Any notice so sent shall be deemed to have been given/served as of the time it is deposited with the overnight carrier or in the United States mail.

BONUS PAYMENT

59) Upon execution of this Lease, Lessee shall pay a sum equal to \$10 per net acre covered by this Lease. This Lease shall not be effective unless and until Lessee pays the balance of the bonus payment (the "Bonus") set forth in the Order of Payment executed by Lessor and Lessee in connection with this Lease, as adjusted according to the net mineral acres covered by this Lease as confirmed by Lessee's title review, to Lessor within one hundred and twenty (120) days of Lessor's execution of this Lease (the "Payment Date"), *provided however*, that if despite commercially reasonable efforts Lessee is unable to complete its title review within said 120 days due to overcrowding at the courthouse, Lessee may extend the Payment Date by an additional thirty (30) days. In the event Lessor does not receive the balance of the Bonus, as may be adjusted based on Lessee's title review, on or before the Payment Date, then this Lease shall automatically become null and void. Promptly after any termination, expiration or voiding of this Lease, Lessee shall provide Lessor with a copy of an appropriate release of the Memorandum of Lease and Lessor shall cause the same to be filed of record.

IN WITNESS WHEREOF, the Lessor(s) hereunto set their hand(s) on the day and year first above written.

LESSOR(S)

WITNESS

By: _____

Print: _____

By: _____

EXHIBIT " C "

ACCOUNTING PROCEDURE JOINT OPERATIONS

1 Attached to and made part of _____
2 _____
3 _____
4 _____
5

6 I. GENERAL PROVISIONS

7
8 IF THE PARTIES FAIL TO SELECT EITHER ONE OF COMPETING "ALTERNATIVE" PROVISIONS, OR SELECT ALL THE
9 COMPETING "ALTERNATIVE" PROVISIONS, ALTERNATIVE 1 IN EACH SUCH INSTANCE SHALL BE DEEMED TO HAVE
10 BEEN ADOPTED BY THE PARTIES AS A RESULT OF ANY SUCH OMISSION OR DUPLICATE NOTATION.

11
12 IN THE EVENT THAT ANY "OPTIONAL" PROVISION OF THIS ACCOUNTING PROCEDURE IS NOT ADOPTED BY THE
13 PARTIES TO THE AGREEMENT BY A TYPED, PRINTED OR HANDWRITTEN INDICATION, SUCH PROVISION SHALL NOT
14 FORM A PART OF THIS ACCOUNTING PROCEDURE, AND NO INFERENCE SHALL BE MADE CONCERNING THE INTENT
15 OF THE PARTIES IN SUCH EVENT.

16 1. DEFINITIONS

17 All terms used in this Accounting Procedure shall have the following meaning, unless otherwise expressly defined in the Agreement:
18

19
20
21 "Affiliate" means for a person, another person that controls, is controlled by, or is under common control with that person. In this
22 definition, (a) control means the ownership by one person, directly or indirectly, of more than fifty percent (50%) of the voting securities
23 of a corporation or, for other persons, the equivalent ownership interest (such as partnership interests), and (b) "person" means an
24 individual, corporation, partnership, trust, estate, unincorporated organization, association, or other legal entity.

25
26 "Agreement" means the operating agreement, farmout agreement, or other contract between the Parties to which this Accounting
27 Procedure is attached.

28
29 "Controllable Material" means Material that, at the time of acquisition or disposition by the Joint Account, as applicable, is so classified
30 in the Material Classification Manual most recently recommended by the Council of Petroleum Accountants Societies (COPAS).

31
32 "Equalized Freight" means the procedure of charging transportation cost to the Joint Account based upon the distance from the nearest
33 Railway Receiving Point to the property.

34
35 "Excluded Amount" means a specified excluded trucking amount most recently recommended by COPAS.

36
37 "Field Office" means a structure, or portion of a structure, whether a temporary or permanent installation, the primary function of which is
38 to directly serve daily operation and maintenance activities of the Joint Property and which serves as a staging area for directly chargeable
39 field personnel.

40
41 "First Level Supervision" means those employees whose primary function in Joint Operations is the direct oversight of the Operator's
42 field employees and/or contract labor directly employed On-site in a field operating capacity. First Level Supervision functions may
43 include, but are not limited to:

- 44
- 45 • Responsibility for field employees and contract labor engaged in activities that can include field operations, maintenance,
46 construction, well remedial work, equipment movement and drilling
- 47 • Responsibility for day-to-day direct oversight of rig operations
- 48 • Responsibility for day-to-day direct oversight of construction operations
- 49 • Coordination of job priorities and approval of work procedures
- 50 • Responsibility for optimal resource utilization (equipment, Materials, personnel)
- 51 • Responsibility for meeting production and field operating expense targets
- 52 • Representation of the Parties in local matters involving community, vendors, regulatory agents and landowners, as an incidental
53 part of the supervisor's operating responsibilities
- 54 • Responsibility for all emergency responses with field staff
- 55 • Responsibility for implementing safety and environmental practices
- 56 • Responsibility for field adherence to company policy
- 57 • Responsibility for employment decisions and performance appraisals for field personnel
- 58 • Oversight of sub-groups for field functions such as electrical, safety, environmental, telecommunications, which may have group
59 or team leaders.
- 60

61 "Joint Account" means the account showing the charges paid and credits received in the conduct of the Joint Operations that are to be
62 shared by the Parties, but does not include proceeds attributable to hydrocarbons and by-products produced under the Agreement.

63
64 "Joint Operations" means all operations necessary or proper for the exploration, appraisal, development, production, protection,
65 maintenance, repair, abandonment, and restoration of the Joint Property.
66

1 “**Joint Property**” means the real and personal property subject to the Agreement.
2

3 “**Laws**” means any laws, rules, regulations, decrees, and orders of the United States of America or any state thereof and all other
4 governmental bodies, agencies, and other authorities having jurisdiction over or affecting the provisions contained in or the transactions
5 contemplated by the Agreement or the Parties and their operations, whether such laws now exist or are hereafter amended, enacted,
6 promulgated or issued.
7

8 “**Material**” means personal property, equipment, supplies, or consumables acquired or held for use by the Joint Property.
9

10 “**Non-Operators**” means the Parties to the Agreement other than the Operator.
11

12 “**Offshore Facilities**” means platforms, surface and subsea development and production systems, and other support systems such as oil and
13 gas handling facilities, living quarters, offices, shops, cranes, electrical supply equipment and systems, fuel and water storage and piping,
14 heliport, marine docking installations, communication facilities, navigation aids, and other similar facilities necessary in the conduct of
15 offshore operations, all of which are located offshore.
16

17 “**Off-site**” means any location that is not considered On-site as defined in this Accounting Procedure.
18

19 “**On-site**” means on the Joint Property when in direct conduct of Joint Operations. The term “On-site” shall also include that portion of
20 Offshore Facilities, Shore Base Facilities, fabrication yards, and staging areas from which Joint Operations are conducted, or other
21 facilities that directly control equipment on the Joint Property, regardless of whether such facilities are owned by the Joint Account.
22

23 “**Operator**” means the Party designated pursuant to the Agreement to conduct the Joint Operations.
24

25 “**Parties**” means legal entities signatory to the Agreement or their successors and assigns. Parties shall be referred to individually as
26 “Party.”
27

28 “**Participating Interest**” means the percentage of the costs and risks of conducting an operation under the Agreement that a Party agrees,
29 or is otherwise obligated, to pay and bear.
30

31 “**Participating Party**” means a Party that approves a proposed operation or otherwise agrees, or becomes liable, to pay and bear a share of
32 the costs and risks of conducting an operation under the Agreement.
33

34 “**Personal Expenses**” means reimbursed costs for travel and temporary living expenses.
35

36 “**Railway Receiving Point**” means the railhead nearest the Joint Property for which freight rates are published, even though an actual
37 railhead may not exist.
38

39 “**Shore Base Facilities**” means onshore support facilities that during Joint Operations provide such services to the Joint Property as a
40 receiving and transshipment point for Materials; debarkation point for drilling and production personnel and services; communication,
41 scheduling and dispatching center; and other associated functions serving the Joint Property.
42

43 “**Supply Store**” means a recognized source or common stock point for a given Material item.
44

45 “**Technical Services**” means services providing specific engineering, geoscience, or other professional skills, such as those performed by
46 engineers, geologists, geophysicists, and technicians, required to handle specific operating conditions and problems for the benefit of Joint
47 Operations; provided, however, Technical Services shall not include those functions specifically identified as overhead in the second
48 paragraph of the introduction of Section III (*Overhead*). Technical Services may be provided by the Operator, Operator’s Affiliate, Non-
49 Operator, Non-Operator Affiliates, and/or third parties.
50

51 2. STATEMENTS AND BILLINGS

52

53 The Operator shall bill Non-Operators on or before the last day of the month for their proportionate share of the Joint Account for the
54 preceding month. Such bills shall be accompanied by statements that identify the AFE (authority for expenditure), lease or facility, and all
55 charges and credits summarized by appropriate categories of investment and expense. Controllable Material shall be separately identified
56 and fully described in detail, or at the Operator’s option, Controllable Material may be summarized by major Material classifications.
57 Intangible drilling costs, audit adjustments, and unusual charges and credits shall be separately and clearly identified.
58

59 The Operator may make available to Non-Operators any statements and bills required under Section 1.2 and/or Section 1.3.A (*Advances
60 and Payments by the Parties*) via email, electronic data interchange, internet websites or other equivalent electronic media in lieu of paper
61 copies. The Operator shall provide the Non-Operators instructions and any necessary information to access and receive the statements and
62 bills within the timeframes specified herein. A statement or billing shall be deemed as delivered twenty-four (24) hours (exclusive of
63 weekends and holidays) after the Operator notifies the Non-Operator that the statement or billing is available on the website and/or sent via
64 email or electronic data interchange transmission. Each Non-Operator individually shall elect to receive statements and billings
65 electronically, if available from the Operator, or request paper copies. Such election may be changed upon thirty (30) days prior written
66 notice to the Operator.

1 **3. ADVANCES AND PAYMENTS BY THE PARTIES**

- 2
- 3 A. Unless otherwise provided for in the Agreement, the Operator may require the Non-Operators to advance their share of the estimated
- 4 cash outlay for the succeeding month's operations within fifteen (15) days after receipt of the advance request or by the first day of
- 5 the month for which the advance is required, whichever is later. The Operator shall adjust each monthly billing to reflect advances
- 6 received from the Non-Operators for such month. If a refund is due, the Operator shall apply the amount to be refunded to the
- 7 subsequent month's billing or advance, unless the Non-Operator sends the Operator a written request for a cash refund. The Operator
- 8 shall remit the refund to the Non-Operator within fifteen (15) days of receipt of such written request.
- 9
- 10 B. Except as provided below, each Party shall pay its proportionate share of all bills in full within fifteen (15) days of receipt date. If
- 11 payment is not made within such time, the unpaid balance shall bear interest compounded monthly at the prime rate published by the
- 12 *Wall Street Journal* on the first day of each month the payment is delinquent, plus three percent (3%), per annum, or the maximum
- 13 contract rate permitted by the applicable usury Laws governing the Joint Property, whichever is the lesser, plus attorney's fees, court
- 14 costs, and other costs in connection with the collection of unpaid amounts. If the *Wall Street Journal* ceases to be published or
- 15 discontinues publishing a prime rate, the unpaid balance shall bear interest compounded monthly at the prime rate published by the
- 16 Federal Reserve plus three percent (3%), per annum. Interest shall begin accruing on the first day of the month in which the payment
- 17 was due. Payment shall not be reduced or delayed as a result of inquiries or anticipated credits unless the Operator has agreed.
- 18 Notwithstanding the foregoing, the Non-Operator may reduce payment, provided it furnishes documentation and explanation to the
- 19 Operator at the time payment is made, to the extent such reduction is caused by:
- 20
- 21 (1) being billed at an incorrect working interest or Participating Interest that is higher than such Non-Operator's actual working
- 22 interest or Participating Interest, as applicable; or
- 23 (2) being billed for a project or AFE requiring approval of the Parties under the Agreement that the Non-Operator has not approved
- 24 or is not otherwise obligated to pay under the Agreement; or
- 25 (3) being billed for a property in which the Non-Operator no longer owns a working interest, provided the Non-Operator has
- 26 furnished the Operator a copy of the recorded assignment or letter in-lieu. Notwithstanding the foregoing, the Non-Operator
- 27 shall remain responsible for paying bills attributable to the interest it sold or transferred for any bills rendered during the thirty
- 28 (30) day period following the Operator's receipt of such written notice; or
- 29 (4) charges outside the adjustment period, as provided in Section I.4 (*Adjustments*).

30 **4. ADJUSTMENTS**

- 31
- 32
- 33 A. Payment of any such bills shall not prejudice the right of any Party to protest or question the correctness thereof; however, all bills
- 34 and statements, including payout statements, rendered during any calendar year shall conclusively be presumed to be true and correct,
- 35 with respect only to expenditures, after twenty-four (24) months following the end of any such calendar year, unless within said
- 36 period a Party takes specific detailed written exception thereto making a claim for adjustment. The Operator shall provide a response
- 37 to all written exceptions, whether or not contained in an audit report, within the time periods prescribed in Section I.5 (*Expenditure*
- 38 *Audits*).
- 39
- 40 B. All adjustments initiated by the Operator, except those described in items (1) through (4) of this Section I.4.B, are limited to the
- 41 twenty-four (24) month period following the end of the calendar year in which the original charge appeared or should have appeared
- 42 on the Operator's Joint Account statement or payout statement. Adjustments that may be made beyond the twenty-four (24) month
- 43 period are limited to adjustments resulting from the following:
- 44
- 45 (1) a physical inventory of Controllable Material as provided for in Section V (*Inventories of Controllable Material*), or
- 46 (2) an offsetting entry (whether in whole or in part) that is the direct result of a specific joint interest audit exception granted by the
- 47 Operator relating to another property, or
- 48 (3) a government/regulatory audit, or
- 49 (4) a working interest ownership or Participating Interest adjustment.

50 **5. EXPENDITURE AUDITS**

- 51
- 52
- 53 A. A Non-Operator, upon written notice to the Operator and all other Non-Operators, shall have the right to audit the Operator's
- 54 accounts and records relating to the Joint Account within the twenty-four (24) month period following the end of such calendar year in
- 55 which such bill was rendered; however, conducting an audit shall not extend the time for the taking of written exception to and the
- 56 adjustment of accounts as provided for in Section I.4 (*Adjustments*). Any Party that is subject to payout accounting under the
- 57 Agreement shall have the right to audit the accounts and records of the Party responsible for preparing the payout statements, or of
- 58 the Party furnishing information to the Party responsible for preparing payout statements. Audits of payout accounts may include the
- 59 volumes of hydrocarbons produced and saved and proceeds received for such hydrocarbons as they pertain to payout accounting
- 60 required under the Agreement. Unless otherwise provided in the Agreement, audits of a payout account shall be conducted within the
- 61 twenty-four (24) month period following the end of the calendar year in which the payout statement was rendered.

62

63 Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct a joint audit in a

64 manner that will result in a minimum of inconvenience to the Operator. The Operator shall bear no portion of the Non-Operators'

65 audit cost incurred under this paragraph unless agreed to by the Operator. The audits shall not be conducted more than once each year

66 without prior approval of the Operator, except upon the resignation or removal of the Operator, and shall be made at the expense of

1 those Non-Operators approving such audit.

2
3 The Non-Operator leading the audit (hereinafter "lead audit company") shall issue the audit report within ninety (90) days after
4 completion of the audit testing and analysis; however, the ninety (90) day time period shall not extend the twenty-four (24) month
5 requirement for taking specific detailed written exception as required in Section I.4.A (*Adjustments*) above. All claims shall be
6 supported with sufficient documentation.

7
8 A timely filed written exception or audit report containing written exceptions (hereinafter "written exceptions") shall, with respect to
9 the claims made therein, preclude the Operator from asserting a statute of limitations defense against such claims, and the Operator
10 hereby waives its right to assert any statute of limitations defense against such claims for so long as any Non-Operator continues to
11 comply with the deadlines for resolving exceptions provided in this Accounting Procedure. If the Non-Operators fail to comply with
12 the additional deadlines in Section I.5.B or I.5.C, the Operator's waiver of its rights to assert a statute of limitations defense against
13 the claims brought by the Non-Operators shall lapse, and such claims shall then be subject to the applicable statute of limitations,
14 provided that such waiver shall not lapse in the event that the Operator has failed to comply with the deadlines in Section I.5.B or
15 I.5.C.

16
17 B. The Operator shall provide a written response to all exceptions in an audit report within one hundred eighty (180) days after Operator
18 receives such report. Denied exceptions should be accompanied by a substantive response. If the Operator fails to provide substantive
19 response to an exception within this one hundred eighty (180) day period, the Operator will owe interest on that exception or portion
20 thereof, if ultimately granted, from the date it received the audit report. Interest shall be calculated using the rate set forth in Section
21 I.3.B (*Advances and Payments by the Parties*).

22
23 C. The lead audit company shall reply to the Operator's response to an audit report within ninety (90) days of receipt, and the Operator
24 shall reply to the lead audit company's follow-up response within ninety (90) days of receipt, provided, however, each Non-Operator
25 shall have the right to represent itself if it disagrees with the lead audit company's position or believes the lead audit company is not
26 adequately fulfilling its duties. Unless otherwise provided for in Section I.5.E, if the Operator fails to provide substantive response
27 to an exception within this ninety (90) day period, the Operator will owe interest on that exception or portion thereof, if ultimately
28 granted, from the date it received the audit report. Interest shall be calculated using the rate set forth in Section I.3.B (*Advances and
29 Payments by the Parties*).

30
31 D. If any Party fails to meet the deadlines in Sections I.5.B or I.5.C or if any audit issues are outstanding fifteen (15) months after
32 Operator receives the audit report, the Operator or any Non-Operator participating in the audit has the right to call a resolution
33 meeting, as set forth in this Section I.5.D or it may invoke the dispute resolution procedures included in the Agreement, if applicable.
34 The meeting will require one month's written notice to the Operator and all Non-Operators participating in the audit. The meeting
35 shall be held at the Operator's office or mutually agreed location, and shall be attended by representatives of the Parties with
36 authority to resolve such outstanding issues. Any Party who fails to attend the resolution meeting shall be bound by any resolution
37 reached at the meeting. The lead audit company will make good faith efforts to coordinate the response and positions of the
38 Non-Operator participants throughout the resolution process; however, each Non-Operator shall have the right to represent itself.
39 Attendees will make good faith efforts to resolve outstanding issues, and each Party will be required to present substantive information
40 supporting its position. A resolution meeting may be held as often as agreed to by the Parties. Issues unresolved at one meeting may
41 be discussed at subsequent meetings until each such issue is resolved.

42
43 If the Agreement contains no dispute resolution procedures and the audit issues cannot be resolved by negotiation, the dispute shall
44 be submitted to mediation. In such event, promptly following one Party's written request for mediation, the Parties to the dispute
45 shall choose a mutually acceptable mediator and share the costs of mediation services equally. The Parties shall each have present
46 at the mediation at least one individual who has the authority to settle the dispute. The Parties shall make reasonable efforts to
47 ensure that the mediation commences within sixty (60) days of the date of the mediation request. Notwithstanding the above, any
48 Party may file a lawsuit or complaint (1) if the Parties are unable after reasonable efforts, to commence mediation within sixty (60)
49 days of the date of the mediation request, (2) for statute of limitations reasons, or (3) to seek a preliminary injunction or other
50 provisional judicial relief, if in its sole judgment an injunction or other provisional relief is necessary to avoid irreparable damage or
51 to preserve the status quo. Despite such action, the Parties shall continue to try to resolve the dispute by mediation.

52
53 E. (*Optional Provision – Forfeiture Penalties*)

54 *If the Non-Operators fail to meet the deadline in Section I.5.C, any unresolved exceptions that were not addressed by the Non-*
55 *Operators within one (1) year following receipt of the last substantive response of the Operator shall be deemed to have been*
56 *withdrawn by the Non-Operators. If the Operator fails to meet the deadlines in Section I.5.B or I.5.C, any unresolved exceptions that*
57 *were not addressed by the Operator within one (1) year following receipt of the audit report or receipt of the last substantive response*
58 *of the Non-Operators, whichever is later, shall be deemed to have been granted by the Operator and adjustments shall be made,*
59 *without interest, to the Joint Account.*

60
61 **6. APPROVAL BY PARTIES**

62
63 **A. GENERAL MATTERS**

64
65 Where an approval or other agreement of the Parties or Non-Operators is expressly required under other Sections of this Accounting
66 Procedure and if the Agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, the

1 Operator shall notify all Non-Operators of the Operator's proposal and the agreement or approval of a majority in interest of the
2 Non-Operators shall be controlling on all Non-Operators.

3
4 This Section I.6.A applies to specific situations of limited duration where a Party proposes to change the accounting for charges from
5 that prescribed in this Accounting Procedure. This provision does not apply to amendments to this Accounting Procedure, which are
6 covered by Section I.6.B.

7
8 **B. AMENDMENTS**

9
10 If the Agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, this Accounting
11 Procedure can be amended by an affirmative vote of two (2) or more Parties, one of which is the Operator,
12 having a combined working interest of at least fifty percent (50 %), which approval shall be binding on all Parties,
13 provided, however, approval of at least one (1) Non-Operator shall be required.

14
15 **C. AFFILIATES**

16
17 For the purpose of administering the voting procedures of Sections I.6.A and I.6.B, if Parties to this Agreement are Affiliates of each
18 other, then such Affiliates shall be combined and treated as a single Party having the combined working interest or Participating
19 Interest of such Affiliates.

20
21 For the purposes of administering the voting procedures in Section I.6.A, if a Non-Operator is an Affiliate of the Operator, votes
22 under Section I.6.A shall require the majority in interest of the Non-Operator(s) after excluding the interest of the Operator's
23 Affiliate.

24
25 **II. DIRECT CHARGES**

26
27 The Operator shall charge the Joint Account with the following items:

28
29 **1. RENTALS AND ROYALTIES**

30
31 Lease rentals and royalties paid by the Operator, on behalf of all Parties, for the Joint Operations.

32
33 **2. LABOR**

34
35 **A. Salaries and wages, including incentive compensation programs as set forth in COPAS MFI-37 ("Chargeability of Incentive
36 Compensation Programs"), for:**

- 37
38 (1) Operator's field employees directly employed On-site in the conduct of Joint Operations,
39
40 (2) Operator's employees directly employed on Shore Base Facilities, Offshore Facilities, or other facilities serving the Joint
41 Property if such costs are not charged under Section II.6 (*Equipment and Facilities Furnished by Operator*) or are not a
42 function covered under Section III (*Overhead*),
43
44 (3) Operator's employees providing First Level Supervision,
45
46 (4) Operator's employees providing On-site Technical Services for the Joint Property if such charges are excluded from the
47 overhead rates in Section III (*Overhead*),
48
49 (5) Operator's employees providing Off-site Technical Services for the Joint Property if such charges are excluded from the
50 overhead rates in Section III (*Overhead*).

51
52 Charges for the Operator's employees identified in Section II.2.A may be made based on the employee's actual salaries and wages,
53 or in lieu thereof, a day rate representing the Operator's average salaries and wages of the employee's specific job category.

54
55 Charges for personnel chargeable under this Section II.2.A who are foreign nationals shall not exceed comparable compensation paid
56 to an equivalent U.S. employee pursuant to this Section II.2, unless otherwise approved by the Parties pursuant to Section
57 I.6.A (*General Matters*).

58
59 **B. Operator's cost of holiday, vacation, sickness, and disability benefits, and other customary allowances paid to employees whose
60 salaries and wages are chargeable to the Joint Account under Section II.2.A, excluding severance payments or other termination
61 allowances. Such costs under this Section II.2.B may be charged on a "when and as-paid basis" or by "percentage assessment" on the
62 amount of salaries and wages chargeable to the Joint Account under Section II.2.A. If percentage assessment is used, the rate shall
63 be based on the Operator's cost experience.**

64
65 **C. Expenditures or contributions made pursuant to assessments imposed by governmental authority that are applicable to costs
66 chargeable to the Joint Account under Sections II.2.A and B.**

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- D. Personal Expenses of personnel whose salaries and wages are chargeable to the Joint Account under Section II.2.A when the expenses are incurred in connection with directly chargeable activities.
- E. Reasonable relocation costs incurred in transferring to the Joint Property personnel whose salaries and wages are chargeable to the Joint Account under Section II.2.A. Notwithstanding the foregoing, relocation costs that result from reorganization or merger of a Party, or that are for the primary benefit of the Operator, shall not be chargeable to the Joint Account. Extraordinary relocation costs, such as those incurred as a result of transfers from remote locations, such as Alaska or overseas, shall not be charged to the Joint Account unless approved by the Parties pursuant to Section I.6.A (*General Matters*).
- F. Training costs as specified in COPAS MFI-35 ("Charging of Training Costs to the Joint Account") for personnel whose salaries and wages are chargeable under Section II.2.A. This training charge shall include the wages, salaries, training course cost, and Personal Expenses incurred during the training session. The training cost shall be charged or allocated to the property or properties directly benefiting from the training. The cost of the training course shall not exceed prevailing commercial rates, where such rates are available.
- G. Operator's current cost of established plans for employee benefits, as described in COPAS MFI-27 ("Employee Benefits Chargeable to Joint Operations and Subject to Percentage Limitation"), applicable to the Operator's labor costs chargeable to the Joint Account under Sections II.2.A and B based on the Operator's actual cost not to exceed the employee benefits limitation percentage most recently recommended by COPAS.
- H. Award payments to employees, in accordance with COPAS MFI-49 ("Awards to Employees and Contractors") for personnel whose salaries and wages are chargeable under Section II.2.A.

3. MATERIAL

Material purchased or furnished by the Operator for use on the Joint Property in the conduct of Joint Operations as provided under Section IV (*Material Purchases, Transfers, and Dispositions*). Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use or is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

4. TRANSPORTATION

- A. Transportation of the Operator's, Operator's Affiliate's, or contractor's personnel necessary for Joint Operations.
- B. Transportation of Material between the Joint Property and another property, or from the Operator's warehouse or other storage point to the Joint Property, shall be charged to the receiving property using one of the methods listed below. Transportation of Material from the Joint Property to the Operator's warehouse or other storage point shall be paid for by the Joint Property using one of the methods listed below:
 - (1) If the actual trucking charge is less than or equal to the Excluded Amount the Operator may charge actual trucking cost or a theoretical charge from the Railway Receiving Point to the Joint Property. The basis for the theoretical charge is the per hundred weight charge plus fuel surcharges from the Railway Receiving Point to the Joint Property. The Operator shall consistently apply the selected alternative.
 - (2) If the actual trucking charge is greater than the Excluded Amount, the Operator shall charge Equalized Freight. Accessorial charges such as loading and unloading costs, split pick-up costs, detention, call out charges, and permit fees shall be charged directly to the Joint Property and shall not be included when calculating the Equalized Freight.

5. SERVICES

The cost of contract services, equipment, and utilities used in the conduct of Joint Operations, except for contract services, equipment, and utilities covered by Section III (*Overhead*), or Section II.7 (*Affiliates*), or excluded under Section II.9 (*Legal Expense*). Awards paid to contractors shall be chargeable pursuant to COPAS MFI-49 ("Awards to Employees and Contractors").

The costs of third party Technical Services are chargeable to the extent excluded from the overhead rates under Section III (*Overhead*).

6. EQUIPMENT AND FACILITIES FURNISHED BY OPERATOR

In the absence of a separately negotiated agreement, equipment and facilities furnished by the Operator will be charged as follows:

- A. The Operator shall charge the Joint Account for use of Operator-owned equipment and facilities, including but not limited to production facilities, Shore Base Facilities, Offshore Facilities, and Field Offices, at rates commensurate with the costs of ownership and operation. The cost of Field Offices shall be chargeable to the extent the Field Offices provide direct service to personnel who are chargeable pursuant to Section II.2.A (*Labor*). Such rates may include labor, maintenance, repairs, other operating expense, insurance, taxes, depreciation using straight line depreciation method, and interest on gross investment less accumulated depreciation not to exceed twelve percent (12 %) per annum; provided, however, depreciation shall not be charged when the

1 equipment and facilities investment have been fully depreciated. The rate may include an element of the estimated cost for
2 abandonment, reclamation, and dismantlement. Such rates shall not exceed the average commercial rates currently prevailing in the
3 immediate area of the Joint Property.

- 4
5 B. In lieu of charges in Section II.6.A above, the Operator may elect to use average commercial rates prevailing in the immediate area
6 of the Joint Property, less twenty percent (20%). If equipment and facilities are charged under this Section II.6.B, the Operator shall
7 adequately document and support commercial rates and shall periodically review and update the rate and the supporting
8 documentation. For automotive equipment, the Operator may elect to use rates published by the Petroleum Motor Transport
9 Association (PMTA) or such other organization recognized by COPAS as the official source of rates.

10 **7. AFFILIATES**

- 11
12 A. Charges for an Affiliate's goods and/or services used in operations requiring an AFE or other authorization from the Non-Operators
13 may be made without the approval of the Parties provided (i) the Affiliate is identified and the Affiliate goods and services are
14 specifically detailed in the approved AFE or other authorization, and (ii) the total costs for such Affiliate's goods and services billed
15 to such individual project do not exceed \$ 100,000.00. If the total costs for an Affiliate's goods and services charged to such
16 individual project are not specifically detailed in the approved AFE or authorization or exceed such amount, charges for such
17 Affiliate shall require approval of the Parties, pursuant to Section I.6.A (*General Matters*).
18
19 B. For an Affiliate's goods and/or services used in operations not requiring an AFE or other authorization from the Non-Operators,
20 charges for such Affiliate's goods and services shall require approval of the Parties, pursuant to Section I.6.A (*General Matters*), if the
21 charges exceed \$ 50,000.00 in a given calendar year.
22
23 C. The cost of the Affiliate's goods or services shall not exceed average commercial rates prevailing in the area of the Joint Property,
24 unless the Operator obtains the Non-Operators' approval of such rates. The Operator shall adequately document and support
25 commercial rates and shall periodically review and update the rate and the supporting documentation; provided, however,
26 documentation of commercial rates shall not be required if the Operator obtains Non-Operator approval of its Affiliate's rates or
27 charges prior to billing Non-Operators for such Affiliate's goods and services. Notwithstanding the foregoing, direct charges for
28 Affiliate-owned communication facilities or systems shall be made pursuant to Section II.12 (*Communications*).
29

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31 If the Parties fail to designate an amount in Sections II.7.A or II.7.B, in each instance the amount deemed adopted by the Parties as a
32 result of such omission shall be the amount established as the Operator's expenditure limitation in the Agreement. If the Agreement
33 does not contain an Operator's expenditure limitation, the amount deemed adopted by the Parties as a result of such omission shall be
34 zero dollars (\$ 0.00).

35 **8. DAMAGES AND LOSSES TO JOINT PROPERTY**

36
37 All costs or expenses necessary for the repair or replacement of Joint Property resulting from damages or losses incurred, except to the
38 extent such damages or losses result from a Party's or Parties' gross negligence or willful misconduct, in which case such Party or Parties
39 shall be solely liable.
40

41
42 The Operator shall furnish the Non-Operator written notice of damages or losses incurred as soon as practicable after a report has been
43 received by the Operator.

44 **9. LEGAL EXPENSE**

45
46 Recording fees and costs of handling, settling, or otherwise discharging litigation, claims, and liens incurred in or resulting from
47 operations under the Agreement, or necessary to protect or recover the Joint Property, to the extent permitted under the Agreement. Costs
48 of the Operator's or Affiliate's legal staff or outside attorneys, including fees and expenses, are not chargeable unless approved by the
49 Parties pursuant to Section I.6.A (*General Matters*) or otherwise provided for in the Agreement.
50

51
52 Notwithstanding the foregoing paragraph, costs for procuring abstracts, fees paid to outside attorneys for title examinations (including
53 preliminary, supplemental, shut-in royalty opinions, division order title opinions), and curative work shall be chargeable to the extent
54 permitted as a direct charge in the Agreement.
55

56 **10. TAXES AND PERMITS**

57
58 All taxes and permitting fees of every kind and nature, assessed or levied upon or in connection with the Joint Property, or the production
59 therefrom, and which have been paid by the Operator for the benefit of the Parties, including penalties and interest, except to the extent the
60 penalties and interest result from the Operator's gross negligence or willful misconduct.
61

62
63 If ad valorem taxes paid by the Operator are based in whole or in part upon separate valuations of each Party's working interest, then
64 notwithstanding any contrary provisions, the charges to the Parties will be made in accordance with the tax value generated by each Party's
65 working interest.
66

1 Costs of tax consultants or advisors, the Operator's employees, or Operator's Affiliate employees in matters regarding ad valorem or other
2 tax matters, are not permitted as direct charges unless approved by the Parties pursuant to Section I.6.A (*General Matters*).

3
4 Charges to the Joint Account resulting from sales/use tax audits, including extrapolated amounts and penalties and interest, are permitted,
5 provided the Non-Operator shall be allowed to review the invoices and other underlying source documents which served as the basis for
6 tax charges and to determine that the correct amount of taxes were charged to the Joint Account. If the Non-Operator is not permitted to
7 review such documentation, the sales/use tax amount shall not be directly charged unless the Operator can conclusively document the
8 amount owed by the Joint Account.

9
10 **11. INSURANCE**

11 Net premiums paid for insurance required to be carried for Joint Operations for the protection of the Parties. If Joint Operations are
12 conducted at locations where the Operator acts as self-insurer in regard to its worker's compensation and employer's liability insurance
13 obligation, the Operator shall charge the Joint Account manual rates for the risk assumed in its self-insurance program as regulated by the
14 jurisdiction governing the Joint Property. In the case of offshore operations in federal waters, the manual rates of the adjacent state shall be
15 used for personnel performing work On-site, and such rates shall be adjusted for offshore operations by the U.S. Longshoreman and
16 Harbor Workers (USL&H) or Jones Act surcharge, as appropriate.

17
18 **12. COMMUNICATIONS**

19
20 Costs of acquiring, leasing, installing, operating, repairing, and maintaining communication facilities or systems, including satellite, radio
21 and microwave facilities, between the Joint Property and the Operator's office(s) directly responsible for field operations in accordance
22 with the provisions of COPAS MFI-44 ("Field Computer and Communication Systems"). If the communications facilities or systems
23 serving the Joint Property are Operator-owned, charges to the Joint Account shall be made as provided in Section II.6 (*Equipment and*
24 *Facilities Furnished by Operator*). If the communication facilities or systems serving the Joint Property are owned by the Operator's
25 Affiliate, charges to the Joint Account shall not exceed average commercial rates prevailing in the area of the Joint Property. The Operator
26 shall adequately document and support commercial rates and shall periodically review and update the rate and the supporting
27 documentation.

28
29 **13. ECOLOGICAL, ENVIRONMENTAL, AND SAFETY**

30
31 Costs incurred for Technical Services and drafting to comply with ecological, environmental and safety Laws or standards recommended by
32 Occupational Safety and Health Administration (OSHA) or other regulatory authorities. All other labor and functions incurred for
33 ecological, environmental and safety matters, including management, administration, and permitting, shall be covered by Sections II.2
34 (*Labor*), II.5 (*Services*), or Section III (*Overhead*), as applicable.

35
36 Costs to provide or have available pollution containment and removal equipment plus actual costs of control and cleanup and resulting
37 responsibilities of oil and other spills as well as discharges from permitted outfalls as required by applicable Laws, or other pollution
38 containment and removal equipment deemed appropriate by the Operator for prudent operations, are directly chargeable.

39
40 **14. ABANDONMENT AND RECLAMATION**

41
42 Costs incurred for abandonment and reclamation of the Joint Property, including costs required by lease agreements or by Laws.

43
44 **15. OTHER EXPENDITURES**

45
46 Any other expenditure not covered or dealt with in the foregoing provisions of this Section II (*Direct Charges*), or in Section III
47 (*Overhead*) and which is of direct benefit to the Joint Property and is incurred by the Operator in the necessary and proper conduct of the
48 Joint Operations. Charges made under this Section II.15 shall require approval of the Parties, pursuant to Section I.6.A (*General Matters*).

49
50
51 **III. OVERHEAD**

52
53 As compensation for costs not specifically identified as chargeable to the Joint Account pursuant to Section II (*Direct Charges*), the Operator
54 shall charge the Joint Account in accordance with this Section III.

55
56 Functions included in the overhead rates regardless of whether performed by the Operator, Operator's Affiliates or third parties and regardless
57 of location, shall include, but not be limited to, costs and expenses of:

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- warehousing, other than for warehouses that are jointly owned under this Agreement
 - design and drafting (except when allowed as a direct charge under Sections II.13, III.1.A(ii), and III.2, Option B)
 - inventory costs not chargeable under Section V (*Inventories of Controllable Material*)
 - procurement
 - administration
 - accounting and auditing
 - gas dispatching and gas chart integration

- human resources
- management
- supervision not directly charged under Section II.2 (*Labor*)
- legal services not directly chargeable under Section II.9 (*Legal Expense*)
- taxation, other than those costs identified as directly chargeable under Section II.10 (*Taxes and Permits*)
- preparation and monitoring of permits and certifications; preparing regulatory reports; appearances before or meetings with governmental agencies or other authorities having jurisdiction over the Joint Property, other than On-site inspections; reviewing, interpreting, or submitting comments on or lobbying with respect to Laws or proposed Laws.

Overhead charges shall include the salaries or wages plus applicable payroll burdens, benefits, and Personal Expenses of personnel performing overhead functions, as well as office and other related expenses of overhead functions.

1. OVERHEAD—DRILLING AND PRODUCING OPERATIONS

As compensation for costs incurred but not chargeable under Section II (*Direct Charges*) and not covered by other provisions of this Section III, the Operator shall charge on either:

- (Alternative 1) Fixed Rate Basis, Section III.1.B.
-

A. TECHNICAL SERVICES

- (i) Except as otherwise provided in Section II.13 (*Ecological, Environmental, and Safety*) and Section III.2 (*Overhead – Major Construction and Catastrophe*), or by approval of the Parties pursuant to Section I.6.A (*General Matters*), the salaries, wages, related payroll burdens and benefits, and Personal Expenses for **On-site** Technical Services, including third party Technical Services:

- (Alternative 1 – Direct) shall be charged **direct** to the Joint Account.
-

- (ii) Except as otherwise provided in Section II.13 (*Ecological, Environmental, and Safety*) and Section III.2 (*Overhead – Major Construction and Catastrophe*), or by approval of the Parties pursuant to Section I.6.A (*General Matters*), the salaries, wages, related payroll burdens and benefits, and Personal Expenses for **Off-site** Technical Services, including third party Technical Services:

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-
- (Alternative 3 – Drilling Direct) shall be charged **direct** to the Joint Account, **only** to the extent such Technical Services are directly attributable to drilling, redrilling, deepening, or sidetracking operations, through completion, temporary abandonment, or abandonment if a dry hole. Off-site Technical Services for all other operations, including workover, recompletion, abandonment of producing wells, and the construction or expansion of fixed assets not covered by Section III.2 (*Overhead - Major Construction and Catastrophe*) shall be covered by the overhead rates.

Notwithstanding anything to the contrary in this Section III, Technical Services provided by Operator's Affiliates are subject to limitations set forth in Section II.7 (*Affiliates*). Charges for Technical personnel performing non-technical work shall not be governed by this Section III.1.A, but instead governed by other provisions of this Accounting Procedure relating to the type of work being performed.

B. OVERHEAD—FIXED RATE BASIS

- (1) The Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate per month \$11,000 _____ (prorated for less than a full month)

Producing Well Rate per month \$ 1,100 _____

- (2) Application of Overhead—Drilling Well Rate shall be as follows:

- (a) Charges for onshore drilling wells shall begin on the spud date and terminate on the date the drilling and/or completion equipment used on the well is released, whichever occurs later. Charges for offshore and inland waters drilling wells shall begin on the date the drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location, or is released, whichever occurs first. No charge shall be made during suspension of drilling and/or completion operations for fifteen (15) or more consecutive calendar days.

1 (b) Charges for any well undergoing any type of workover, recompletion, and/or abandonment for a period of five (5) or more
2 consecutive work-days shall be made at the Drilling Well Rate. Such charges shall be applied for the period from date
3 operations, with rig or other units used in operations, commence through date of rig or other unit release, except that no charges
4 shall be made during suspension of operations for fifteen (15) or more consecutive calendar days.

5 (3) Application of Overhead—Producing Well Rate shall be as follows:
6

7 (a) An active well that is produced, injected into for recovery or disposal, or used to obtain water supply to support operations for
8 any portion of the month shall be considered as a one-well charge for the entire month.
9

10 (b) Each active completion in a multi-completed well shall be considered as a one-well charge provided each completion is
11 considered a separate well by the governing regulatory authority.
12

13 (c) A one-well charge shall be made for the month in which plugging and abandonment operations are completed on any well,
14 unless the Drilling Well Rate applies, as provided in Sections III.1.B.(2)(a) or (b). This one-well charge shall be made whether
15 or not the well has produced.
16

17 (d) An active gas well shut in because of overproduction or failure of a purchaser, processor, or transporter to take production shall
18 be considered as a one-well charge provided the gas well is directly connected to a permanent sales outlet.
19

20 (e) Any well not meeting the criteria set forth in Sections III.1.B.(3) (a), (b), (c), or (d) shall not qualify for a producing overhead
21 charge.
22

23 (4) The well rates shall be adjusted on the first day of April each year following the effective date of the Agreement; provided,
24 however, if this Accounting Procedure is attached to or otherwise governing the payout accounting under a farmout agreement, the
25 rates shall be adjusted on the first day of April each year following the effective date of such farmout agreement. The adjustment
26 shall be computed by applying the adjustment factor most recently published by COPAS. The adjusted rates shall be the initial or
27 amended rates agreed to by the Parties increased or decreased by the adjustment factor described herein, for each year from the
28 effective date of such rates, in accordance with COPAS MFI-47 (“Adjustment of Overhead Rates”).
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43 **2. OVERHEAD—MAJOR CONSTRUCTION AND CATASTROPHE**
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45 To compensate the Operator for overhead costs incurred in connection with a Major Construction project or Catastrophe, the Operator
46 shall either negotiate a rate prior to the beginning of the project, or shall charge the Joint Account for overhead based on the following
47 rates for any Major Construction project in excess of the Operator’s expenditure limit under the Agreement, or for any Catastrophe
48 regardless of the amount. If the Agreement to which this Accounting Procedure is attached does not contain an expenditure limit, Major
49 Construction Overhead shall be assessed for any single Major Construction project costing in excess of \$100,000 gross.
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1 Major Construction shall mean the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly
2 discernible as a fixed asset required for the development and operation of the Joint Property, or in the dismantlement, abandonment,
3 removal, and restoration of platforms, production equipment, and other operating facilities.

4
5 Catastrophe is defined as a sudden calamitous event bringing damage, loss, or destruction to property or the environment, such as an oil
6 spill, blowout, explosion, fire, storm, hurricane, or other disaster. The overhead rate shall be applied to those costs necessary to restore the
7 Joint Property to the equivalent condition that existed prior to the event.

8
9 A. If the Operator absorbs the engineering, design and drafting costs related to the project:

10 (1) 4 % of total costs if such costs are less than \$100,000; plus

11
12 (2) 3 % of total costs in excess of \$100,000 but less than \$1,000,000; plus

13
14 (3) 2 % of total costs in excess of \$1,000,000.

15
16 B. If the Operator charges engineering, design and drafting costs related to the project directly to the Joint Account:

17 (1) 4 % of total costs if such costs are less than \$100,000; plus

18
19 (2) 3 % of total costs in excess of \$100,000 but less than \$1,000,000; plus

20
21 (3) 2 % of total costs in excess of \$1,000,000.

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23
24 Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single Major
25 Construction project shall not be treated separately, and the cost of drilling and workover wells and purchasing and installing pumping
26 units and downhole artificial lift equipment shall be excluded. For Catastrophes, the rates shall be applied to all costs associated with each
27 single occurrence or event.

28
29 On each project, the Operator shall advise the Non-Operator(s) in advance which of the above options shall apply.

30
31 For the purposes of calculating Catastrophe Overhead, the cost of drilling relief wells, substitute wells, or conducting other well operations
32 directly resulting from the catastrophic event shall be included. Expenditures to which these rates apply shall not be reduced by salvage or
33 insurance recoveries. Expenditures that qualify for Major Construction or Catastrophe Overhead shall not qualify for overhead under any
34 other overhead provisions.

35
36 In the event of any conflict between the provisions of this Section III.2 and the provisions of Sections II.2 (*Labor*), II.5 (*Services*), or II.7
37 (*Affiliates*), the provisions of this Section III.2 shall govern.

39 3. AMENDMENT OF OVERHEAD RATES

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41 The overhead rates provided for in this Section III may be amended from time to time if, in practice, the rates are found to be insufficient
42 or excessive, in accordance with the provisions of Section I.6.B (*Amendments*).

43 44 45 IV. MATERIAL PURCHASES, TRANSFERS, AND DISPOSITIONS

46
47 The Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for direct purchases, transfers, and
48 dispositions. The Operator shall provide all Material for use in the conduct of Joint Operations; however, Material may be supplied by the Non-
49 Operators, at the Operator's option. Material furnished by any Party shall be furnished without any express or implied warranties as to quality,
50 fitness for use, or any other matter.

51 1. DIRECT PURCHASES

52
53 Direct purchases shall be charged to the Joint Account at the price paid by the Operator after deduction of all discounts received. The
54 Operator shall make good faith efforts to take discounts offered by suppliers, but shall not be liable for failure to take discounts except to
55 the extent such failure was the result of the Operator's gross negligence or willful misconduct. A direct purchase shall be deemed to occur
56 when an agreement is made between an Operator and a third party for the acquisition of Material for a specific well site or location.
57 Material provided by the Operator under "vendor stocking programs," where the initial use is for a Joint Property and title of the Material
58 does not pass from the manufacturer, distributor, or agent until usage, is considered a direct purchase. If Material is found to be defective
59 or is returned to the manufacturer, distributor, or agent for any other reason, credit shall be passed to the Joint Account within sixty (60)
60 days after the Operator has received adjustment from the manufacturer, distributor, or agent.

2. TRANSFERS

A transfer is determined to occur when the Operator (i) furnishes Material from a storage facility or from another operated property, (ii) has assumed liability for the storage costs and changes in value, and (iii) has previously secured and held title to the transferred Material. Similarly, the removal of Material from the Joint Property to a storage facility or to another operated property is also considered a transfer; provided, however, Material that is moved from the Joint Property to a storage location for safe-keeping pending disposition may remain charged to the Joint Account and is not considered a transfer. Material shall be disposed of in accordance with Section IV.3 (*Disposition of Surplus*) and the Agreement to which this Accounting Procedure is attached.

A. PRICING

The value of Material transferred to/from the Joint Property should generally reflect the market value on the date of physical transfer. Regardless of the pricing method used, the Operator shall make available to the Non-Operators sufficient documentation to verify the Material valuation. When higher than specification grade or size tubulars are used in the conduct of Joint Operations, the Operator shall charge the Joint Account at the equivalent price for well design specification tubulars, unless such higher specification grade or sized tubulars are approved by the Parties pursuant to Section I.6.A (*General Matters*). Transfers of new Material will be priced using one of the following pricing methods; provided, however, the Operator shall use consistent pricing methods, and not alternate between methods for the purpose of choosing the method most favorable to the Operator for a specific transfer:

- (1) Using published prices in effect on date of movement as adjusted by the appropriate COPAS Historical Price Multiplier (HPM) or prices provided by the COPAS Computerized Equipment Pricing System (CEPS).
 - (a) For oil country tubulars and line pipe, the published price shall be based upon eastern mill carload base prices (Houston, Texas, for special end) adjusted as of date of movement, plus transportation cost as defined in Section IV.2.B (*Freight*).
 - (b) For other Material, the published price shall be the published list price in effect at date of movement, as listed by a Supply Store nearest the Joint Property where like Material is normally available, or point of manufacture plus transportation costs as defined in Section IV.2.B (*Freight*).
- (2) Based on a price quotation from a vendor that reflects a current realistic acquisition cost.
- (3) Based on the amount paid by the Operator for like Material in the vicinity of the Joint Property within the previous twelve (12) months from the date of physical transfer.
- (4) As agreed to by the Participating Parties for Material being transferred to the Joint Property, and by the Parties owning the Material for Material being transferred from the Joint Property.

B. FREIGHT

Transportation costs shall be added to the Material transfer price using the method prescribed by the COPAS Computerized Equipment Pricing System (CEPS). If not using CEPS, transportation costs shall be calculated as follows:

- (1) Transportation costs for oil country tubulars and line pipe shall be calculated using the distance from eastern mill to the Railway Receiving Point based on the carload weight basis as recommended by the COPAS MFI-38 ("Material Pricing Manual") and other COPAS MFIs in effect at the time of the transfer.
- (2) Transportation costs for special mill items shall be calculated from that mill's shipping point to the Railway Receiving Point. For transportation costs from other than eastern mills, the 30,000-pound interstate truck rate shall be used. Transportation costs for macaroni tubing shall be calculated based on the interstate truck rate per weight of tubing transferred to the Railway Receiving Point.
- (3) Transportation costs for special end tubular goods shall be calculated using the interstate truck rate from Houston, Texas, to the Railway Receiving Point.
- (4) Transportation costs for Material other than that described in Sections IV.2.B.(1) through (3), shall be calculated from the Supply Store or point of manufacture, whichever is appropriate, to the Railway Receiving Point.

Regardless of whether using CEPS or manually calculating transportation costs, transportation costs from the Railway Receiving Point to the Joint Property are in addition to the foregoing, and may be charged to the Joint Account based on actual costs incurred. All transportation costs are subject to Equalized Freight as provided in Section II.4 (*Transportation*) of this Accounting Procedure.

C. TAXES

Sales and use taxes shall be added to the Material transfer price using either the method contained in the COPAS Computerized Equipment Pricing System (CEPS) or the applicable tax rate in effect for the Joint Property at the time and place of transfer. In either case, the Joint Account shall be charged or credited at the rate that would have governed had the Material been a direct purchase.

D. CONDITION

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2
3 (1) Condition "A" – New and unused Material in sound and serviceable condition shall be charged at one hundred percent (100%)
4 of the price as determined in Sections IV.2.A (*Pricing*), IV.2.B (*Freight*), and IV.2.C (*Taxes*). Material transferred from the
5 Joint Property that was not placed in service shall be credited as charged without gain or loss; provided, however, any unused
6 Material that was charged to the Joint Account through a direct purchase will be credited to the Joint Account at the original
7 cost paid less restocking fees charged by the vendor. New and unused Material transferred from the Joint Property may be
8 credited at a price other than the price originally charged to the Joint Account provided such price is approved by the Parties
9 owning such Material, pursuant to Section I.6.A (*General Matters*). All refurbishing costs required or necessary to return the
10 Material to original condition or to correct handling, transportation, or other damages will be borne by the divesting property.
11 The Joint Account is responsible for Material preparation, handling, and transportation costs for new and unused Material
12 charged to the Joint Property either through a direct purchase or transfer. Any preparation costs incurred, including any internal
13 or external coating and wrapping, will be credited on new Material provided these services were not repeated for such Material
14 for the receiving property.

15
16 (2) Condition "B" – Used Material in sound and serviceable condition and suitable for reuse without reconditioning shall be priced
17 by multiplying the price determined in Sections IV.2.A (*Pricing*), IV.2.B (*Freight*), and IV.2.C (*Taxes*) by seventy-five percent
18 (75%).

19
20 Except as provided in Section IV.2.D(3), all reconditioning costs required to return the Material to Condition "B" or to correct
21 handling, transportation or other damages will be borne by the divesting property.

22
23 If the Material was originally charged to the Joint Account as used Material and placed in service for the Joint Property, the
24 Material will be credited at the price determined in Sections IV.2.A (*Pricing*), IV.2.B (*Freight*), and IV.2.C (*Taxes*) multiplied
25 by sixty-five percent (65%).

26
27 Unless otherwise agreed to by the Parties that paid for such Material, used Material transferred from the Joint Property that was
28 not placed in service on the property shall be credited as charged without gain or loss.

29
30 (3) Condition "C" – Material that is not in sound and serviceable condition and not suitable for its original function until after
31 reconditioning shall be priced by multiplying the price determined in Sections IV.2.A (*Pricing*), IV.2.B (*Freight*), and IV.2.C
32 (*Taxes*) by fifty percent (50%).

33
34 The cost of reconditioning may be charged to the receiving property to the extent Condition "C" value, plus cost of
35 reconditioning, does not exceed Condition "B" value.

36
37 (4) Condition "D" – Material that (i) is no longer suitable for its original purpose but useable for some other purpose, (ii) is
38 obsolete, or (iii) does not meet original specifications but still has value and can be used in other applications as a substitute for
39 items with different specifications, is considered Condition "D" Material. Casing, tubing, or drill pipe used as line pipe shall be
40 priced as Grade A and B seamless line pipe of comparable size and weight. Used casing, tubing, or drill pipe utilized as line
41 pipe shall be priced at used line pipe prices. Casing, tubing, or drill pipe used as higher pressure service lines than standard line
42 pipe, e.g., power oil lines, shall be priced under normal pricing procedures for casing, tubing, or drill pipe. Upset tubular goods
43 shall be priced on a non-upset basis. For other items, the price used should result in the Joint Account being charged or credited
44 with the value of the service rendered or use of the Material, or as agreed to by the Parties pursuant to Section 1.6.A (*General*
45 *Matters*).

46
47 (5) Condition "E" – Junk shall be priced at prevailing scrap value prices.

E. OTHER PRICING PROVISIONS

(1) Preparation Costs

48
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50
51
52 Subject to Section II (*Direct Charges*) and Section III (*Overhead*) of this Accounting Procedure, costs incurred by the Operator
53 in making Material serviceable including inspection, third party surveillance services, and other similar services will be charged
54 to the Joint Account at prices which reflect the Operator's actual costs of the services. Documentation must be provided to the
55 Non-Operators upon request to support the cost of service. New coating and/or wrapping shall be considered a component of
56 the Materials and priced in accordance with Sections IV.1 (*Direct Purchases*) or IV.2.A (*Pricing*), as applicable. No charges or
57 credits shall be made for used coating or wrapping. Charges and credits for inspections shall be made in accordance with
58 COPAS MFI-38 ("Material Pricing Manual").

(2) Loading and Unloading Costs

59
60
61
62 Loading and unloading costs related to the movement of the Material to the Joint Property shall be charged in accordance with
63 the methods specified in COPAS MFI-38 ("Material Pricing Manual").
64
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66

1 **3. DISPOSITION OF SURPLUS**

2 Surplus Material is that Material, whether new or used, that is no longer required for Joint Operations. The Operator may purchase, but
3 shall be under no obligation to purchase, the interest of the Non-Operators in surplus Material.
4

5 Dispositions for the purpose of this procedure are considered to be the relinquishment of title of the Material from the Joint Property to
6 either a third party, a Non-Operator, or to the Operator. To avoid the accumulation of surplus Material, the Operator should make good
7 faith efforts to dispose of surplus within twelve (12) months through buy/sale agreements, trade, sale to a third party, division in kind, or
8 other dispositions as agreed to by the Parties.
9

10 Disposal of surplus Materials shall be made in accordance with the terms of the Agreement to which this Accounting Procedure is
11 attached. If the Agreement contains no provisions governing disposal of surplus Material, the following terms shall apply:
12

- 13 • The Operator may, through a sale to an unrelated third party or entity, dispose of surplus Material having a gross sale value that
14 is less than or equal to the Operator's expenditure limit as set forth in the Agreement to which this Accounting Procedure is
15 attached without the prior approval of the Parties owning such Material.
16
- 17 • If the gross sale value exceeds the Agreement expenditure limit, the disposal must be agreed to by the Parties owning such
18 Material.
19
- 20 • Operator may purchase surplus Condition "A" or "B" Material without approval of the Parties owning such Material, based on
21 the pricing methods set forth in Section IV.2 (*Transfers*).
22
- 23 • Operator may purchase Condition "C" Material without prior approval of the Parties owning such Material if the value of the
24 Materials, based on the pricing methods set forth in Section IV.2 (*Transfers*), is less than or equal to the Operator's expenditure
25 limitation set forth in the Agreement. The Operator shall provide documentation supporting the classification of the Material as
26 Condition C.
27
- 28 • Operator may dispose of Condition "D" or "E" Material under procedures normally utilized by Operator without prior approval
29 of the Parties owning such Material.
30

31 **4. SPECIAL PRICING PROVISIONS**

32 **A. PREMIUM PRICING**

33 Whenever Material is available only at inflated prices due to national emergencies, strikes, government imposed foreign trade
34 restrictions, or other unusual causes over which the Operator has no control, for direct purchase the Operator may charge the Joint
35 Account for the required Material at the Operator's actual cost incurred in providing such Material, making it suitable for use, and
36 moving it to the Joint Property. Material transferred or disposed of during premium pricing situations shall be valued in accordance
37 with Section IV.2 (*Transfers*) or Section IV.3 (*Disposition of Surplus*), as applicable.
38
39
40

41 **B. SHOP-MADE ITEMS**

42 Items fabricated by the Operator's employees, or by contract laborers under the direction of the Operator, shall be priced using the
43 value of the Material used to construct the item plus the cost of labor to fabricate the item. If the Material is from the Operator's
44 scrap or junk account, the Material shall be priced at either twenty-five percent (25%) of the current price as determined in Section
45 IV.2.A (*Pricing*) or scrap value, whichever is higher. In no event shall the amount charged exceed the value of the item
46 commensurate with its use.
47
48

49 **C. MILL REJECTS**

50 Mill rejects purchased as "limited service" casing or tubing shall be priced at eighty percent (80%) of K-55/J-55 price as determined in
51 Section IV.2 (*Transfers*). Line pipe converted to casing or tubing with casing or tubing couplings attached shall be priced as K-55/J-
52 55 casing or tubing at the nearest size and weight.
53
54

55 **V. INVENTORIES OF CONTROLLABLE MATERIAL**

56 The Operator shall maintain records of Controllable Material charged to the Joint Account, with sufficient detail to perform physical inventories.
57
58

59 Adjustments to the Joint Account by the Operator resulting from a physical inventory of Controllable Material shall be made within twelve (12)
60 months following the taking of the inventory or receipt of Non-Operator inventory report. Charges and credits for overages or shortages will be
61 valued for the Joint Account in accordance with Section IV.2 (*Transfers*) and shall be based on the Condition "B" prices in effect on the date of
62 physical inventory unless the inventorying Parties can provide sufficient evidence another Material condition applies.
63
64
65
66

1 **1. DIRECTED INVENTORIES**

2
3 Physical inventories shall be performed by the Operator upon written request of a majority in working interests of the Non-Operators
4 (hereinafter, "directed inventory"); provided, however, the Operator shall not be required to perform directed inventories more frequently
5 than once every five (5) years. Directed inventories shall be commenced within one hundred eighty (180) days after the Operator receives
6 written notice that a majority in interest of the Non-Operators has requested the inventory. All Parties shall be governed by the results of
7 any directed inventory.

8
9 Expenses of directed inventories will be borne by the Joint Account; provided, however, costs associated with any post-report follow-up
10 work in settling the inventory will be absorbed by the Party incurring such costs. The Operator is expected to exercise judgment in keeping
11 expenses within reasonable limits. Any anticipated disproportionate or extraordinary costs should be discussed and agreed upon prior to
12 commencement of the inventory. Expenses of directed inventories may include the following:

- 13
14 A. A per diem rate for each inventory person, representative of actual salaries, wages, and payroll burdens and benefits of the personnel
15 performing the inventory or a rate agreed to by the Parties pursuant to Section L6.A (*General Matters*). The per diem rate shall also
16 be applied to a reasonable number of days for pre-inventory work and report preparation.
- 17
18 B. Actual transportation costs and Personal Expenses for the inventory team.
- 19
20 C. Reasonable charges for report preparation and distribution to the Non-Operators.

21 **2. NON-DIRECTED INVENTORIES**

22
23 **A. OPERATOR INVENTORIES**

24
25 Physical inventories that are not requested by the Non-Operators may be performed by the Operator, at the Operator's discretion. The
26 expenses of conducting such Operator-initiated inventories shall not be charged to the Joint Account.

27
28 **B. NON-OPERATOR INVENTORIES**

29
30 Subject to the terms of the Agreement to which this Accounting Procedure is attached, the Non-Operators may conduct a physical
31 inventory at reasonable times at their sole cost and risk after giving the Operator at least ninety (90) days prior written notice. The
32 Non-Operator inventory report shall be furnished to the Operator in writing within ninety (90) days of completing the inventory
33 fieldwork.

34
35 **C. SPECIAL INVENTORIES**

36
37 The expense of conducting inventories other than those described in Sections V.1 (*Directed Inventories*), V.2.A (*Operator*
38 *Inventories*), or V.2.B (*Non-Operator Inventories*), shall be charged to the Party requesting such inventory; provided, however,
39 inventories required due to a change of Operator shall be charged to the Joint Account in the same manner as described in Section
40 V.1 (*Directed Inventories*).

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EXHIBIT "D"

**Attached to and made part of that certain Operating Agreement
dated _____, between
Antero Resources Corporation, as "Operator" and
_____ as "Non-Operator".**

The Operator shall carry insurance for the benefit of the joint account covering Operator's operations upon the Unit Area subject to the Operating Agreement to which this Exhibit "D" is attached as follows:

- (a) Workers' Compensation Insurance in compliance with the worker's compensation laws of the state in which the operation is being performed.
- (b) Employers Liability Insurance on bodily injury of not less than \$500,000 for accidental injuries per accident and \$500,000 each employee for bodily injury by disease subject to a \$500,000 policy limit for bodily injury by disease.
- (c) Comprehensive General Liability Insurance with a single combined limit of \$5,000,000 for each occurrence for bodily injury and property damage.
- (d) Automobile Public Liability and Property Damage Insurance with a single combined limit of \$1,000,000 each occurrence for bodily injury and property damage.

The Operator shall require its contractors and subcontractors working or performing services upon the Unit Area subject to the Operating Agreement to which this Exhibit "D" is attached to comply with the worker's compensation laws of the state in which the operation is being performed and to carry such other insurance and in such amounts as the Operator shall deem necessary.

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EXHIBIT "E"

This Agreement is a part of that Joint Operating Agreement dated _____ between Antero Resources Corporation and _____ as Non-Operator.

GAS BALANCING AGREEMENT

1. Ownership of Gas Production.

a. It is the intent of the Parties that each Party shall have the right to take in kind and separately dispose of its proportionate share of gas (including casinghead gas) produced from each formation in each well located on acreage (the "Contract Area") covered by the Operating Agreement to which this Exhibit is attached.

b. Operator shall control the gas production and be responsible for administering the provisions of this Agreement and shall make reasonable efforts to deliver or cause to be delivered gas to the Parties' gas purchasers as may be required in order to balance the accounts of the Parties in accordance with the provisions contained in this Agreement. For purposes of this Agreement, Operator shall maintain production accounts of the Parties based upon the number of MMBtu's actually contained in the gas produced from a particular formation in a well and delivered at the outlet of lease equipment for each Party's account, regardless of whether sales of the gas are made on a wet or dry basis. All references in this Agreement to quantity or volume shall refer to the number of MMBtu's contained in the gas stream. Toward this end, Operator shall periodically determine or cause to be determined the Btu content of gas produced from each formation in each well on a consistent basis and under standard conditions pursuant to any method customarily used in the industry.

2. Balancing of Production Accounts.

a. Any time a Party, or such Party's purchaser, is not taking or marketing its full share of gas produced from a particular formation in a well (a "Non-Marketing Party"), the remaining Parties (the "Marketing Parties") shall have the right, but not the obligation, to produce, take, sell, and deliver for the marketing Parties' accounts, in addition to the full share of gas to which the Marketing Parties are otherwise entitled, all or any portion of the gas attributable to a Non-Marketing Party. (Gas attributable to a Non-Marketing Party, taken by a Marketing Party, is referred to in this Agreement as "Overproduction"). If there is more than one Marketing Party taking gas attributable to a Non-Marketing Party, each Marketing Party shall be entitled to take a Non-Marketing Party's gas in the ratio that the Marketing Party's interest in production bears to the total interest in production of all Marketing Parties. However, unless approved by all Parties, no Party shall be entitled to take more than 300% of its full share of gas for any given month.

b. A Party that has not taken its proportionate share of gas produced from any formation in a well ("Underproduced Party") shall be credited with gas in storage equal to its share of gas produced but not taken, less its share of gas used in lease operations, vented or lost (the "Underproduction"). The Underproduced Party, upon giving timely written notice to Operator, shall be entitled, on a monthly basis beginning the month following receipt of notice, to produce, take, sell, and deliver, in addition to the full share of gas to which such Party is otherwise entitled, a quantity of gas ("Make-up Gas") equal to twenty-five percent (25%) of the total share of gas attributable to all Parties having cumulative Overproduction (individually called "Overproduced Party"). The Make-up Gas shall be credited against the Underproduced Party's accrued Underproduction in order of accrual. Notwithstanding the foregoing and subject to subsection (e) below: (i) an Overproduced Party shall never be obligated to reduce its takes to less than fifty (50%) of the quantity to which the Party is otherwise entitled; and, (ii) an Underproduced Party shall never be allowed to make up Underproduction during the months of November, December, January, February, and March.

c. If there is more than one Underproduced Party desiring Make-up Gas, each Underproduced Party shall be entitled to Make-up Gas in the ratio that the Party's interest in production bears to the total interest in production of all Parties then desiring Make-up Gas. Any portion of the Make-up Gas to which an Underproduced Party is entitled and which is not taken by the Underproduced Party may be taken by any other Underproduced Parties.

d. If there is more than one Overproduced Party required to furnish Make-up Gas, each Overproduced Party shall furnish Make-up Gas in the ratio that the Party's interest in production bears to the total interest in production of all Parties then required to furnish Make-up Gas. Except as provided in (e) below, each Overproduced Party in any formation in a well shall be entitled, on a monthly basis, to take its full share of current production less its share of the Make-up Gas then being produced from the particular formation in the well in which it is overproduced.

70 e. If Operator, in good faith, believes an Overproduced Party has recovered one hundred
71 percent (100%) of that Overproduced Party's share of the recoverable reserves from a particular
72 formation in a well, that Overproduced Party, upon being notified in writing of that fact by Operator, shall
73 cease taking gas from the formation in the well and the remaining Parties shall be entitled to take one
74 hundred percent (100%) of the production until the accounts of the Parties are balanced. Thereafter, the
75 Overproduced Party shall again have the right to take its share of the remaining production, if any, in
76 accordance with the provisions in this Agreement. Notwithstanding anything to the contrary, after an
77 Overproduced Party has recovered one hundred percent (100%) of its full share of the recoverable
78 reserves, as determined by Operator from a particular formation in a well, the Overproduced Party may
79 continue to produce if the continued production is (i) necessary for lease maintenance purposes, or (ii)
80 permitted by all Parties who have not produced one hundred percent (100%) of their recoverable reserves
81 from the formation in the well.
82

83 **3. In Kind or Cash Balancing Upon Depletion.**
84

85 a. If gas production from a particular formation in a well ceases and no attempt is made to
86 restore production within 180 days, Operator shall have the right, at any time after the date the well last
87 produced gas from that formation, to distribute a statement of net unrecouped Underproduction and
88 Overproduction and the months and years in which the unrecouped production accrued (the "Final
89 Accounting").
90

91 b. Each Overproduced Party shall, within 60 days after receipt of such statement, remit to
92 Operator for disbursement to the Underproduced Parties, a sum of money (which sum shall not include
93 interest) equal to the amount actually received or constructively received, under subparagraph (e) below,
94 by Overproduced Party for sales during the month(s) of Overproduction, calculated in order of accrual,
95 less applicable taxes, royalties, and reasonable costs of marketing and transporting the gas for which the
96 Overproduced Party was actually paid. The remittance shall be based on the number of MMBtu's of
97 Overproduction and shall be accompanied by a statement showing the volumes and prices for each month
98 with accrued unrecouped Overproduction. If Make-up Gas is delivered it shall be supplied from sources
99 determined solely by the Overproduced Party.
100

101 c. Within 60 days of receipt of any remittance by Operator from an Overproduced Party,
102 Operator shall disburse those funds to the Underproduced Party(ies) in accordance with the Final
103 Accounting. Operator assumes no liability with respect to any payment unless the payment is attributable
104 to Operator's overproduction; it being the intent of the parties that each Overproduced Party shall be
105 solely responsible for reimbursing each Underproduced Party in accordance with the provisions of this
106 Agreement. If any Party fails to pay any sum due under the terms of this Agreement after demand by the
107 Operator, the Operator may turn responsibility for the collection of that sum to the Party or Parties to
108 whom it is owed, and Operator shall have no further responsibility for collection.
109

110 d. In determining the amount of Overproduction for which settlement is due, production
111 taken during any month by an Underproduced Party in excess of the Underproduced Party's share shall be
112 treated as Make-up and shall be applied to reduce prior deficits in the order of accrual of those deficits.
113

114 e. An Overproduced Party that took gas in kind for its own use, sold gas to an affiliate, or
115 otherwise disposed of gas in other than a cash sale shall pay for that gas at market value at the time it was
116 produced, even if the Overproduced Party sold the gas to an affiliate at a price greater or lesser than
117 market value.
118

119 f. If any refunds are later required by any governmental authority, each Party shall be
120 accountable for its respective share of any refunds, as finally balanced.
121

122 **4. Deliverability Tests.**
123

124 At the request of any party, Operator may produce the entire well stream for a deliverability test
125 not to exceed 36 hours in duration (or such longer period of time as may be mutually agreed upon by the
126 Parties) if required under the requesting party's gas sales or transportation contract.
127

128 **5. Nominations**
129

130 Each Party shall, on a monthly basis, give Operator sufficient time and data either to nominate the
131 Party's respective share of gas to the transporting pipeline(s) or, if Operator is not nominating the Party's
132 gas, to inform Operator of the manner in which to dispatch the Party's gas. Except as and to the extent
133 caused by Operator's gross negligence or willful misconduct, Operator shall not be responsible for any
134 fees and/or penalties associated with imbalances charged by any pipeline to any Underproduced or
135 Overproduced Parties.
136

137 **6. Statements.**
138

139 On or before the 25th day of the calendar month following the calendar month of production,

140 each Party taking gas shall furnish or cause to be furnished to Operator a statement of gas taken,
141 expressed in terms of MMBtu's. If actual volume information sufficient to prepare the statement is not
142 made available to the taking Party in sufficient time to prepare it, the taking Party shall nevertheless
143 furnish a statement of its good faith estimate of the volumes taken. Within 90 days of the receipt of all
144 statements, Operator shall furnish each Party a statement of the gas balance among the Parties, including
145 the total quantity of gas produced from each formation in each well, the portion used in operations, vented
146 or lost, and the total quantity delivered for each Party's account. Any error or discrepancy in Operator's
147 monthly statement shall be promptly reported to Operator and Operator shall make a proper adjustment
148 within 90 days after final determination of the correct quantities involved; provided, however, if no errors
149 or discrepancies are reported to Operator within 90 days from the date of any statement, the statement
150 shall be conclusively deemed to be correct. Additionally, within 90 days from the end of each calendar
151 year, Non-operators shall furnish Operator, for the sole purpose of establishing records sufficient to verify
152 cash balancing values, a statement reflecting amounts actually received or constructively received under
153 paragraph 3.(e), on a monthly basis, for the calendar year preceding the immediately concluded calendar
154 year. Operator may prohibit a Party from producing gas for its account during any month when the Party
155 is delinquent in furnishing the monthly or annual statements.

156
157 **7. Payment of Taxes.**

158
159 Each Party taking gas shall pay or cause to be paid any and all production, severance, utility,
160 sales, excise, or other taxes due on that gas.

161
162 **8. Operating Expenses.**

163
164 The operating expenses are to be borne in the manner provided in the Operating Agreement,
165 regardless of whether all Parties are selling or using gas or whether the sale and use of each are in
166 proportion to their respective interests in the gas.

167
168 **9. Overproducing Allowable.**

169
170 Each Party shall give Operator sufficient time and data to enable Operator to make appropriate
171 nominations, forecasts and/or filings with the regulatory bodies having jurisdiction to establish
172 allowables. Each Party shall at all times regulate its takes and deliveries from the Contract Area so that
173 the well(s) subject to this Agreement shall not curtailed and/or shut-in for overproducing the assigned
174 allowable production by the regulatory body having jurisdiction.

175
176
177 **10. Payment of Leasehold Burdens.**

178
179 At all times while gas is produced from the Contract Area each Party agrees to make appropriate
180 settlement of all royalties, overriding royalties and other payments out of or in lieu of production for
181 which a party is responsible, just as if the Party were taking or delivering to a purchaser the Party's full
182 share, and the Party's full share only, of the gas production, exclusive of gas used in operations, vented or
183 lost. Each Party agrees to indemnify and hold each other Party harmless from any and all claims relating
184 to the payment of leasehold burdens.

185
186 **11. Application of Agreement.**

187
188 The provisions of this Agreement shall be separately applicable and shall constitute a separate
189 agreement with respect to gas produced from each formation in each well located on the Contract Area.

190
191 **12. Term.**

192
193 This Agreement shall terminate when gas production under the Operating Agreement
194 permanently ceases and the accounts of the parties are finally settled in accordance with its provisions.

195
196 **13. Operator's Liability.**

197
198 Except as otherwise provided in this Agreement, Operator is authorized to administer the
199 provisions of this Agreement, but shall have no liability to the other Parties for losses sustained or
200 liability incurred which arise out of or in connection with the performance of Operator's duties (including
201 Operator's negligence) except as may result from Operator's gross negligence or willful misconduct.

202
203 **14. Audits.**

204
205 Any Underproduced Party shall have the right for a period of 120 days after receipt of payment
206 pursuant to a Final Accounting and after giving written notice to all Parties, to audit an Overproduced
207 Party's accounts and receipts relating to a payment. Any Overproduced Party shall have the right for a
208 period of 180 days after tender of payment for unrecouped volumes and on giving written notice to all
209 Parties, to audit an Underproduced Party's records as to volumes. The Party conducting the audit shall

210 bear the costs of the audit. Additionally, Operator shall have the right for a period of 180 days after
211 receipt of an annual statement from a Non-operator, under paragraph 6 after giving written notice, to audit
212 the affected Non-operator's accounts and records relating to a payment. The costs of the audit shall be
213 borne by the joint accounts.

214
215 ~~15. Operator's Fees.~~

216
217 ~~Operator shall charge the joint account \$ 400 per formation in each well, per month, for each~~
218 ~~month during which Operator maintains accounts for a well in a formation.~~

219
220 **16. Liquefiable Hydrocarbons Not Covered Under Agreement.**

221
222 The Parties shall share proportionately in and own all liquid hydrocarbons recovered with the gas
223 by lease equipment, in accordance with their respective interests.

224
225 Nothing in this Gas Balancing Agreement shall cause the Operator to produce a well or reservoir
226 at higher than maximum allowable rates which might have been established by a regulatory authority.

227
228 **17. Conflict.**

229
230 If there is a conflict between the terms of this Agreement and the terms of any gas sales contract
231 entered into by any Party covering the Contract Area, the terms of this Agreement shall govern.

EXHIBIT "H"

Model Form Recording Supplement to Operating Agreement and Financing Statement

(4 pages to follow)

MODEL FORM RECORDING SUPPLEMENT TO
OPERATING AGREEMENT AND FINANCING STATEMENT

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THIS AGREEMENT, entered into by and between Antero Resources Corporation hereinafter referred to as "Operator," and the signatory party or parties other than Operator, hereinafter referred to individually as "Non-Operator," and collectively as "Non-Operators."

WHEREAS, the parties to this agreement are owners of Oil and Gas Leases and/or Oil and Gas Interests in the land identified in Exhibit "A" (said land, Leases and Interests being hereinafter called the "Contract Area"), and in any instance in which the Leases or Interests of a party are not of record, the record owner and the party hereto that owns the interest or rights therein are reflected on Exhibit "A";

WHEREAS, the parties hereto have executed an Operating Agreement dated _____ (herein the "Operating Agreement"), covering the Contract Area for the purpose of exploring and developing such lands, Leases and Interests for Oil and Gas; and

WHEREAS, the parties hereto have executed this agreement for the purpose of imparting notice to all persons of the rights and obligations of the parties under the Operating Agreement and for the further purpose of perfecting those rights capable of perfection.

NOW, THEREFORE, in consideration of the mutual rights and obligations of the parties hereto, it is agreed as follows:

1. This agreement supplements the Operating Agreement, which Agreement in its entirety is incorporated herein by reference, and all terms used herein shall have the meaning ascribed to them in the Operating Agreement.

2. The parties do hereby agree that:

A. The Oil and Gas Leases and/or Oil and Gas Interests of the parties comprising the Contract Area shall be subject to and burdened with the terms and provisions of this agreement and the Operating Agreement, and the parties do hereby commit such Leases and Interests to the performance thereof.

B. The exploration and development of the Contract Area for Oil and Gas shall be governed by the terms and provisions of the Operating Agreement, as supplemented by this agreement.

C. All costs and liabilities incurred in operations under this agreement and the Operating Agreement shall be borne and paid, and all equipment and materials acquired in operations on the Contract Area shall be owned, by the parties hereto, as provided in the Operating Agreement.

D. Regardless of the record title ownership to the Oil and Gas Leases and/or Oil and Gas Interests identified on Exhibit "A," all production of Oil and Gas from the Contract Area shall be owned by the parties as provided in the Operating Agreement; provided nothing contained in this agreement shall be deemed an assignment or cross-assignment of interests covered hereby.

E. Each party shall pay or deliver, or cause to be paid or delivered, all burdens on its share of the production from the Contract Area as provided in the Operating Agreement.

F. An overriding royalty, production payment, net profits interest or other burden payable out of production hereafter created, assignments of production given as security for the payment of money and those overriding royalties, production payments and other burdens payable out of production heretofore created and defined as Subsequently Created Interests in the Operating Agreement shall be (i) borne solely by the party whose interest is burdened therewith, (ii) subject to suspension if a party is required to assign or relinquish to another party an interest which is subject to such burden, and (iii) subject to the lien and security interest hereinafter provided if the party subject to such burden fails to pay its share of expenses chargeable hereunder and under the Operating Agreement, all upon the terms and provisions and in the times and manner provided by the Operating Agreement.

G. The Oil and Gas Leases and/or Oil and Gas Interests which are subject hereto may not be assigned or transferred except in accordance with those terms, provisions and restrictions in the Operating Agreement regulating such transfers. This agreement and the Operating Agreement shall be binding upon and shall inure to the benefit of the parties hereto, and their respective heirs, devisees, legal representatives, and assigns, and the terms hereof shall be deemed to run with the leases or interests included within the lease Contract Area.

H. The parties shall have the right to acquire an interest in renewal, extension and replacement leases, leases proposed to be surrendered, wells proposed to be abandoned, and interests to be relinquished as a result of non-participation in subsequent operations, all in accordance with the terms and provisions of the Operating Agreement.

I. The rights and obligations of the parties and the adjustment of interests among them in the event of a failure or loss of title, each party's right to propose operations, obligations with respect to participation in operations on the Contract Area and the consequences of a failure to participate in operations, the rights and obligations of the parties regarding the marketing of production, and the rights and remedies of the parties for failure to comply with financial obligations shall be as provided in the Operating Agreement.

J. Each party's interest under this agreement and under the Operating Agreement shall be subject to relinquishment for its failure to participate in subsequent operations and each party's share of production and costs shall be reallocated on the basis of such relinquishment, all upon the terms and provisions provided in the Operating Agreement.

K. All other matters with respect to exploration and development of the Contract Area and the ownership and transfer of the Oil and Gas Leases and/or Oil and Gas Interest therein shall be governed by the terms and provisions of the Operating Agreement.

3. The parties hereby grant reciprocal liens and security interests as follows:

A. Each party grants to the other parties hereto a lien upon any interest it now owns or hereafter acquires in Oil and Gas Leases and Oil and Gas Interests in the Contract Area, and a security interest and/or purchase money security interest in any interest it now owns or hereafter acquires in the personal property and fixtures on or used or obtained for use in connection therewith, to secure performance of all of its obligations under this agreement and the Operating Agreement including but not limited to payment of expense, interest and fees, the proper disbursement of all monies paid under this agreement and the Operating Agreement, the assignment or relinquishment of interest in Oil and Gas Leases as required under this agreement and the Operating Agreement, and the proper performance of operations under this agreement and the Operating Agreement. Such lien and security interest granted by each party hereto shall include such party's leasehold interests, working interests, operating rights, and royalty and overriding royalty interests in the Contract Area now owned or hereafter acquired and in lands pooled or unitized therewith or otherwise becoming subject to this agreement and the Operating Agreement, the Oil and Gas when extracted therefrom and equipment situated thereon or used or obtained for use in connection therewith (including, without limitation, all wells, tools, and tubular goods), and accounts (including, without limitation, accounts arising from the sale of production at the wellhead),

1 contract rights, inventory and general intangibles relating thereto or arising therefrom, and all proceeds and products of
2 the foregoing.

3 B. Each party represents and warrants to the other parties hereto that the lien and security interest granted by such
4 party to the other parties shall be a first and prior lien, and each party hereby agrees to maintain the priority of said lien
5 and security interest against all persons acquiring an interest in Oil and Gas Leases and Interests covered by this
6 agreement and the Operating Agreement by, through or under such party. All parties acquiring an interest in Oil and
7 Gas Leases and Oil and Gas Interests covered by this agreement and the Operating Agreement, whether by assignment,
8 merger, mortgage, operation of law, or otherwise, shall be deemed to have taken subject to the lien and security interest
9 granted by the Operating Agreement and this instrument as to all obligations attributable to such interest under this
10 agreement and the Operating Agreement whether or not such obligations arise before or after such interest is acquired.

11 C. To the extent that the parties have a security interest under the Uniform Commercial Code of the state in which
12 the Contract Area is situated, they shall be entitled to exercise the rights and remedies of a secured party under the Code.
13 The bringing of a suit and the obtaining of judgment by a party for the secured indebtedness shall not be deemed an
14 election of remedies or otherwise affect the lien rights or security interest as security for the payment thereof. In
15 addition, upon default by any party in the payment of its share of expenses, interest or fees, or upon the improper use of
16 funds by the Operator, the other parties shall have the right, without prejudice to other rights or remedies, to collect
17 from the purchaser the proceeds from the sale of such defaulting party's share of Oil and Gas until the amount owed by
18 such party, plus interest, has been received, and shall have the right to offset the amount owed against the proceeds from
19 the sale of such defaulting party's share of Oil and Gas. All purchasers of production may rely on a notification of default
20 from the non-defaulting party or parties stating the amount due as a result of the default, and all parties waive any
21 recourse available against purchasers for releasing production proceeds as provided in this paragraph.

22 D. If any party fails to pay its share of expenses within one hundred-twenty (120) days after rendition of a statement
23 therefor by Operator the non-defaulting parties, including Operator, shall, upon request by Operator, pay the unpaid
24 amount in the proportion that the interest of each such party bears to the interest of all such parties. The amount paid
25 by each party so paying its share of the unpaid amount shall be secured by the liens and security rights described in this
26 paragraph 3 and in the Operating Agreement, and each paying party may independently pursue any remedy available
27 under the Operating Agreement or otherwise.

28 E. If any party does not perform all of its obligations under this agreement or the Operating Agreement, and the
29 failure to perform subjects such party to foreclosure or execution proceedings pursuant to the provisions of this
30 agreement or the Operating Agreement, to the extent allowed by governing law, the defaulting party waives any
31 available right of redemption from and after the date of judgment, any required valuation or appraisal of the
32 mortgaged or secured property prior to sale, any available right to stay execution or to require a marshalling of assets
33 and any required bond in the event a receiver is appointed. In addition, to the extent permitted by applicable law, each
34 party hereby grants to the other parties a power of sale as to any property that is subject to the lien and security rights
35 granted hereunder or under the Operating Agreement, such power to be exercised in the manner provided by applicable
36 law or otherwise in a commercially reasonable manner and upon reasonable notice.

37 F. The lien and security interest granted in this paragraph 3 supplements identical rights granted under the
38 Operating Agreement.

39 G. To the extent permitted by applicable law, Non-Operators agree that Operator may invoke or utilize the
40 mechanics' or materialmen's lien law of the state in which the Contract Area is situated in order to secure the payment
41 to Operator of any sum due under this agreement and the Operating Agreement for services performed or materials
42 supplied by Operator.

43 H. The above described security will be financed at the wellhead of the well or wells located on the Contract Area and
44 this Recording Supplement may be filed in the land records in the County or Parish in which the Contract Area is
45 located, and as a financing statement in all recording offices required under the Uniform Commercial Code or other
46 applicable state statutes to perfect the above-described security interest, and any party hereto may file a continuation
47 statement as necessary under the Uniform Commercial Code, or other state laws.

48 4. This agreement shall be effective as of the date of the Operating Agreement as above recited. Upon termination of
49 this agreement and the Operating Agreement and the satisfaction of all obligations thereunder, Operator is authorized to file
50 of record in all necessary recording offices a notice of termination, and each party hereto agrees to execute such a notice of
51 termination as to Operator's interest, upon the request of Operator, if Operator has complied with all of its financial
52 obligations.

53 5. This agreement and the Operating Agreement shall be binding upon and shall inure to the benefit of the parties
54 hereto and their respective heirs, devisees, legal representatives, successors and assigns. No sale, encumbrance, transfer or
55 other disposition shall be made by any party of any interest in the Leases or Interests subject hereto except as expressly
56 permitted under the Operating Agreement and, if permitted, shall be made expressly subject to this agreement and the
57 Operating Agreement and without prejudice to the rights of the other parties. If the transfer is permitted, the assignee of an
58 ownership interest in any Oil and Gas Lease shall be deemed a party to this agreement and the Operating Agreement as to
59 the interest assigned from and after the effective date of the transfer of ownership; provided, however, that the other parties
60 shall not be required to recognize any such sale, encumbrance, transfer or other disposition for any purpose hereunder until
61 thirty (30) days after they have received a copy of the instrument of transfer or other satisfactory evidence thereof in writing
62 from the transferor or transferee. No assignment or other disposition of interest by a party shall relieve such party of
63 obligations previously incurred by such party under this agreement or the Operating Agreement with respect to the interest
64 transferred, including without limitation the obligation of a party to pay all costs attributable to an operation conducted under
65 this agreement and the Operating Agreement in which such party has agreed to participate prior to making such assignment,
66 and the lien and security interest granted by Article VII.B. of the Operating Agreement and hereby shall continue to burden
67 the interest transferred to secure payment of any such obligations.

68 6. In the event of a conflict between the terms and provisions of this agreement and the terms and provisions of the
69 Operating Agreement, then, as between the parties, the terms and provisions of the Operating Agreement shall control.

70 7. This agreement shall be binding upon each Non-Operator when this agreement or a counterpart thereof has been
71 executed by such Non-Operator and Operator notwithstanding that this agreement is not then or thereafter executed by all of
72 the parties to which it is tendered or which are listed on Exhibit "A" as owning an interest in the Contract Area or which
73 own, in fact, an interest in the Contract Area. In the event that any provision herein is illegal or unenforceable, the
74 remaining provisions shall not be affected, and shall be enforced as if the illegal or unenforceable provision did not appear herein.

1 8. Other provisions.
2
3
4
5

6 Antero Resources Corporation, who has prepared and circulated this form for execution, represents and warrants
7 that the form was printed from and, with the exception(s) listed below, is identical to the AAPL Form 610RS-1989 Model
8 Form Recording Supplement to Operating Agreement and Financing Statement, as published in computerized form by
9 Forms On-A-Disk, Inc. No changes, alterations, or modifications, other than those made by strikethrough and/or insertion
10 and that are clearly recognizable as changes in Articles _____, have been made to the form.

11
12
13 IN WITNESS WHEREOF, this agreement shall be effective as of the _____ day of _____,
14 year _____,

15
16 ATTEST OR WITNESS:

OPERATOR

Antero Resources Corporation

17 _____
18 _____
19 _____
20 _____
21 By: Brian A. Kuhn
22 **Type or Print Name**
23 Title: Senior Vice President
24 Date: _____
25 Address: 1615 Wynkoop, Denver, CO 80202

26
27 ATTEST OR WITNESS:

NON-OPERATORS

28 _____
29 _____
30 _____
31 _____
32 _____
33 By: _____
34 **Type or Print Name**
35 Title: _____
36 Date: _____
37 Address: _____

38
39 ATTEST OR WITNESS:

40 _____
41 _____
42 _____
43 _____
44 _____
45 By: _____
46 **Type or Print Name**
47 Title: _____
48 Date: _____
49 Address: _____

50 ATTEST OR WITNESS:

51 _____
52 _____
53 _____
54 _____
55 _____
56 By: _____
57 **Type or Print Name**
58 Title: _____
59 Date: _____
60 Address: _____

61 ATTEST OR WITNESS:

62 _____
63 _____
64 _____
65 _____
66 _____
67 By: _____
68 **Type or Print Name**
69 Title: _____
70 Date: _____
71 Address: _____

72
73
74

ACKNOWLEDGEMENT

STATE OF COLORADO §
 §
COUNTY OF DENVER §

The foregoing instrument was acknowledged before me this ____ day of _____, 2016, by Brian A. Kuhn, Senior Vice President, Land of Antero Resources Corporation, a Delaware corporation, on behalf of said corporation.

WITNESS my hand and seal.

NOTARY PUBLIC

My Commission expires:

STATE OF _____ §
 §
COUNTY OF _____ §

The foregoing instrument was acknowledged before me this ____ day of _____, 2016, by _____, _____ of _____.

WITNESS my hand and seal.

NOTARY PUBLIC

My Commission expires:

STATE OF _____ §
 §
COUNTY OF _____ §

The foregoing instrument was acknowledged before me this ____ day of _____, 2016, by _____, _____ of _____.

WITNESS my hand and seal.

NOTARY PUBLIC

My Commission expires:

ACKNOWLEDGMENT

STATE OF OHIO)
COUNTY OF _____)

On the _____ day of _____, 2014, before me, the undersigned officer, personally appeared _____, known to me or satisfactorily proven to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged that he/she/they executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Notary Public

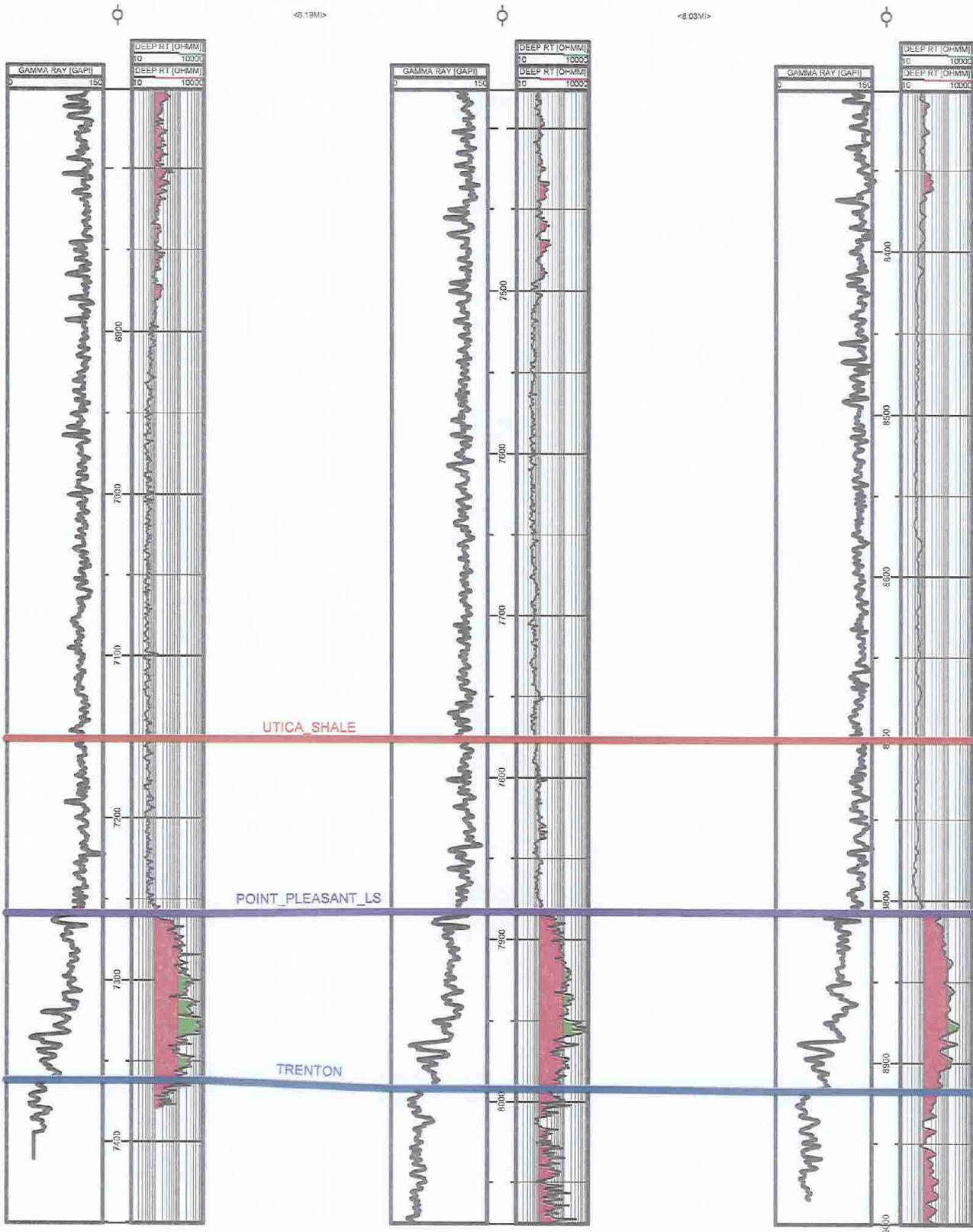
ATTACHMENT 2

Exhibit 1

34121243460000
ANTERO RESOURCES CORPORATION
MILEY 5H Pilot

34111243310000
ANTERO RESOURCES CORPORATION
ET RUBEL 1 PILOT

34013206700000
GULFPORT ENERGY CORP
STUTZMAN 1-14 PILOT



Antero Resources Corporation

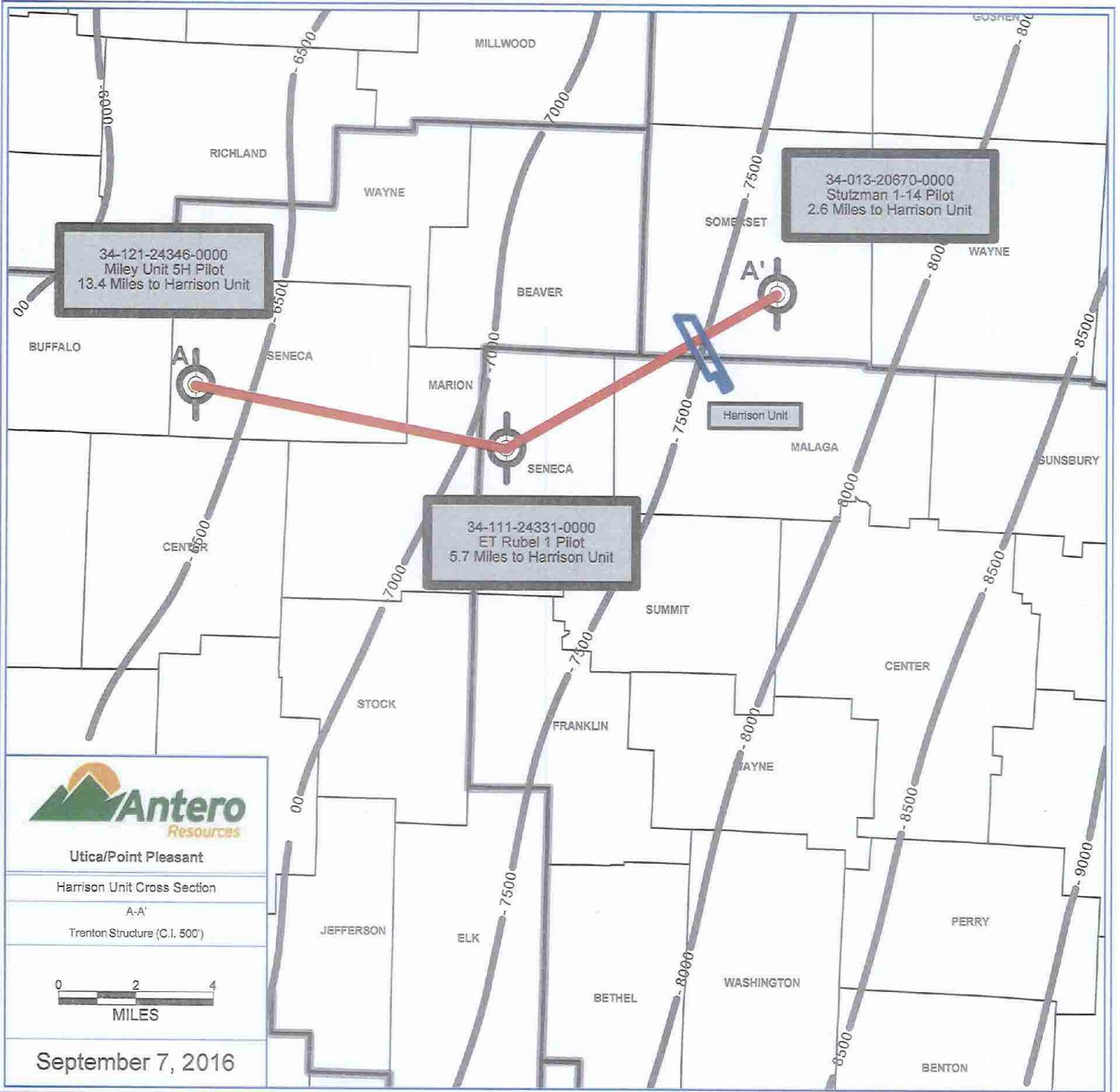
Appalachian Basin - Utica Shale

West-East Stratigraphic Cross Section

Harrison Unit Offset Cross Section

Flattened on Utica Shale Top
Gamma Ray Log (0-150 API)
Resistivity Logs (10-10,000 OHMM)

September 7, 2016



Utica/Point Pleasant

Harrison Unit Cross Section

A-A'

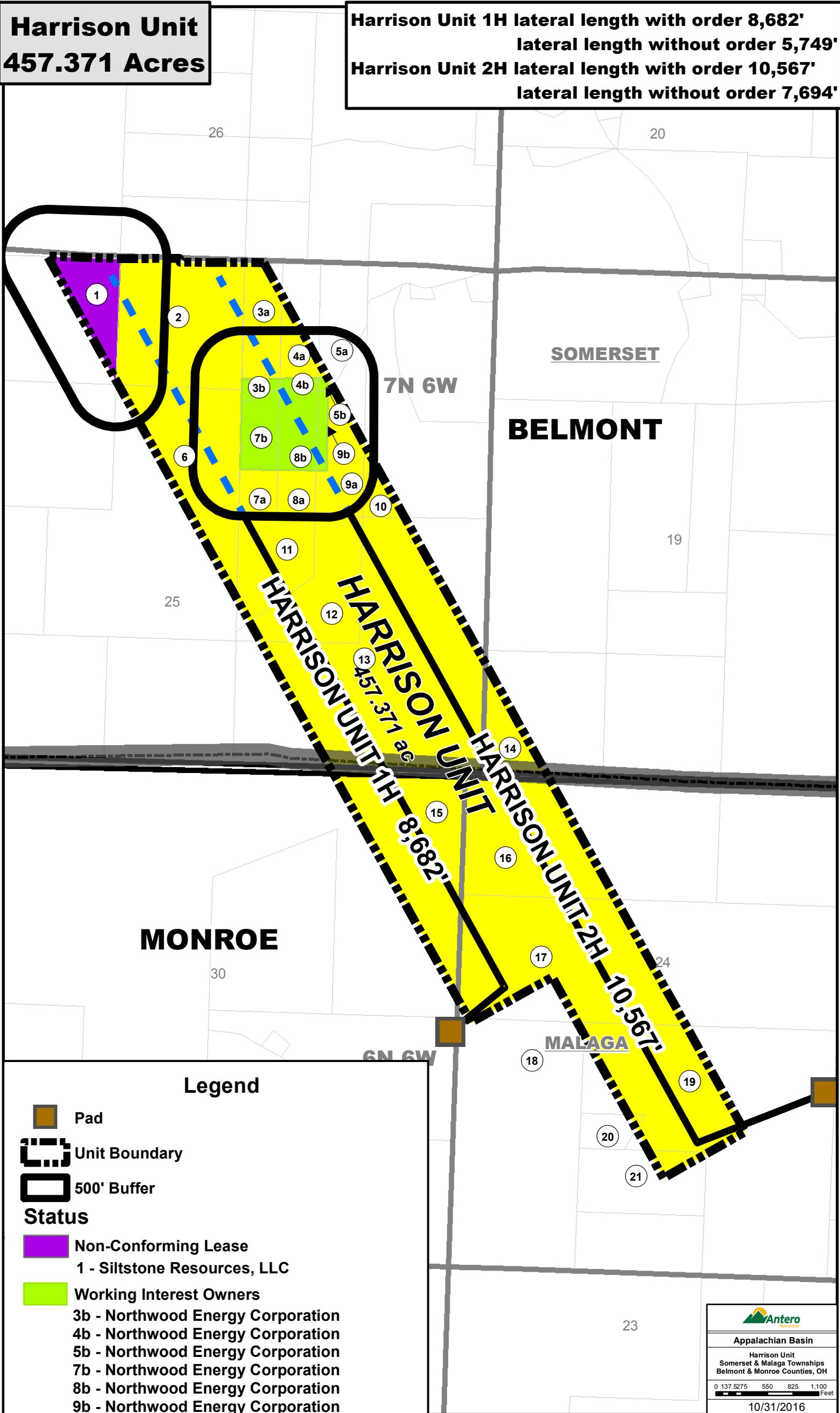
Trenton Structure (C.I. 500')



September 7, 2016

Harrison Unit
457.371 Acres

Harrison Unit 1H lateral length with order 8,682'
lateral length without order 5,749'
Harrison Unit 2H lateral length with order 10,567'
lateral length without order 7,694'



Legend

-  Pad
-  Unit Boundary
-  500' Buffer
- Status**
-  Non-Conforming Lease
 1 - Siltstone Resources, LLC
-  Working Interest Owners
 3b - Northwood Energy Corporation
 4b - Northwood Energy Corporation
 5b - Northwood Energy Corporation
 7b - Northwood Energy Corporation
 8b - Northwood Energy Corporation
 9b - Northwood Energy Corporation


Appalachian Basin
 Harrison Unit
 Somerset & Malaga Townships
 Belmont & Monroe Counties, OH
 0 137.5275 550 825 1,100 Feet
 10/31/2016

Exhibit 5
Engineering Calculations

Unitized Harrison Unit (Optimum Development)				
Well Name	Completed Lateral Length (feet)	Gross Capital (\$MM)	Net PV10 (\$MM)	Gross Wellhead Gas (Bcf)
Harrison Unit 1H	8,679	\$ 9.20	\$ 3.41	17.3
Harrison Unit 2H	10,561	\$ 10.51	\$ 4.70	21.0
Total Harrison Unit	19,240	\$ 19.71	\$ 8.11	38.3

Non-Unitized Harrison Unit				
Well Name	Completed Lateral Length (feet)	Gross Capital (\$MM)	Net PV10 (\$MM)	Gross Wellhead Gas (Bcf)
Harrison Unit 1H	5,918	\$ 7.29	\$ 1.42	11.8
Harrison Unit 2H	7,892	\$ 8.66	\$ 2.86	15.7
Total Harrison Unit	13,810	\$ 15.94	\$ 4.28	27.5

Difference (Value/Reserves Lost Without Unitization)				
Well Name	Completed Lateral Length (feet)	Gross Capital (\$MM)	Net PV10 (\$MM)	Gross Wellhead Gas (Bcf)
Harrison Unit 1H	2,761	\$ 1.91	\$ 1.99	5.5
Harrison Unit 2H	2,669	\$ 1.85	\$ 1.84	5.3
Total Harrison Unit	5,430	\$ 3.76	\$ 3.83	10.9

Pricing Assumptions

Flat Pricing (Based on 8/31/16 Strip)	2016+
NYMEX Gas Pricing (\$/MMBTU)	\$ 3.04

*The internal rounding function of Microsoft Excel results in small differences in several sums on this chart.

<u>Per Well Operating Cost Estimate</u>	<u>M\$/Year</u>	<u>M\$/Month</u>
Lease Operating Expenses*	\$ 109	\$ 9
Gathering/Compression**	\$ 814	\$ 68
Average Estimated Operating Costs (Per Well, 5 Year Average***)	\$ 923	\$ 77

*LOE includes costs associated with maintaining and operating the well and production equipment

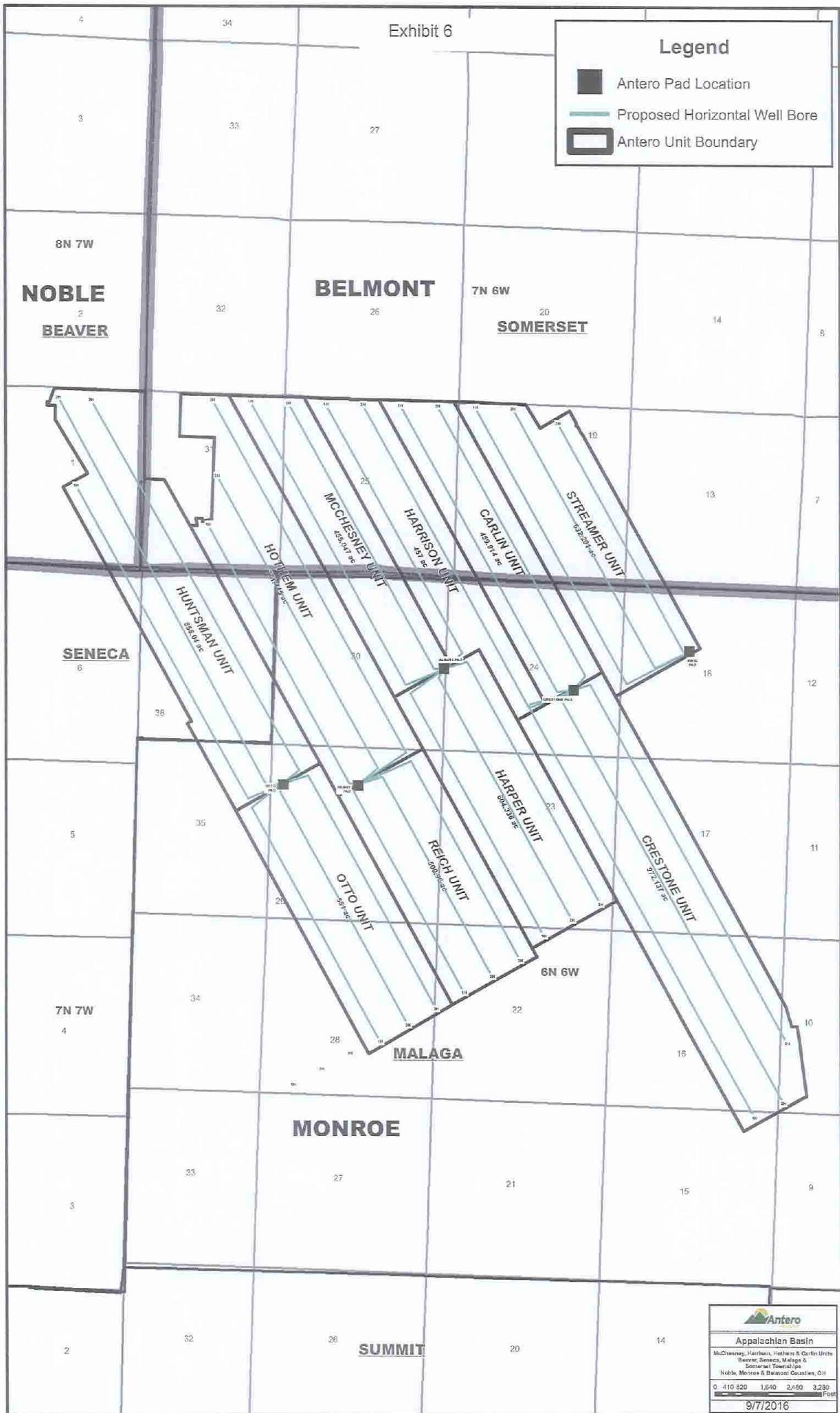
**Includes fees associated with bringing the gas from the wellhead to market

***Subsequent years would decrease, as the majority of these costs are dependent on production volumes

Exhibit 6

Legend

- Antero Pad Location
- Proposed Horizontal Well Bore
- Antero Unit Boundary



Antero
Appalachian Basin
McChesney, Harrison, Hotiem & Carlin Units
Beaver, Seneca, Malaga &
Somerset Townships
Noble, Monroe & Harrison Counties, OH
0 110 220 440 880 1640 2460 3280 Feet
9/7/2016

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero :
Resources Corporation for Unit Operation :
: Application Date: September 13, 2016
: Supplement Date: October 17, 2016
Harrison Unit :

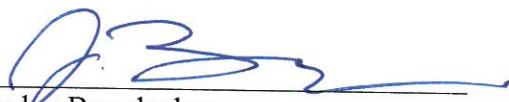
**AFFIDAVIT OF NON-CONFORMING LEASE AND NON-CONSENTING WORKING
INTEREST EFFORTS**

I, Jordan Brandenburg, being first duly cautioned and sworn, do hereby depose and state as follows:

1. My name is Jordan Brandenburg and I am a Landman with Antero Resources Corporation (the "Applicant"). My day-to-day responsibilities include managing field land brokers, negotiating lease acquisitions, and handling title matters for the Applicant's operations in the Utica Shale.
2. As a result of my job responsibilities, I have personal knowledge of the matters set forth in this affidavit, including the attachment hereto, and the following information is true to the best of Affiant's knowledge and belief.
3. Tract 1 lacks a mechanism to voluntarily consolidate the leased premises within the proposed Harrison Unit or contains a provision granting pooling of the leased premises, but is limited to a an acreage size that will does not conform with the proposed 457 acres contained for the proposed Harrison Unit (the "Non-Conforming Lease").
4. The Applicant has made diligent efforts to obtain a lease modification of the Non-Conforming Lease that would permit the Applicant to voluntarily consolidate the Non-Conforming Lease into the Harrison Unit. Those efforts are documented in the attached chart and include making in-person visits, telephone calls, and email correspondence.
5. Tract 3b, 4b, 5b, 7b, 8b, 9b are owned, in whole or in part, by various outstanding working interest owners.
6. The Applicant has made a diligent effort to locate, acquire or negotiate mutually acceptable terms that would permit the Applicant to voluntarily include the outstanding working interest owned by the subject parties in Tract 1, 3b, 4b, 5b, 7b, 8b and 9b in the Harrison Unit. These efforts are documented in the attached chart and include making in-person visits, telephone calls, and e-mail and written correspondence.

Further Affiant sayeth naught.

Dated this 17 day of October, 2016.


Jordan Brandenburg
Landman
Antero Resources Corporation

STATE OF COLORADO)
) SS
COUNTY OF DENVER)

The foregoing instrument was sworn to before me, a Notary Public in and for the State of Colorado, and subscribed in my presence this 17 day of October, 2016, by Jordan Brandenburg, known to me or satisfactorily proven to be the Affiant in the foregoing instrument, who acknowledged the above statements to be true as Affiant verily believes.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

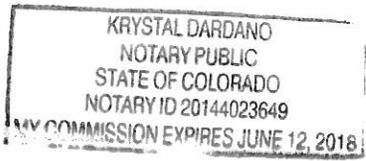
My Commission Expires:

6-12-18

Krystal Dardano
Notary Public

Krystal Dardano
Printed Name of Notary

(SEAL)



Resume of Efforts

Tract	Owner	Parcel	Net Acres	Phone Number
1	Siltstone Resources, LLC (Non-Conforming Lease)	37-00617.000	11.0510	600 Jefferson Street Houston, TX 77002 Attn: Dennis Hung
Date	Comments			
5/17/2016	Mike Maclay, Turner Oil & Gas, sent e-mail to Blaine Johnson, Siltstone Resources, inquiring about who would be the appropriate person to contact in regards to this issue.			
5/24/2016	Mike Maclay, Turner Oil & Gas, sent e-mail to Blaine Johnson, Siltstone Resources, requesting the information previously requested on 5/17/2016..			
6/2/2016	Mike Maclay, Turner Oil & Gas, called Blaine Johnson. No answer, left voice message.			
6/8/2016	Mike Maclay, Turner Oil & Gas, drove to the Siltstone Resources Ohio office, left message for Blaine Johnson at the front desk.			
6/9/2016	Mike Maclay, Turner Oil & Gas, called the Siltstone Resources, Houston office and spoke with Mr. Hung. Mr. Maclay verbally presented the offer from Antero to Mr. Hung. Mr. Hung declined the offer and also stated this is not on their radar at this time.			
6/21/2016	Mike Maclay, Turner Oil & Gas, called Mr. Hung to follow up on the previous offer from Antero Resources. Mr. Hung informed Mr. Maclay they are having their analyst review the documents and once the review is completed he would contact Mr. Maclay.			
6/22/2016	Rick Allen, Turner Oil & Gas, called Jim Denny, Vice President Siltstone. Left a message on cell phone to please return the call so discussions can occur regarding this issue.			
7/8/2016	Rick Allen, Turner Oil & Gas, called Jim Denny, Vice President Siltstone. Left a message to please return the call so discussions can occur regarding this issue.			
7/15/2016	Rick Allen, Turner Oil & Gas, spoke with Jim Denny, Mr. Allen presented a new offer to Mr. Denny for review. Mr. Allen informed Mr. Denny he would be sending new information and would like to possibly meet next week to further discuss this matter.			
7/18/2016	Rick Allen, Turner Oil & Gas, sent e-mail to Jim Denny containing additional information which included, vesting documents, maps with tract locations, and restated the offer being presented by Antero Resources. Mr. Allen also extended an invitation to meet in person to further discuss this matter.			
9/6/2016	Spencer Booth spoke with Dennis Hung about this issue. Mr. Hung is going to review with their team, and get back with Spencer shortly.			
10/17/2016	Jordan Brandenburg spoke with Dennis Hung about this issue and the team at Siltstone has not made any decisions yet. Robert Le at Siltstone is also now the new land representative for this issue.			
3b 4b 5b 7b 8b 9b	Northwood Energy Corporation (outstanding Working Interest)	37-00290.002 37-00290.004 37-00290.003 37-00290.001 37-00290.005 37-00290.000	1.583 0.947 0.259 7.184 7.821 2.205	941 Chatham Lane Suite 100 Columbus, Ohio 43221
Date	Comments			
9/9/2016	For the past several months Spencer Booth from Antero has been working with John DiFrangia at Northwood to resolve this issue. Antero feels hopeful a mutually acceptable agreement can be reached between the parties, however, at the time of this application the issue remains outstanding.			
10/14/2016	Spencer Booth continues to work with Northwood to resolve this issue.			

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of :
Antero Resources Corporation for Unit :
Operation : Application Date: September 13, 2016
: Supplement Date: October 17, 2016
:
Harrison Unit :

LEASE AFFIDAVIT

I, Jordan Brandenburg, being first duly cautioned and sworn, do hereby depose and state as follows:

1. My name is Jordan Brandenburg and I am a Landman with Antero Resources Corporation (the "Applicant"). My day-to-day responsibilities include managing field land brokers, negotiating lease acquisitions, and handling title matters for the Applicant's operations in the Utica Shale.

2. As a result of my job responsibilities, I have personal knowledge of the matters set forth in this affidavit, including the attachment hereto, and the following information is true to the best of my knowledge and belief.

3. Pursuant to Ohio Revised Code § 1509.28, the Applicant has filed an application with the Chief of the Division of Oil and Gas Resources Management requesting an order authorizing Applicant to operate the Unitized Formation and applicable land area, identified as the Harrison Unit, according to the Unit Plan attached thereto (the "Application") (as those terms are used and defined therein). The Harrison Unit is located in Monroe and Belmont Counties, Ohio, and consists of twenty-seven (27) separate tracts of land covering 457.371 acres.

4. To my knowledge the Applicant holds a valid lease agreement pertaining to all of the Applicant's acreage that is held under lease, as described in Exhibit A-2 of the Unit Operating Agreement attached to the Application.

Further sayeth Affiant naught.

Dated this 17 day of October, 2016.



Jordan Brandenburg
Landman
Antero Resources Corporation

STATE OF COLORADO)
) SS
COUNTY OF DENVER)

The foregoing instrument was sworn to before me, a Notary Public in and for the State of Colorado, and subscribed in my presence this 17 day of October, 2016, by Jordan Brandenburg, known to me or satisfactorily proven to be the Affiant in the foregoing instrument, who acknowledged the above statements to be true as Affiant verily believes.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

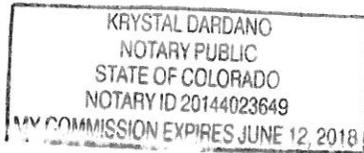
My Commission Expires:

6-12-18

Krystal Dardano
Notary Public

Krystal Dardano
Printed Name of Notary

(S E A L)



**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero Resources Corporation for Unit Operation	:	
	:	
	:	Application Date: September 13, 2016
	:	Supplement Date: October 17, 2016
<u>Harrison Unit</u>	:	

AFFIDAVIT OF OWNERSHIP

I, Jordan Brandenburg, being first duly cautioned and sworn, do hereby depose and state as follows:

1. Affiant, Jordan Brandenburg, is employed by Antero Resources Corporation (the "Applicant") as a Landman. Affiant's job responsibilities include managing field land brokers, negotiating lease acquisitions, and handling title matters for the Applicant's operations in the Utica Shale.
2. As a result of his job responsibilities, Affiant has personal knowledge of the matters set forth in this affidavit, and the following information is true to the best of Affiant's knowledge and belief.
3. Pursuant to Ohio Revised Code §1509.28, the Applicant is filing herewith an application with the Chief of the Division of Oil and Gas Resources Management requesting an order authorizing the Applicant to operate the Unitized Formation and applicable land area, identified as the Harrison Unit, according to the Unit Plan attached thereto (the "Application") (as those terms are used and defined therein). The Harrison Unit is located in Monroe and Belmont Counties, Ohio, and consists of twenty-seven (27) separate tracts of land covering 457.371 acres.
4. As of the Application Date set forth above, the Applicant is the owner, as that term is defined in Ohio Revised Code §1509.01(K), of at least 65% of the land overlying the Unitized Formation that is the subject of the unitization request set forth in the Application.

Further Affiant sayeth naught.

Dated this 17 day of October, 2016.



Jordan Brandenburg, Affiant
Landman
Antero Resources Corporation

STATE OF COLORADO)
) SS
COUNTY OF DENVER)

The foregoing instrument was sworn to before me, a Notary Public in and for the State of Colorado, and subscribed in my presence this 17 day of October, 2016, by Jordan Brandenburg, known to me or satisfactorily proven to be the Affiant in the foregoing instrument, who acknowledged the above statements to be true as Affiant verily believes.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

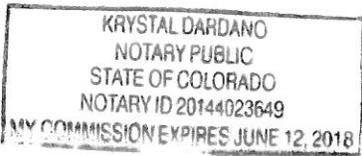
My Commission Expires:

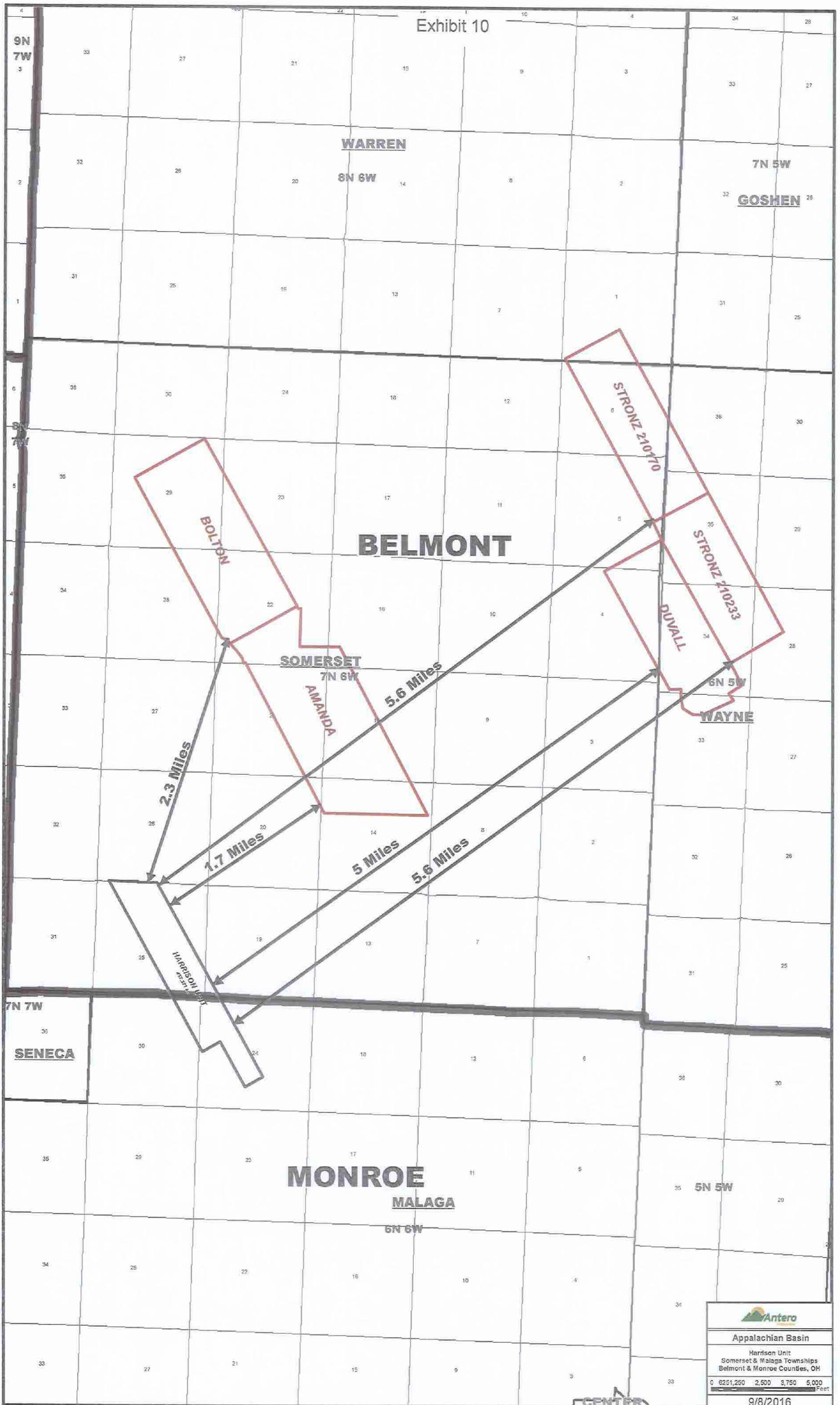
6-12-18

Krystal Dardano
Notary Public

Krystal Dardano
Printed Name of Notary

(SEAL)





Antero
 Appalachian Basin
 Harrison Unit
 Somerset & Malaga Townships
 Belmont & Monroe Counties, OH
 0 6251,250 2,500 3,750 5,000 Feet
 9/8/2016

#	API Number	Display Name	Unit	Prod Start (date)	Lateral (ft)
1	34013207370000	AMANDA 1-14H	AMANDA	7/18/2014	7876
2	34013207400000	AMANDA 4-14H	AMANDA	7/18/2014	8410
3	34013207430000	BAHMER 1-30H	BAHMER	12/14/2014	7564
4	34013207420000	BAHMER 2-30H	BAHMER	12/26/2014	6985
5	34013207410000	BAHMER 3-30H	BAHMER	12/29/2014	6344
6	34013206740000	BOLTON 1-29H	BOLTON	3/11/2014	8867
7	34013207040000	BOLTON 2-29H	BOLTON	3/11/2014	8752
8	34013207030000	BOLTON 3-29H	BOLTON	3/11/2014	8639
9	34013207570100	DUVALL 1-5H	DUVALL	8/29/2014	6921
10	34013207580000	DUVALL 2-5H	DUVALL	8/29/2014	6949
11	34013207590000	DUVALL 3-5H	DUVALL	8/29/2014	5411
12	34013207920000	STRONZ 210170 1C	STRONZ 210170	4/20/2015	7910
13	34013207930000	STRONZ 210170 3B	STRONZ 210170	4/21/2015	7890
14	34013207910000	STRONZ 210170 6A	STRONZ 210170	4/20/2015	7875
15	34013207960000	STRONZ 210233 2C	STRONZ 210233	4/20/2015	6550
16	34013207940000	STRONZ 210233 4B	STRONZ 210233	4/20/2015	6555

ATTACHMENT 3

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero :
Resources Corporation for Unit Operation :
: Application Date: September 13, 2016
:
Harrison Unit :

**PREPARED TESTIMONY OF REBEKAH PARKS
ON BEHALF OF ANTERO RESOURCES CORPORATION**

Gregory D. Russell (0059718)
J. Taylor Airey (0081092)
Ilya Batikov (0087968)
VORYS, SATER, SEYMOUR AND PEASE LLP
52 East Gay Street
P. O. Box 1008
Columbus, Ohio 43216-1008

Attorneys for Applicant,
Antero Resources Corporation

PREPARED DIRECT TESTIMONY OF REBEKAH PARKS

1 INTRODUCTION

2 **Q1. Please introduce yourself to the Division.**

3 A1. My name is Rebekah Parks. I am a Geologist for Antero Resources Corporation.
4 Our offices are located at 1615 Wynkoop Street, Denver, Colorado 80202, which is
5 where I am based. Antero also has two main field offices located in Bridgeport,
6 WV and Marietta, OH.

7 **Q2. What is your educational background?**

8 A2. I obtained a Bachelor's of Arts degree in Petroleum Geology from Western State
9 College of Colorado, with a Minor in Mathematics in 2011. I have also completed
10 several industry related short courses and continuing education programs.

11 **Q3. Would you briefly describe your professional experience?**

12 A3. I joined Antero Resources Corporation in 2012 immediately upon graduation. I
13 began my career working geologic operations in West Virginia, primarily focused
14 on Marcellus Shale development and exploitation efforts where I participated in the
15 drilling of approximately 100 wells. When Antero began its leasing efforts in Ohio,
16 and established a significant acreage position in southeastern Ohio, I transitioned
17 from the Marcellus team to the Utica/Point Pleasant team in early 2015. I have
18 spent the past year and a half focused on efficient Utica/Point Pleasant Formation
19 planning and development. My most recent responsibilities have included well pad
20 identification and horizontal well geosteering within a very specific target window
21 of 5-10 feet. I have been directly or indirectly involved in the successful drilling of
22 approximately 50 horizontal wells in Ohio. Other responsibilities have included
23 wellsite mudlogging, sample collection, and casing point determination.

24 **Q4. What do you do as a Geologist for Antero?**

25 A4. My responsibilities include geologic operations and development planning of the
26 Utica/Point Pleasant Formation. I am involved in all phases of Utica/Point Pleasant
27 Formation resource development.

28 **Q5. What goes into the Utica/Point Pleasant Formation development process?**

29 A5. The development process starts by identifying the optimum horizontal wellbore az-
30 imuth to achieve the most efficient reservoir production. We determine the azi-

1 muth based on multiple data types like microseismic, geophysical and electric logs,
2 and core data. The preferred azimuth direction of the wellbore, or lateral, is based
3 on how the target formation will behave when hydraulically fractured during the
4 completion process. As is the case with the vast majority of Utica/Point Pleasant
5 Formation operators, we drill our wells perpendicular to the maximum current day
6 stress direction; in this area of Monroe and Belmont Counties, where the Harrison
7 Unit is located, this stress direction is roughly N60°E. Therefore, our laterals are
8 drilled perpendicular to this direction, at approximately N30°W. Once I have deci-
9 phered the optimum wellbore azimuth, I begin looking for viable surface locations
10 to construct well pads to most efficiently develop our Utica/Point Pleasant mineral
11 leasehold. The horizontal wells, or laterals, are then planned to originate from
12 these surface locations and are drilled on very specific dates based on a variety of
13 different factors. It is ideal to find well pads that are suitable for multi-well devel-
14 opment, upwards of 10 or 12 wells, because this minimizes surface impact and
15 makes the drilling and completion process very efficient. Once the well pad loca-
16 tions have been negotiated with the surface owners, I coordinate with licensed sur-
17 veyors and our internal regulatory department to secure well permits. I also work
18 with directional planning consultants to create suitable wellbore plans, or direction-
19 al plans, which allow us to drill horizontally, sometimes over 10,000 feet, with a
20 high level of accuracy. Finally, I communicate with the drilling consultants and
21 contractors on the well pad location to successfully drill the lateral wellbore in the
22 targeted stratigraphic interval; this is called “geosteering” the well. After the wells
23 are drilled on a particular well pad, I then work with the completion engineers to
24 provide them with any geologic information they may need in order to facilitate
25 their hydraulic fracture stimulation designs. In addition, I do detailed subsurface
26 geologic structure and isopach mapping, well log correlations and related strati-
27 graphic interpretations.

28 **Q6. What is the purpose of your testimony today?**

29 A6. I am testifying in support of the *Application of Antero Resources Corporation for*
30 *Unit Operation* (the “Application”) with respect to the Harrison Unit, consisting of
31 twenty-seven (27) separate tracts of land totaling approximately 457 acres in

1 Belmont and Monroe Counties, Ohio. My testimony will show that the Unitized
2 Formation described in the Application is part of a pool and thus an appropriate
3 subject of unitization. Additionally, my testimony will support the Unit Plan's
4 allocation of unit production and expenses to separately owned tracts on a surface-
5 acreage basis, based on the unit area's nearly uniform thickness and substantially
6 identical geological characteristics throughout.

7 **UNITIZED FORMATION IS PART OF A POOL.**

8 **Q7. To begin, would you tell me what a "pool" is?**

9 A7. A pool is generally understood to be an area of geologically consistent reservoir
10 properties such as thickness, porosity, resistivity, and rock type which share an
11 accumulation of hydrocarbons. This is consistent with the Ohio statutory definition
12 defining a pool as "an underground reservoir containing a common accumulation of
13 oil or gas, or both, but does not include a gas storage reservoir."

14 **Q8. How is the Unitized Formation defined for the Harrison Unit?**

15 A8. It is defined as the subsurface portion of the Harrison Unit at a depth from fifty (50)
16 feet above the top of the Utica Shale, to fifty (50) feet below the base of the Point
17 Pleasant Formation, believed to be approximately 8,600 feet subsurface to 8,915
18 feet subsurface True Vertical Depth ("TVD") from ground.

19 **Q9. Do you have an opinion on whether or not the Unitized Formation**
20 **contemplated by the Harrison Unit constitutes a pool or part of a pool?**

21 A9. Yes. It is my opinion, based on my education and professional experience, that the
22 Unitized Formation is part of a pool.

23 **Q10. Why?**

24 A10. Antero believes the Utica Shale and Point Pleasant Formation are both part of the
25 same pool. In the Harrison Unit, we will drill a target zone in the Point Pleasant
26 Formation, and believe our hydraulic fracturing operations will go through the
27 Point Pleasant Formation and into the Utica Shale. Based on our geologic under-
28 standing of the Utica Shale and Point Pleasant Formation, the main reservoir is the
29 Point Pleasant Formation. That is from where most of the hydrocarbons are pro-
30 duced. However, we have seen natural fracturing, porosity, and oil/gas accumula-
31 tion in cores taken from the Utica Shale, and believe that our hydraulically created

1 fractures may penetrate and drain a small portion of that formation.

2 **Q11. What data sources did you use in determining the geologic features of the**
3 **Harrison Unit?**

4 A11. I used wireline logs from surrounding wells, cores from the Miley 5H Pilot well, and
5 microseismic data from the Keylor Unit.

6 **Q12. Did you prepare any exhibits to support your opinion?**

7 A12. Attachment 2, Exhibit 2 is a map of southeastern Ohio showing the area where the
8 Harrison Unit is being proposed, highlighted in blue. Attachment 2, Exhibit 1 is a
9 west-east stratigraphic cross-section of three key wells surrounding the Harrison
10 Unit, the Miley 5H Pilot, the ET Rubel 1 Pilot, and Stutzman 1-14 Pilot (see At-
11 tachment 2, Exhibit 2 for location of the cross section wells). The log data dis-
12 played are gamma ray in track 1, the green curve, and resistivity in track 2, the
13 black curve with pink and green color filled areas. As particularly seen on this ex-
14 hibit the log data show that the Utica/Point Pleasant Formation does not change
15 within or across the proposed Harrison Unit; the stratigraphy is regionally very
16 consistent. Geologic properties, like thickness and resistivity, are constant through-
17 out the Harrison Unit.

18 **Q13. How does this data support your opinion that the Harrison Unit should be**
19 **considered a part of a pool?**

20 A13. The log data demonstrate that formation thickness remains relatively constant
21 across the Harrison Unit. Porosity and resistivity will be relatively uniform, and the
22 thermal maturity of the rock, which applies to BTU and liquids content, is the same
23 across the unit. Based on the foregoing, in my professional opinion, the area within
24 the proposed Harrison Unit boundary is all one geologic unit, or part of the same
25 pool.

26 **Q14. Is your opinion based on your education and professional experience?**

27 A14. Yes.

28 **Q15. And is this a commonly accepted method of analysis in your profession for**
29 **determining whether a pool or part of a pool exists?**

30 A15. Yes.

1 ALLOCATION METHODOLOGY

2 **Q16. Production and expenses are allocated to the separate tracts in the Harrison**
3 **Unit under the Unit Plan on a surface-acreage basis. Do you have an opinion**
4 **on whether that allocation method is appropriate, given your education and**
5 **professional experience?**

6 A16. I do. In my opinion, surface allocation is the appropriate method.

7 **Q17. Why?**

8 A17. The relative thickness and reservoir quality of the Utica/Point Pleasant Formation is
9 expected to be consistent across the Harrison Unit. There are no substantial varia-
10 tions expected across the proposed unit and therefore there is no geologic reason to
11 allocate production using a method other than surface acreage.

12 **Q18. In your experience, is this a common method for allocating production and**
13 **expenses?**

14 A18. Yes.

15 **Q19. Have you seen this allocation method used in other shale basins?**

16 A19. Yes. Antero has used this method on all of the units that we have drilled in Ohio to
17 date. To my knowledge, similar methods for pooling are used in Colorado and
18 Oklahoma.

19 **Q20. Does this conclude your testimony?**

20 A21. Yes.

ATTACHMENT 4

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero :
Resources Corporation for Unit Operation :
: Application Date: September 13, 2016
:
Harrison Unit :

**PREPARED TESTIMONY OF ROBERT PETERSEN
ON BEHALF OF ANTERO RESOURCES CORPORATION**

Gregory D. Russell (0059718)
J. Taylor Airey (0081092)
Ilya Batikov (0087968)
VORYS, SATER, SEYMOUR AND PEASE LLP
52 East Gay Street
P. O. Box 1008
Columbus, Ohio 43216-1008

Attorneys for Applicant,
Antero Resources Corporation

PREPARED DIRECT TESTIMONY OF ROBERT PETERSEN

1 **INTRODUCTION.**

2 **Q1. What is your name and business address?**

3 A1. My name is Robert Petersen. I am a Reservoir Engineer with Antero Resources
4 Corporation (“Antero”). My business address is 1615 Wynkoop Street, Denver,
5 Colorado 80202

6 **Q2. Can you please describe your educational background?**

7 A2. I hold Bachelor’s of Science degrees in both Mathematics and Physics from Mon-
8 tana State University Bozeman and a Master’s of Science degree in Petroleum En-
9 gineering from The University of Texas Austin.

10 **Q3. Describe your professional experience.**

11 A3. I have approximately seven years of experience working in oil and gas develop-
12 ment and exploration, four of which as a reservoir engineer focused on unconven-
13 tional natural gas field development in the Appalachian basin. I am in my second
14 year at Antero as a Reservoir Engineer working the Appalachian Basin. Prior to
15 working for Antero, I worked for Chevron Corporation in multiple disciplines in-
16 cluding reservoir simulation, enhanced oil recovery, reserves and reservoir engi-
17 neering. The most recent two years at Chevron were devoted to Appalachian Basin
18 asset development & reservoir engineering whereas the previous three consisted of
19 technical consulting on a variety of domestic and international oil and gas projects.

20 **Q4. Are you a member of any professional associations?**

21 A4. I have been a member of the Society of Petroleum Engineers for nine years in Colo-
22 rado, Pennsylvania and Texas.

23 **Q5. What does being a Reservoir Engineer entail?**

24 A5. As a Reservoir Engineer at Antero, I am responsible for quantifying hydrocarbon
25 volumes in the Utica/Point Pleasant and Marcellus Shale Formations. This work is
26 utilized in reserve/resource estimation, opportunity assessment and development
27 optimization activities. In addition, I coordinate data gathering activities such as
28 well testing, PVT analysis and pressure/temperature measurements; all of which are
29 performed in order to better understand the reservoir and forecast well performance

1 more accurately. Some of the tools I use to estimate reserves include decline curve
2 analysis, rate transient analysis, reservoir modeling/simulation, and volumetric cal-
3 culations.

4 **Q6. What is the purpose of your testimony today?**

5 A6. I am testifying in support of the *Application of Antero Resources Corporation for*
6 *Unit Operation* (the “Application”), with respect to the Harrison Unit, consisting of
7 twenty-seven (27) separate tracts of land totaling approximately 457 acres in Bel-
8 mont and Monroe Counties, Ohio. My testimony addresses the following: (i) that
9 unit operations for the Harrison Unit are reasonably necessary to increase substan-
10 tially the ultimate recovery of oil and gas; (ii) that the value of the estimated addi-
11 tional recovery due to unit operations exceeds its estimated additional costs.

12 **UNIT OPERATIONS ARE REASONABLY NECESSARY TO INCREASE SUB-**
13 **STANTIALLY THE ULTIMATE RECOVERY OF OIL AND GAS.**

14 **Q7. With regard to the Harrison Unit, have you made an estimate of the produc-**
15 **tion you anticipate from the proposed unit’s operations?**

16 A7. Yes, it is estimated that if the Harrison Unit was developed by drilling two laterals
17 projected to be approximately 8,679’, and 10,561’ in length, respectively, 457 acres
18 would be effectively developed and 38.3 Bcf of dry gas would be recovered. The
19 calculations are summarized in Attachment 2, Exhibit 5.

20 **Q8. How did you make these estimates?**

21 A8. Using well offset well production data, analogous shale plays, decline curve analy-
22 sis and reservoir modeling/simulation, type curves for dry gas wells in the Uti-
23 ca/Point Pleasant Shale were generated. The reserves applied to the three wells in
24 the Harrison Unit have been estimated based on these type curves. This process is
25 recognized throughout all North American unconventional shale plays and industry
26 accepted assumptions and practices were adhered to.

27 **Q9. If the Harrison Unit as proposed were not granted, have you estimated the**
28 **production that could be recovered?**

29 A9. Yes, the results of my calculations are summarized in Attachment 2, Exhibit 5. If
30 we were not able to unitize the Harrison Unit, Antero would only be able to drilling

1 shorter segments of the two laterals in the Harrison Unit. The stimulated lateral
2 length reduction is a result of the inability to complete segments because of non-
3 conforming leases, uncommitted working interest, and “stand-off” requirements.
4 The net result of non-unitization would be a total loss of 10.9 Bcf of potential re-
5 serves as both wells could be drilled but, both would be significantly shorter. I
6 have included estimates of the costs, recovery and net present value of the unit
7 without unitization in the second table of Attachment 2, Exhibit 5 labeled “Non-
8 Unitized Harrison Unit (Stranded Reserves Associated with Stand-Off)”.

9 **Q10. In your professional opinion, would it be economic to develop the Harrison**
10 **Unit using traditional vertical drilling?**

11 A10. No, vertical well drilling is more applicable in a thicker, more permeable produc-
12 tive interval. Horizontal drilling in conjunction with multi-stage hydraulic fractur-
13 ing is necessary in tight shale formations such as the Utica/Point Pleasant. This
14 technology has the effect of increasing the surface area exposed to the formation
15 and in turn provides more conduits by which the hydrocarbons can be drained.
16 Without horizontal drilling and stimulation, the permeability is too low to produce
17 sufficient quantities of hydrocarbons to economically justify the expense of drill-
18 ing.

19 **Q11. Summarize what your calculations show and the differences between unitized**
20 **vs non-unitized development?**

21 A11. The results of my calculations are summarized in Attachment 2, Exhibit 5. In the
22 unitized development plan, we would develop 457 acres of the Utica/Point Pleasant
23 by drilling two wells of approximately 8,679’, and 10,561’ in length, respectively,
24 or 19,240’ stimulated lateral in total. Without unitization, we could only drill
25 shortened laterals allowing for approximately 13,810’ of stimulated lateral. The
26 non-unitized development would require a total of \$15.94 million of capital in-
27 vestment with an anticipated recovery of 27.5 Bcf of natural gas. In contrast the
28 unitized case, where we would produce from two longer laterals requiring a total of
29 \$19.71 million of capital investment and anticipate approximately 38.3 Bcf of total
30 natural gas production.

31 **Q12. Is the increase in production associated with unitization solely due to drilling**

1 **the currently unleased parcels?**

2 A12. No, the increased production is not solely attributable to production associated with
3 the unleased parcels, but rather the impact the reserves loss associated with these
4 parcels has on development economics which would result in the reduction of wells
5 drilled if the Harrison Unit was not unitized. Without unitization, the leased parties
6 who would like to participate in the Harrison Unit will receive greatly reduced rev-
7 enue from oil and gas development. These mineral owners have willingly entered
8 into leases which allow for the production of oil and gas from their property.

9 **Q13. Do you believe that the proposed unit operations are reasonably necessary to**
10 **increase substantially the ultimate recovery of oil and gas from the unit area?**

11 A13. Absolutely. Without unitization, only 27.5 Bcf of the estimated 38.3 Bcf of re-
12 serves associated with the two wells would be produced. I believe that the pro-
13 posed unitization of the Harrison Unit is necessary to protect the correlative rights
14 of all mineral owners within the unit, while effectively and prudently maximizing
15 recovery of hydrocarbons.

16 **VALUE OF ESTIMATED ADDITIONAL RECOVERY EXCEEDS ITS ESTIMAT-**
17 **ED ADDITIONAL COSTS**

18 **Q14. Let's turn to the financial side of the project. Generally, in your professional**
19 **experience, how would the economics of a development project such as the de-**
20 **velopment of the Harrison Unit be evaluated?**

21 A14. During the reserve estimation process, a production profile which is proportional to
22 the stimulated lateral length was generated to estimate produced volumes over time
23 for each well. This, along with a specific pricing scenario, is essential in generating
24 revenues attributable to a well or a project.

25 **Q15. Did you do that here?**

26 A15. Yes, the results of that evaluation are summarized in Attachment 2, Exhibit 5.

27 **Q16. Would you walk us through your economic evaluation, beginning with your**
28 **estimate of the anticipated revenue stream from the Harrison Unit's develop-**
29 **ment?**

1 A16. I have estimated capital requirements based on each well's lateral length. Each
2 well assumes the same operating expense model and pricing. Once I have antici-
3 pated future volumes generated for each well, I discount the revenue on an annual
4 basis in order to generate a net present value and return for the project.

5 **Q17. What price scenario did you use?**

6 A17. For preparation of economics, average five year strip pricing was used reflective of
7 current market conditions. NYMEX pricing for gas was \$3.04/MMBTU. It is an-
8 ticipated that gas the Harrison Unit will produce dry gas.

9 **Q18. What about anticipated capital and operating expenses?**

10 A18. Capital and operating expenses were incorporated in my analysis. The total esti-
11 mated capital is based on the capital costs for both the drilling and completion pro-
12 cess. The basis for this estimate comes from recent costs we have experienced and
13 incurred in our Utica drilling program. Our operations group calculates a cost for
14 various lateral lengths which are scaled based on the respective lateral length of
15 each well in the Harrison Unit. The operating expenses are based on operating ex-
16 perience we have from similar operating areas in West Virginia and Ohio. I look at
17 total operating costs allocated to each well. The costs are then categorized as a
18 fixed or variable cost. Operating costs incorporated in this analysis are both fixed
19 and variable cost estimates.

20 **Q19. Did you consider whether the Harrison Unit could be developed using a differ-
21 ent, smaller unit or by locating the well pad somewhere else?**

22 A19. Yes, however there was not a feasible solution for alternative development. Other
23 potential locations were ruled out due to ownership, topography, and setback from
24 dwelling requirements that made it difficult to locate an alternative pad site that
25 would be suitable to develop all of the minerals. Therefore, developing the Harri-
26 son Unit from the location demonstrated on Attachment 2, Exhibit 3 will maximize
27 efficiency, minimize surface disturbance, and is the sensible decision operationally,
28 environmentally and economically.

29 **Q20. Based on this information and your professional judgment, does the value of
30 the estimated additional recovery from the unitized project exceed its estimat-**

1 **ed costs?**

2 A20. Yes. The capital expense is \$19.71 million for the unitized project, as compared to
3 \$15.94 million for what could be developed in the non-unitized project. The net
4 present value of the proposed project is \$8.11 million as compared to \$4.28 million
5 (these are net present values are after capital expenditures).

6 **Q21. Does this conclude your testimony at this time?**

7 A21. Yes.

ATTACHMENT 5

**STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT**

In re the Matter of the Application of Antero :
Resources Corporation for Unit Operation :
 : Application Date: September 13, 2016
 : Supplement Date: October 27, 2016
Harrison Unit :

**PREPARED TESTIMONY OF JORDAN P. BRANDENBURG
ON BEHALF OF ANTERO RESOURCES CORPORATION**

Gregory D. Russell (0059718)
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Attorneys for Applicant,
Antero Resources Corporation

PREPARED DIRECT TESTIMONY OF JORDAN P. BRANDENBURG

1 **INTRODUCTION.**

2 **Q1. Please introduce yourself to the Division.**

3 A1. My name is Jordan P. Brandenburg. I am a Senior Landman for Antero Resources
4 Corporation (Antero) and am based in its Denver, Colorado office.

5 **Q2. What is your educational background?**

6 A2. I received a Bachelor of Arts in Liberal Studies from Oklahoma State University in
7 2006.

8 **Q3. Would you briefly describe your professional experience?**

9 A3. I began my career in January 2007 as a landman for Chesapeake Energy Corpora-
10 tion in Oklahoma City, and I worked both shale and non-shale plays in Oklahoma,
11 Kansas and Arkansas. I first started working the Utica Shale in Ohio in 2012 while
12 employed with Gulfport Energy Corporation and I joined Antero in June 2014.

13 **Q4. What do you do as a Senior Staff Landman for Antero?**

14 A4. As a landman I am responsible for managing field brokers, negotiating lease
15 acquisitions, and handling title matters for our operations in the Utica Shale. I have
16 also been responsible for overseeing our unitization efforts with regard to the
17 Harrison Unit.

18 **Q5. Are you a member of any professional associations?**

19 A5. I am a member of the American Association of Professional Landmen and the
20 Denver Association of Petroleum Landmen.

21 **Q6. What is the purpose of your testimony today?**

22 A6. I am testifying in support of the *Application of Antero Resources Corporation for*
23 *Unit Operation* (the "Application"), with respect to the Harrison Unit, consisting of
24 twenty-one (21) separate tracts of land totaling approximately 457 acres in Monroe
25 and Belmont Counties, Ohio. In particular, I will describe the efforts made by
26 Antero to put the Harrison Unit together and the Unit Plan that Antero is proposing.

27 **EFFORTS MADE BY ANTERO TO LEASE UNIT TRACTS.**

28 **Q7. The Application submitted by Antero indicates that it owns the oil and gas**
29 **rights to approximately 436 acres of the proposed Harrison Unit, right?**

30 A7. Yes. Antero now holds leases for approximately 437 acres, or 95.627% of the unit.

1 That's reflected on Exhibit A-2 to the Unit Operating Agreement.

2 **Q8. Would you describe how Antero acquired those rights?**

3 A8. Antero acquired those rights through a combination of acquiring leases from other
4 operators and acquiring leases from unleased landowners within the Harrison Unit.

5 **Q9. Are there other operators in the Harrison Unit?**

6 A9. Yes, Northwood Energy Corporation, Inc. holds the working interests in Tracts 3b,
7 4b, 5b, 7b, 8b, and 9b, which represent approximately 4.373% of the unit. That's
8 reflected on Exhibit A-2 and Exhibit A-4 of the Unit Operating Agreement.

9 **Q10. Are there other owners of working interests within the Harrison Unit?**

10 A10. There are not. Antero has received an assignment of the all of the outstanding
11 working interests in Tract 1 as reflected on Exhibit A-2.

12 **Q11. Is there any unleased acreage in the Harrison Unit?**

13 A11. No, currently all tracts within the Harrison Unit are subject to oil and gas leases.

14 **Q12. Do all of the Antero leases conform to the proposed Harrison Unit?**

15 A12. No. There is a tract (Tract 1) in the Harrison Unit under lease – identified on
16 Exhibit A-5 of the Unit Operating Agreement – which lease contains a non-
17 conforming pooling provision and covers approximately 11 acres (the “Non-
18 Conforming Lease”). This lease contains a pooling provision that allows the
19 lessee, i.e. Antero, to voluntarily consolidate the lease's acreage into units smaller
20 than the 457 acres required for Antero to voluntarily form the Harrison Unit or it
21 contains no pooling provision at all. This lease, therefore, does not “conform” to
22 the Harrison Unit's proposed acreage if we try to voluntarily create the Harrison
23 Unit, and thus Tract 1 needs to be statutorily unitized if we are to effectively and
24 efficiently develop the Harrison Unit. The interest of the Non-Conforming Lease
25 represents approximately 2.416% of the acreage within the Unit.

26 **Q13. Have you prepared an affidavit detailing Antero's efforts to obtain the
27 commitment of the uncommitted working interests and modifications of the
28 Non-Conforming Lease?**

29 A13. Yes, an affidavit of Non-Conforming Lease and Non-Consenting Working Interests
30 Efforts is attached to the Application as Attachment 2, Exhibit 7 detailing the
31 efforts of Antero to obtain voluntary agreements within the Harrison Unit.

1 **Q14. Do you have an exhibit in your testimony that shows the uncommitted**
2 **working interests and Non-Conforming Lease within the Harrison Unit?**

3 A14. The plat in Attachment 2, Exhibit 3 shows the uncommitted working interest in
4 green and tracts subject to a Non-Conforming Lease purple.

5 **Q15. Do you have an aerial plat of the Harrison Unit?**

6 A15. Yes, I've attached one as Attachment 2, Exhibit 4.

7 **UNIT PLAN PROVISIONS.**

8 **Q16. Would you describe generally the development plan for the Harrison Unit?**

9 A16. Antero plans to develop the Harrison Unit from two well pads, which are located
10 on the southwestern and off the southeastern portions of the Harrison Unit,
11 respectively, from which we intend to drill two horizontal wells. The two laterals
12 are projected to be 8,682' and 10,567' in length, respectively, as shown on
13 Attachment 2, Exhibit 3.

14 **Q17. Does Antero have a specific timeline for drilling the wells in the Harrison**
15 **Unit?**

16 A17. Antero intends to spud the 2H well of the Harrison Unit in July of 2017 followed
17 immediately by the 1H well.

18 **Q18. Does Antero have any other development activity in the immediate area?**

19 A18. Yes, Antero has planned development in the area of the Harrison Unit which is
20 demonstrated on Attachment 2, Exhibit 6.

21 **Q19. Are you familiar with the Unit Plan proposed by Antero for the Harrison**
22 **Unit?**

23 A19. Yes. The Unit Plan proposed by Antero is attached to the Application and consists
24 of an initial document that establishes the non-operating relationship between the
25 parties in the unit, and an operating agreement and related exhibits that establish
26 how the unit is going to be explored, developed and produced.

27 **Q20. Turning first to the body of the Unit Plan, marked as Attachment 1 to the**
28 **Application. Would you describe briefly what it does?**

29 A20. Yes. The general intent of the Unit Plan is to effectively combine the oil and gas
30 rights and interests in the Harrison Unit in a uniform manner so that they can be
31 developed as though each of the tracts were covered by a single lease.

- 1 **Q21. Are all of the oil and gas rights in the proposed unit combined?**
- 2 A21. No. The Unit Plan only unitizes the oil and gas rights in and related to the Unitized
3 Formation.
- 4 **Q22. How would production from the Harrison Unit be allocated?**
- 5 A22. On a surface-acreage basis. Under Article 4 of the Unit Plan, every tract is assigned
6 a tract participation percentage based on surface acreage, as shown on Exhibit A-2
7 to the Unit Operating Agreement. Article 5 of the Unit Plan allocates production
8 based on that tract participation.
- 9 **Q23. Would you go through an example from Exhibit A-2 to the Unit Operating**
10 **Agreement to illustrate what you mean?**
- 11 A23. Yes. If you look at Tract 1, parcel number 37-00617.000, on Exhibit A-2 to the
12 Unit Operating Agreement, you will see that it has 11.051 acres lying within the
13 boundary limits of the Harrison Unit, which is a 457.371 acre production unit.
14 Under the Unit Plan, Tract 1 would therefore be allocated 2.416% of the production
15 from the Harrison Unit.
- 16 **Q24. Is this the way production would be allocated to the tract covered by the Non-**
17 **Conforming Lease?**
- 18 A24. Yes.
- 19 **Q25. In your experience, is this an unusual way to allocate production in a unit?**
- 20 A25. No, this is the customary method for allocating production in a unit.
- 21 **Q26. How are unit expenses allocated?**
- 22 A26. Like production in the unit, generally on a surface-acreage basis. Article 3 of the
23 Unit Plan provides that expenses, unless otherwise allocated in the Unit Operating
24 Agreement, will be allocated to each tract of land within the unit in the proportion
25 that the surface acres of each tract bears to the surface acres of the entire unit.
- 26 **Q27. Who pays the unit expenses?**
- 27 A27. According to the terms of the proposed Unit Plan, the working interest owners.
- 28 **Q28. Do the royalty owners pay any part of the unit expenses?**
- 29 A28. No, unless the terms and conditions of the royalty owner's oil and gas lease dictate
30 otherwise.
- 31 **Q29. Let's turn to the Unit Operating Agreement. It appears to be based upon**

1 **A.A.P.L. Form 610 – Model Form Operating Agreement, is that correct?**

2 A29. Yes. We typically use a modified version of the 1989. The Form 610, together
3 with its exhibits, is a commonly used form in the industry and is frequently
4 modified to fit the needs of the parties and circumstances.

5 **Q30. Would it be fair to say, then, that you are familiar with the custom and usage**
6 **of the Form 610 and other similar agreements in the industry?**

7 A30. Yes.

8 **Q31. Turning to the Unit Operating Agreement in particular, does it address how**
9 **unit expenses are determined and paid?**

10 A31. Yes. Article III of the Unit Operating Agreement provides that all costs and
11 liabilities incurred in operations shall be borne and paid proportionately by the
12 working interest owners, according to their Unit Participation percentages. Those
13 percentages can be found in Exhibit A-2 to the Unit Operating Agreement.
14 Moreover, the Unit Operating Agreement has attached to it an accounting
15 procedure identified as Exhibit C that offers greater details regarding how unit
16 expenses are determined and paid.

17 **Q32. That's commonly referred to as the COPAS?**

18 A32. Yes, it stands for the Council of Petroleum Accountants Societies, Inc. and is a
19 commonly used form in the industry.

20 **Q33. Based upon your education and professional experience, do you view the terms**
21 **of Exhibit C as reasonable?**

22 A33. Yes. The terms as presented in Exhibit C are commonly accepted amongst
23 operators and clearly set forth definitions, processes, timelines, etc., so that all
24 parties can fully understand and agree as to those costs and accounting procedures
25 associated with the activity of drilling and producing oil and natural gas wells and
26 units.

27 **Q34. Will there be in-kind contributions made by owners in the unit area for unit**
28 **operations, such as contributions of equipment?**

29 A34. No.

30 **Q35. Are there times when a working interest owner in the unit chooses not to – or**
31 **cannot – pay their allocated share of the unit expenses?**

1 A35. Yes, such a situation is not uncommon in the industry. The agreements allow
2 working interest owners the flexibility to decline to participate in an operation that
3 they either cannot afford or believe is not likely to be profitable. The remaining
4 parties can then proceed at their own risk and expense.

5 **Q36. Generally, how is the working interest accounted for when an owner chooses**
6 **not to participate in an operation?**

7 A36. A working interest owner who cannot or choose not to participate in an operation is
8 considered a non-consenting party. If the remaining working interest owners
9 decide to proceed with the operation, the consenting parties bear the full cost and
10 expense of the operations. A non-consenting party is deemed to have relinquished
11 its interest in that operation until the well revenues pay out the costs that would
12 have been attributed to that party, plus a prescribed risk penalty or non-consent
13 penalty.

14 **Q37. Can a working interest owner choose to go non-consent in the initial well in**
15 **the Harrison Unit?**

16 A37. Under the terms of Article VI of the Unit Operating Agreement a party can choose
17 not to participate in the unit's initial well. Article VI provides that such a party
18 shall be deemed to have relinquished its working interest to the other parties in the
19 unit, with a back-in provision and risk factor of 500%.

20 **Q38. Does the Unit Operating Agreement treat the initial well and subsequent**
21 **operations differently in terms of going non-consent?**

22 A38. The initial well and subsequent operations are both subject to a back-provision and
23 risk factor of 500%.

24 **Q39. Where are the risk factors for subsequent operations set out in the Unit**
25 **Operating Agreement?**

26 A39. They are set out in Article VI.B of the Unit Operating Agreement.

27 **Q40. Are the percentages included in the Unit Operating Agreement unusual?**

28 A40. No, not for joint operating agreements used in horizontal drilling programs.
29 Because of the significant costs associated with drilling horizontally in the Utica /
30 Point Pleasant (see Attachment 2, Exhibit 5 showing an estimate of the cost to
31 develop the unit of almost \$20,000,000) and because the Utica / Point Pleasant is

1 an unconventional play, it is common for companies to incorporate into their joint
2 operating agreements a risk factor that is proportionate to the substantial financial
3 commitment, and these percentages are sometimes higher than those contained in
4 the Unit Operating Agreement.

5 **Q41. But if a working interest owner still has a royalty interest in the unit, that**
6 **royalty interest would remain in place and be paid?**

7 A41. Yes. That royalty interest would still be paid.

8 **Q42. How are decisions made regarding unit operations?**

9 A42. Article V of the Unit Operating Agreement designates Antero as the Unit Operator,
10 with full operational authority for the supervision and conduct of operations in the
11 unit.

12 **Q43. I believe you've already described generally the documents in Exhibits A and**
13 **C to the Unit Operating Agreement. Let's turn therefore to Exhibit B of the**
14 **Unit Operating Agreement. What is it?**

15 A43. Exhibit B is a standard oil and gas lease form that is attached to the joint operating
16 agreement to govern any unleased interests owned by the parties. Article III.A of
17 the Unit Operating Agreement provides that if any party owns or acquires an oil
18 and gas interest in the Contract Area, then that interest shall be treated for all
19 purposes of the Unit Operating Agreement as if it were covered by the form of
20 lease attached as Exhibit "B."

21 **Q44. Does this oil and gas lease contain standard provisions that Antero uses in**
22 **connection with its operations in Ohio?**

23 A44. Yes.

24 **Q45. Moving on to Exhibit D of the Unit Operating Agreement, would you describe**
25 **what it is?**

26 A45. Yes, Exhibit D is the insurance exhibit to the joint operating agreement. It sets
27 forth coverage amounts and limitations, and the insurance terms for operations
28 conducted under the Unit Operating Agreement.

29 **Q46. Would you next describe to the Division Exhibit E of the Unit Operating**
30 **Agreement?**

31 A46. Yes. Exhibit E is the Gas Balancing Agreement, which further details the rights

1 and obligations of the parties with respect to marketing and selling any production
2 from the Contract Area.

3 **Q47. In your professional opinion, given your education and experience, are the**
4 **terms of the Unit Plan, including the terms of the exhibits just discussed, just**
5 **and reasonable?**

6 A47. Yes.

7 **Q48. Does this conclude your testimony?**

8 A48. Yes.