

## EXHIBIT "A"

This Exhibit "A" is attached to and made a part of that certain Oil and Gas Lease dated \_\_\_\_\_ (the "Lease") by and between **The Muskingum Watershed Conservancy District** ("Lessor"), 1319 3<sup>rd</sup> St., NW, PO Box 349, New Philadelphia, Ohio, 44663, as Lessor, and **Antero Resources Appalachian Corporation** ("Lessee"), a Delaware corporation, whose address is 1625 17<sup>th</sup> Street, Denver, CO 80202. If any of the following provisions conflict with or are inconsistent with the printed provisions or terms of this Lease, the following provisions shall control.

The Lessor is a political subdivision and a body corporate of the State of Ohio, with all the powers of a corporation, duly engaged in carrying out the public purposes and services authorized under the Conservancy Laws of the State of Ohio, being Sections 6101.01 to 6101.99, inclusive, of the Ohio Revised Code. In accordance with its primary purposes and present and future services to the public, it is necessary for the Lessor to reserve herein various rights of prior or other approval of or permission for activities which the Lessee may be carrying on or proposing to carry on under the provisions of this Lease. The Lessee hereby recognizes the primary public purposes and activities of the Lessor involved and accepts this Lease with knowledge thereof and agrees that the right of the Lessor, its Board of Directors or its duly authorized officers or other representatives to grant permission or approval only upon specific condition or conditions, or to withhold permission or approval at the sole discretion of the Lessor, or the person or persons authorized to act for it.

The oil and gas or either thereof which may underlie the Leasehold, if present thereunder, constitute a valuable natural resource which can be made available for use to the maximum degree only if the extraction thereof is conducted contemporaneously with or prior to similar operations now under way or contemplated on other adjoining or nearby properties. The Board of Directors of Lessor has determined that the execution of this Lease is in keeping with sound principals of overall public resource management in that the long term public benefits will be greater than any damage to public land and other resources which could result.

This lease and the rights and privileges herein granted to Lessee are subject to:

- (A) Any flowage easements that may have been or that may hereafter be conveyed by the Lessor to the United States of America or otherwise acquired by the United States of America.
- (B) All existing farming and pasturing rights or other rights which Lessor may have granted and to which the Leasehold or any portion or portions thereof are subject.
- (C) Public or private roads, ways, uses, easements, exceptions, reservations, covenants and conditions, if any, of record or which may exist as long as the same remain in force and effect.
- (D) Such state of facts as an examination of said tracts and/or survey thereof would disclose.
- (E) All existing electrical power, telephone and telegraph lines, pipe lines, radio and micro-wave stations and the poles, towers, guys and anchors or other appurtenances thereto, buildings, recreational and other facilities with reasonable means of access thereto to service, maintain, enlarge, renew, repair, replace, extend, patrol and remove said facilities and to any future facilities and appurtenances which Lessor may deem necessary for public utility or other public use or service or require for its own use.

**DEPTH LIMITATION:** Notwithstanding anything to the contrary herein, this Lease is limited to those depths lying below the top of the Queenston Formation. Lessor expressly excepts from this Lease, reserves and retains all rights and depths from the surface of the earth to the top of the Queenston Formation, provided however, that Lessee shall have a subsurface easement to drill through those depths lying 500 feet above the top of the Queenston Formation, if such subsurface easement is necessary for Lessee to access the depths lying below the top of the Queenston Formation. It is specifically understood that such subsurface easement does not grant Lessee the right to complete, test, or produce oil, gas or other minerals from any depths above the top of the Queenston Formation. Specifically reserved by Lessor are all oil, gas and other mineral rights from the surface of the earth to the top of the Queenston Formation.

**ROYALTY PAYMENTS:** Notwithstanding anything to the contrary herein, all oil, gas and other proceeds accruing to Lessor under this Lease shall be without deduction for, directly or indirectly, any post-production costs, including but not limited to, the cost of producing, gathering, storing, separating, treating, dehydrating, compressing, processing, transporting, metering, and marketing the oil, gas and other products produced, saved and sold from the Leasehold.

**METERING & MEASUREMENT:** Lessee shall operate each well with a discrete well meter at the well site, which will measure all the gas produced from that well. Lessee shall ensure that all meters are maintained according to industry standards. The volume of gas produced, saved, used, or marketed shall be measured according to American Gas Association (AGA) standards Boyle's Law for the measurement of gas under varying pressures.

**MARKET ENHANCEMENT:** It is agreed between the Lessor and Lessee that, notwithstanding any language herein to the contrary, all oil, gas or other proceeds accruing to the Lessor under this Lease shall be paid without deduction for, directly or indirectly, any post-production costs, including but not limited to, the costs of producing, gathering, storing, separating, treating, dehydrating, compressing, processing, transporting, and marketing the oil, gas and other products produced hereunder to extent such costs are necessarily incurred to transform the product into a marketable form; provided, however, any such costs which result in enhancing the value of already marketable oil, gas or other products may be deducted from Lessor's share of production proceeds so long as such costs are

reasonable and do not exceed the value of the enhancement obtained by incurring such costs.

**NO OTHER MINERALS:** This Lease shall cover only oil, gas, casinghead gas, casinghead gasoline and all other gases and their respective constituent vapors, liquid or gaseous hydrocarbons produced in association therewith that may be produced through the well bore. This Lease does not include and there is hereby excepted and reserved unto Lessor all of 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 Leasehold, together with rights of ingress and egress and use of the Leasehold by Lessor or its lessees or assignees for purposes of exploration for and production and marketing of the materials and minerals reserved hereby.

**SECONDARY TERM:** With regard to the extension of this lease beyond the primary term, operations shall mean only (a) the production of oil, gas or other liquid hydrocarbons in paying quantities subsequent to drilling or (b) the actual drilling, completing, reworking, recompleting, deepening, plugging back or repairing of a well in search for or in an endeavor to obtain production of oil or gas, conducted in good faith and with due diligence.

**PRUDENT OPERATOR:** Lessee will conduct all operations as a prudent owner, and will attempt to secure a timely market for production from a well.

**NO STORAGE OR DISPOSAL RIGHTS:** Notwithstanding anything to the contrary herein, Lessee is not granted any right whatsoever to use the Leasehold, or any portion thereof, for gas storage purposes or the disposal of any salt water or other substance beneath the Leasehold for any purpose.

**NO GAS COMPRESSION OR PROCESSING FACILITIES:** There shall be no natural gas compressors or processing facilities located on the Leasehold.

**OFFSETS:** No well containing any portion of the Leasehold shall be shut in if drainage will occur through any well within the distances for oil and gas wells on lands not owned by the Lessor and, if such draining gas wells are on compression, the offset wells on the Leasehold shall be placed on compression, as long as safety and environmental integrity are maintained.

**PLUGGING:** Lessee shall properly and effectively plug all wells drilled by Lessee on any portion of the Leasehold or in a Unit formed that contains any portion of the Leasehold before abandoning, in accordance with the regulations of the State of Ohio.

Lessee shall have six (6) months after termination, abandonment, or surrender of the lease, or any part thereof, in which to plug and abandon all wells drilled by the Lessee.

For any well drilled under the terms of this lease which shall be plugged, Lessee shall provide a copy of the plugging report to the Ohio Department of Natural Resources ("ODNR") within thirty (30) days after plugging of a well and shall be completed as directed by ODNR.

**OPERATIONS BY LESSEE:** All operations and activities conducted by Lessee pursuant to this Lease shall be done with due diligence, in a good and workmanlike manner, using skilled, competent and experienced workers and supervisors and in accordance with good oilfield practices and industry standards. Lessee agrees to comply with all laws, rules, and regulations, which are now or may become applicable to the Lessee's operations and activities covered by this Lease or arising out of the performance of such operations and activities whether within or without the Leasehold, including, but not limited to, all applicable environmental laws, rules, and regulations. In the event that any provision of this Lease is inconsistent with or contrary to any applicable law, rule or regulation, said provision shall be deemed to be modified to the extent required to comply with said law, rule, or regulation and this Lease, as so modified, shall remain in full force and effect during the term hereof.

**DISCHARGE OF LEASE:** Upon termination of this Lease or any portion thereof, or upon expiration of this Lease, Lessee shall provide Lessor documentation in recordable form of such termination or expiration within thirty (30) calendar days after the date of termination or expiration. Should Lessee fail to provide such documentation, Lessee hereby grants to Lessor the right and authority, after thirty (30) days prior written notice delivered to Lessee by certified mail at the address shown on this lease, or such other address as has been subsequently provided by Lessee to Lessor, to file an affidavit on record reflecting such expiration or termination, which filing shall be binding upon Lessee.

**PROHIBITION OF ACTIVITIES:** Lessee is prohibited from performing any activity on the surface of the Leasehold which is not expressly permitted pursuant to the terms and conditions of this Lease.

**WATER DAMAGE AND TESTING:** In the event any operations or activities carried on by Lessee damage, disturb, contaminate or injure fresh water well or source located on a Unit containing any portion of the Leasehold, Lessee shall at its sole expense use its best efforts to correct any such damage, disturbance, contamination or injury. Lessee shall have Lessor's current water supply sampled and tested prior to any drilling on the Leasehold, and Lessee shall offer to test both (i) prior to the drilling of each well and (ii) within sixty (60) days of the completion of each well or group of wells drilled within 120 days, all other water supplies within 2,500' feet of any well drilled on a Unit containing any portion of the Leasehold. Should Lessor or any owner of such water supplies experience a demonstrable material adverse change in the quality of their water supply that could be related to Lessee's activities and are compared to the baseline established under this paragraph, during or after the completion of Lessee's drilling and/or completion operations, Lessee shall, within forty-eight (48) hours of Lessor's or other such owner's written request, sample and test, their water supply at Lessee's expense. Should such test reflect a material

adverse change as the result of Lessee's drilling and/or completion operations within Units containing any portion of the Leasehold, Lessee, at Lessee's expense, agrees to provide Lessor or said owners with water of quality comparable to the fresh water source damaged until such time as Lessor's or other such owner's water source has been repaired or replaced with a source of substantially similar quality. Any such repair or replacement of Lessor's or other such owner's water supply, including any and all costs associated therewith, shall be the sole responsibility of Lessee. The statutory protections related to potable water quality and quantity as set forth in Ohio Law are hereby incorporated by reference.

**DAMAGE TO SURFACE WATER:** Lessee shall not use any water from Lessor's lakes, ponds, streams or springs. In the event any operations or activities carried on by Lessee damage, disturb, contaminate or injure any lakes, ponds, streams or springs on the Leasehold, Lessee shall correct any such damage, disturbance, contamination or injury and shall be solely responsible for any and all costs associated therewith.

**INDEMNIFICATION:** Lessee shall indemnify, protect, save harmless and defend Lessor from and against any loss, claim or expense, including without limitation claims for injury or death to persons, damage to property, water supply or natural resources occurring as a result of Lessee's operations and activities pursuant to this Lease and/or the use of the Leasehold, or as a result of loss, expense, injury, death or damage, which would not have occurred but for Lessee's operations and activities pursuant to this Lease and/or the use of the Leasehold, except to the extent any such damage or injury is caused by Lessor's negligence.

**NO WARRANTY OF TITLE:** This Lease is given without warranty of title, expressed or implied. The sole responsibility for confirming good title to the Leasehold shall be that of Lessee and Lessee shall perform any title searches at Lessee's sole cost and expense. In the event Lessee incorrectly confirms the title and ownership rights to the Leasehold, it shall forfeit any payments made to Lessor. Lessee shall bear the burden of securing a subordination of mortgage, if deemed necessary. Lessee shall provide a copy of such subordination to Lessor.

**UNITIZATION AND POOLING:** Notwithstanding anything to the contrary herein, with regard to any wells drilled, without the written consent of Lessor, the Leasehold may not be pooled or unitized with any other lands unless Lessor, in good faith, uses best efforts so that at least fifty percent (50%) of the pooled or unitized unit is comprised of lands within the Leasehold. In the event Lessee desires to pool or unitize the Leasehold with other lands and there is no spacing order previously established by a governmental or regulatory body, Lessee shall not have the right to form a production unit larger than 640 acres, provided however, units containing a horizontal well with a horizontal component longer than 5,000 feet may contain more than 640 acres as determined by this formula:  $A = [(L-5000) \times 0.064] + 640$ , where A = unit size in acres, and L = the horizontal length of the wellbore in feet. No such calculation shall be made unless L is at least 5,150 feet. The lands included within the pooled or unitized unit for a well shall be as nearly as practicable in the form of a square or rectangle. Any pooled unit established in accordance with this paragraph shall be referred to herein as a "Unit".

**PUGH CLAUSE:** Upon expiration of the Primary Term or any extension thereof, in the event a portion or portions of the Leasehold is pooled or unitized with other land so as to form a Unit or Units; operations on, completion of a well upon, or production in commercially paying quantities from such pooled Unit(s) will not maintain this Lease in force as to the land not included in such Unit or Units, provided however, that if at the expiration of the Primary Term, Lessee is conducting operations (as defined in the paragraph entitled "Secondary Term") in any Unit containing any portion of the Leasehold, the Lease, as to the entire Leasehold, shall be maintained in force so long as Lessee continues to conduct operations in a diligent manner, with no more than ninety (90) days between the completion of one well and the commencement of the next.

**LESSOR'S AUDIT RIGHTS:** Lessor, upon thirty (30) days written notice to Lessee, shall have the right to audit, and/or copy, during normal business hours, Lessee's accounts, books and records, including, without limitation, any accounts, books, or records required to be kept or submitted to the Ohio Department of Natural Resources or other governmental agencies having jurisdiction over the activities contemplated by this Lease, for the purpose of verifying the accuracy of the reports and statements furnished to Lessor, and for checking the amount of payments lawfully due the Lessor under the terms of this Lease for any calendar year within the twenty-four (24) month period following the end of such calendar year. Lessee shall bear no portion of the Lessor's audit cost incurred under this paragraph. The audits shall not be conducted more than once each year without prior approval of Lessee.

**ASSIGNMENT OF LEASE:** Either party reserves the right to make an assignment of this Lease and all Exhibits thereto, provided that within thirty (30) days after such assignment is made the party who assigned the Lease must provide the name, address, phone number and contact person to whom the assignment was made. Lessee shall not assign this Lease without Lessor's prior written consent, which shall not be unreasonably withheld or delayed. Prior to Lessor's written consent to any such assignment, Lessee shall continue to be bound by all of the terms and conditions of this Lease and all of its obligations and liabilities hereunder. Lessee shall timely provide Lessor with a recorded copy of any such assignment.

**SHUT-IN PAYMENT:** For the purpose of calculating the Shut-in Royalty provided for in paragraph (D) of the section entitled "PAYMENTS TO LESSOR", the amount of the Delay Rental provided for in paragraph (A) of the section entitled "PAYMENTS TO LESSOR" is amended to thirty-five dollars (\$35.00) per acre per year.

**SHUT-IN LIMIT:** Notwithstanding anything to the contrary herein, this Lease may not be maintained in force for any continuous period of time longer than two (2) consecutive years or three (3) cumulative years out of any four (4) consecutive year period after the expiration of the primary term hereof solely by the provision of the shut-in royalty clause. The shut-in status of any well shall persist only so long as it is necessary to correct, through the exercise of good faith and due diligence, the condition giving rise to the shut-in of the well.

**INSURANCE:** Prior to conducting any operations or activities pursuant to this Lease, Lessee shall provide Lessor with a certificate of general liability insurance in the sum of at least Twenty Five Million Dollars (\$25,000,000.00) naming Lessor as additional insured covering the Leasehold and Lessor's property. This requirement shall remain in effect as long as Lessee has producing wells on a Unit including a portion of the Leasehold.

Lessee shall, at its sole expense, provide and maintain in full force and effect during the term of this lease such pollution liability insurance as shall protect the Lessor, the Lessee and its contractors, if any, from claims of environmental impairment and pollution from sudden, accidental, and/or a gradual release that may arise from or during the execution of this lease. The amount of pollution liability insurance shall not be less than \$5,000,000.00 per occurrence and \$10,000,000.00 in aggregate. Lessor shall be named as additional insured on Lessee's general liability and pollution liability policies as their interests may appear on Lessee's insurance.

Lessee shall provide Lessor with a certificate of insurance for its comprehensive general liability insurance and pollution liability insurance demonstrating the above coverage prior to beginning its operations or activities on a Unit containing any portion of the Leasehold.

Lessee shall advise Lessor of the cancellations of any insurance policy or surety bond required by this Lease immediately upon receipt of notice by Lessee of the cancellation and in no event later than thirty (30) days (ten (10) days for non-payment) prior to the effective date of the cancellation.

**ARBITRATION:** Any questions concerning this Lease or performance thereunder shall be ascertained and determined by three disinterested arbitrators, one thereof to be appointed by Lessor, one by the Lessee and third by the two so appointed as aforesaid and the award of such collective group shall be final and conclusive. Arbitration proceedings hereunder shall be conducted in the county where the Lease is filed, or in the county where the action occurred which caused the arbitration, or such other place as the parties to such arbitration shall all mutually agree upon. Each party will pay its own arbitrator and share costs of the third arbitrator equally.

**PAYMENTS:** Lessee shall tender payment and submit statements by the individual wells of the production and sales of oil, gas, other hydrocarbon products and other products within sixty (60) days of receipt by Lessee of payment of such production. When Lessee has failed to make any payment due under this lease for sixty (60) days, Lessee shall pay an additional twelve percent (12%) annual interest on the overdue amount calculated from the time of payment was due. Payment of such interest shall not waive Lessee's duty to make timely payments under this lease or limit Lessor's remedies for Lessee's failure to pay on time.

**BONUS PAYMENT:** Lessee agrees to pay Lessor a signing bonus of \_\_\_\_\_ Dollars (\$\_\_\_\_\_.00) for each acre contained within the Leasehold. The payment shall be made at the execution of the Lease for all of the Leasehold where Lessee has verified title. Lessee shall pay any other bonus amount within 90 days of execution of the Lease. By Lessor's signing this Lease, Lessor promises to proceed with this Lease and be bound thereby upon Lessee's paying the full amount of the bonus payment. Neither this Lease, nor any Memorandum of Lease shall be recorded by Lessee until the bonus payment has been received in full by Lessor, which receipt shall be acknowledged by Lessor in writing. All bonus payments, rentals and royalty payments made to Lessor under this Lease are nonrefundable.

**LESSEE'S TERMINATION:** Lessee may, at any time, or from time to time, surrender this lease or any portion thereof if Lessee is not then in default of any obligations under this lease; provided, however, that such surrender must be evidenced by written notice delivered to Lessor thirty (30) days prior to the effective date thereof, and that Lessee has performed all commitments with which Lessee is charged to the effective date of surrender. Any amount paid as an advance bonus or land rental, previous to the effective date of the surrender, shall be deemed liquidated damages due the Lessor and shall be in no way prorated or subject to claim by Lessee for return to Lessee.

**RELEASE:** Lessee shall not be granted a final release from the terms of this lease until all records and reports and other data described in this Lease have been provided to the Lessor, all wells required by the Lessor to be plugged have been plugged and plugging certificates provided, all other terms of this lease have been met, and the Lessor has met with Lessee's field engineer or other authorized representative and both parties have signed a Statement of Release.

**FRESHWATER IMPOUNDMENTS AND LINERS:** Lessee shall have no right to dig any pits on the Leasehold. Any impoundment within 1000 feet of the Leasehold shall: (i) conform to all applicable regulatory requirements (state, local and federal), (ii) be planned to be deep enough to allow at least thirty-six (36) inches of back fill over the liner after grading to surrounding pre-drill contour and (iii) promptly after completion of operations any backfill and the liners shall be removed and the impoundments shall be drained, prepared for burial, back filled, graded and planted within ninety (90) days (weather permitting). Lessee shall immediately notify Lessor and all applicable regulatory authorities if any impoundment lining is torn, punctured, or otherwise breached, allowing any fluid contained in an impoundment or designated to be contained in an impoundment to seep, leak or overflow through or around the liner.

The Lessee shall design, construct, operate and maintain all freshwater impoundments in accordance with the rules and regulations of the Ohio Department of Natural Resources. The location and construction of all freshwater impoundments must be approved by the Lessor in writing. Freshwater impoundments should not be located within 100 feet of a perennial stream, river, watercourse, water well pond lake or other body of water. The greatest depth of the impoundment should be a minimum of 20 inches above the seasonal high groundwater table. At least two (2) feet of freeboard must remain in the impoundment at all times. The impoundment should be structurally sound and the inside slopes of the impoundment are not steeper than a ratio of 2 horizontal to 1 vertical. The impoundment must be impermeable and lined with a synthetic flexible liner or alternate material that has a coefficient of permeability of no

greater than  $1 \times 10^{-7}$  cm/sec. The liner shall be of sufficient strength and thickness to maintain the integrity of the liner. The thickness of a synthetic liner shall be at least 30 mils. Adjoining sections of liners shall be sealed together in accordance with the manufacturer's directions to prevent leakage. Liner compatibility shall satisfy EPA Method 9090, *Compatibility Test for Wastes and Membrane Liners*, or other documented data approved by the Department.

All impoundments shall be constructed so that the liner subbase is smooth, uniform and free of debris, rock and other material that may puncture, tear, cut, rip or otherwise cause the liner to fail. The liner subbase and subgrade shall be capable of bearing the weight of the material above the liner without settling in an amount that will affect the integrity of the liner. If the impoundment bottom or sides consist of rock, shale or other material that may cause the liner to leak, a subbase of at least six (6) inches of soil, sand or smooth gravel, or a sufficient amount of an equivalent material shall be installed over the area as the subbase for the liner. Upon abandonment the impoundment shall be backfilled to the ground surface and graded to promote runoff with no depression that would accumulate or pond water on the surface. The stability of the backfilled impoundment shall be compatible with the adjacent land. The surface of the backfilled impoundment area shall be revegetated to stabilize the soil surface to establish a diverse, effective, permanent, vegetative cover which is capable of self-regeneration and plant succession.

### **SURFACE OPERATIONS:**

Notwithstanding anything to the contrary in the Lease, Lessee shall not have the right to use or occupy the surface of the Leasehold, including but not limited to, drilling activities, placing any equipment, roads, pipelines, utilities, living quarters, conducting geotechnical activities, conducting aerial spraying of any type, burning of brush or other waste materials, storing or placing any waste material upon any portion of the Leasehold. The following provisions shall apply under this Lease to all land in a Unit containing any portion of the Leasehold or located within ½ mile from the Leasehold:

a. **Compliance with Laws.** Lessee shall be responsible for any and all acts or matters arising out of or pertaining to Lessee's operations and activities on units containing any portion of the Leasehold whether reasonably foreseen or unforeseen. All operations and activities conducted by Lessee shall comply with federal, state and local law, statute, regulation and/or order, and the terms of this Lease, whichever is more strict. Lessee's failure to comply with any federal, state or local law or any regulation or order of any enforcement agency having jurisdiction over Lessee's operations shall be a default under this Lease.

b. **Degree of Care.** Lessee shall at all times use the highest degree of care known in the industry, and all reasonable safeguards to prevent its operations and activities from:

- i. causing or contributing to soil erosion;
- ii. polluting or contaminating any environmental medium including the surface or subterranean soils and/or waters and ambient atmosphere in, on, under, or about the Leasehold and surrounding properties;
- iii. decreasing the fertility of the soil;
- iv. damaging crops, native or cultivated grasses, trees, or pastures;
- v. harming or in any way injuring animals, whether domestic or wild on Units containing any portion of the Leasehold; and
- vi. damaging buildings, roads, structures, improvements, farm implements, gates or fences.

Lessee shall dispose of salt water, frac water or liquid waste oil and other waste in accordance with the rules and regulations of the Ohio Department of Natural Resources and all other applicable governmental authorities.

Lessee shall clean up, remove, remedy and repair any soil or ground water contamination and damage caused by its operations and activities on Units containing any portion of the Leasehold or release of any contaminant in, on, under, or about units containing any portion of the Leasehold, whether or not caused by the negligence of Lessee. Lessee shall pay to any person beneficially interested in the harmed object all damages caused by Lessee's operations and activities.

c. **Disposal.** Lessee shall not use the Leasehold for the temporary or permanent disposal of any drill cuttings, or the storage or disposal of residual wastes. No disposal wells or any other devices or means of disposal of wastes or drilling liquids are permitted on the Leasehold.

The lessee shall perform all well drilling using closed-loop systems which employ a suite of solids control equipment to minimize drilling fluid dilution and provide for the economic handling of the drilling wastes. The closed-loop system should include a series of linear-motion shakers, mud cleaners and a centrifuge dewatering system, or any equipment or methods with the same result or effect of resulting in a "dry" location where the use of a reserve pit is not required and used fluids are recycled and solid wastes can be stored in tanks and transported offsite to a state approved landfill or other lawfully permitted disposal site.

d. **Monitoring Wells.** In the event of a fluid discharge that is not contained within Lessee's containment system at a well site within a Unit containing any portion of the Leasehold, the lessee may be required to install groundwater monitoring wells which will be used to sample groundwater at the perimeter of the well site. Proper monitoring well design and construction should include consideration of site specific hydrogeologic conditions, and shall be in accordance with ODNR requirements. Lessee shall provide a record of any reportable release to Lessor as soon as practicable.

e. Use Subsurface Water. Lessee shall not drill or operate any water well, take water, or inject any substance, except fluid for hydrofracturing into the subsurface or otherwise use or affect water in subsurface water formations.

f. Revegetation. The surface of the land of any Unit containing any portion of the Leasehold shall be restored as nearly as practicable to its condition at the commencement of drilling operations. Restoration and reclamation revegetation shall be accomplished in accordance with seed mixes approved by the land owner or Lessor. The "A" horizon soils will be separated as part of pad construction as much as practicable and stockpiled separately. The topsoil pile will be used to facilitate subsequent reclamation and revegetation work.

The operator will support where practicable reclamation goals designed by the land owner to eliminate cool season grasses, such as fescue, in favor of legumes. Also native shrub plantings adjacent to the vertical edge of the existing hardwood will be undertaken as practicable to provide visual bufferring. The ultimate final reclamation will favor an early successional habitat where practicable and as approved by the land owner on the outer edge of the well pads and road systems. Lessor shall have the right to provide the revegetation plan.

g. Hazardous Materials. Lessee shall not use, dispose of or release on the Leasehold or permit to exist or to be used, disposed of or released on the Leasehold or any Unit containing any portion of the Leasehold as a result of its operations and activities any substances (other than those Lessee has been licensed or permitted by applicable public authorities to use on the Leasehold) which are defined as "hazardous materials," "toxic substances" or "solid wastes" in federal, state or local laws, statutes or ordinances. Should any pollutant, hazardous material, toxic substances, contaminated waste or solid waste be accidentally released on the Leasehold, Lessee shall notify Lessor immediately after notifying the applicable governmental body of such event. Lessee shall be responsible for and timely pay all costs of clean-up, remediation, and other costs related to and arising from the event, including but not limited to penalties.

h. Firewalling and Maintenance of Production Equipment. Dikes, firewalls or other methods of secondary containment must be constructed and maintained at all times around all tanks, separators and receptacles so as to contain a volume of liquid equal to at least 1.25 times the total volume of the largest vessel or interconnected vessels joined at the base located within the boundaries of the firewall within the Unit containing any portion of the Leasehold

i. Secondary Containment (Earthen Berms). Earthen berms used for secondary containment will be constructed of soil. The soil used to construct the berm will be compacted so that it yields a sufficient permeability constant to allow for containment of any spills or releases at the location until remediation can be performed. These berms will be constructed using an excavator to place the soil in a pile similar to a wind row along the area to be protected. This pile will then be compacted and graded so that the berm has side slopes no steeper than a 2:1 slope. The height of the berm will be determined by the amount of containment area required, but shall be no less than 1 foot above the pad elevation. Once constructed berms will be seeded and mulched.

j. Secondary Containment (Metal panels / Liner). Secondary containment structures will be constructed using 33" galvanized corrugated metal panels (CMPs) in conjunction with a liner material. The panels will be bolted together to construct a containment area with a capacity equal to at least 1.25 times the volume of the largest tank. A layer of geotextile, a nonwoven needle punched polypropylene material with a permeability constant of 0.25 M/Sec, will be placed within the containment area as a protective layer for the liner material. The liner will be constructed of a 30 mill low density polyethylene geomembrane with heavy dense seam reinforcement. This impermeable membrane will be fastened to the top of the containment panels and laid on the floor of the containment over the membrane. Lessor shall utilize best practices in constructing Secondary Containment structures, including better materials and practices that may be available during this Lease.

k. Notice and Location of Operations. The location of each well, pipe line, tank, access roadway and other structure or use area of the Lessee within 1/2 mile of the Leasehold or Unit containing any portion of the Leasehold must be provided in advance to the Lessor for review and comment within 30 days prior to construction, except as otherwise approved by Lessor in an emergency or other extenuating circumstance. Without limitation on the generality of the foregoing it is agreed that no such location of any well, tank or structure of any kind by the Lessee within the conservation pool area or within six hundred (600) feet of the shore line of Seneca Lake when at permanent pool elevation now or at the time such plan is provided, nor will such plan include the location of anything which would interfere in any manner with the construction, operation or maintenance of the dams, reservoirs or other structures provided for in the Official Plan of the Lessor or any modification or changes thereof, or any of the present or future recreation developments of the Lessor.

l. Light and Sound Control. During well drilling, completion and production operations, Lessee shall use its best efforts to reduce night lighting pollution as much as reasonably practical, including but not limited to utilizing deflectors, low density sodium lighting, or fully shielded lighting consistent with Occupational Safety & Health Administration (OSHA) regulations. During well drilling, completion and production operations conducted in close proximity to residential or recreational facilities, Lessee shall use its best efforts to minimize the noise associated with such operations as much as reasonably practical, including but not limited to, installing sound barriers around the well pad or around specific pieces of equipment, limiting the use of jake brakes on trucks, use of low noise exhaust mufflers on generators, utilizing disk brakes on drilling rigs instead of drum brakes where practical, and orientation of the equipment on the well pad to direct exhaust noise from generators and pumps away from residential and recreational areas.

m. Flaring. Lessee shall use its best efforts to minimize the frequency of any flaring, including but not limited to using high efficiency flares. As soon as gathering lines and other infrastructure are in place, Lessee shall use its best efforts to minimize, and eliminate if possible, all flaring. Lessee shall use redundant separators or both a high and low pressure separator to reduce potential emissions.

n. Notice of Materials to Be Used. Whenever operationally feasible, Lessee, and any service provider engaged by Lessee, shall utilize non-hazardous or benign chemicals in conducting hydraulic fracturing operations. Lessee shall provide a list of chemicals and materials to be used during the hydraulic fracturing process prior to the commencement of completion operations.

o. Casing and Cementing Casing. The Lessee shall case and cement a well to accomplish the following:

- (1) Allow effective control of the well at all times.
- (2) Prevent the migration of gas or other fluids into sources of fresh groundwater.
- (3) Prevent pollution or diminution of fresh groundwater.
- (4) Prevent the vertical migration of gas or other fluids behind the casing.

There shall be run and permanently cemented a string or strings of casing in each well drilled through the fresh water bearing strata to a depth and in a manner prescribed by regulation by ODNR. The Lessee shall equip the well with one or more strings of casing of sufficient length and strength to prevent blowouts, explosions, fires and casing failures during installation, completion and operation in accordance with the rules and regulations of ODNR. Casing shall be new steel casing and meet manufacturing standards, including American Petroleum Institute or equivalent specifications for pipe used in wells drilled to anticipated depths. All casing shall have been hydrostatically pressure tested with an applied pressure at least equal to or greater than the maximum pressure to which the pipe will be subjected in the well.

The amount and type of casing to be run shall be in accordance with current prudent industry and engineering practices and in accordance with the rules and regulations of the Department of Natural Resources. In making these determinations, the Lessee should consider the following: a) the maximum anticipated surface and down hole pressure; b) collapse resistance; c) tensile strength; d) chemical environment; and e) potential mechanical damage. While this section does not detail specific methods to achieve these objectives, the Lessee shall make every effort to follow the intent of the section, using good engineering practices and the best currently available technology.

Wellhead assemblies shall be used on wells to maintain surface control of the well. Each component of the wellhead shall have a pressure rating equal to or greater than the anticipated pressure to which that particular component might be exposed during the course of drilling, testing, or producing the well.

Where potential oil or gas zones are anticipated to be found at depths below the deepest fresh groundwater, the Lessee shall set and permanently cement surface casing prior to drilling into a stratum known to contain, or likely containing, oil or gas. The Lessee shall permanently cement by the displacement method the surface casing by placing the cement in the casing and displacing it into the annular space between the wall of the hole and the outside of the casing. Sufficient cement must be used to cement the casing back to surface.

If it is anticipated that cement used to permanently cement the surface casing can not be circulated to the surface, a cement basket may be installed immediately above the depth of the lost circulation zone. Additional cement may be added above the cement basket, if necessary, by pumping through a pour string from the surface to fill the annular space.

The Lessee shall use cement that will resist degradation by chemical and physical conditions in the well and meet tests conducted using the equipment and procedures adopted by the American Petroleum Institute, as published in the current API RP 10B. The Lessee shall permit the cement to set to a minimum compressive strength in accordance with these specifications or a minimum period of 8 hours prior to the resumption of actual drilling. Where special cement or additives are used, the Lessee must request approval from the ODNR.

The Lessee shall provide Lessor with a copy of all casing and cement records for each well drilled pursuant to this Lease.

p. Blowout Prevention. The Lessee shall use blow-out prevention equipment when well head pressures or natural open flows are anticipated at the well site that may result in a blow-out or when the Lessee is drilling in an area where there is no prior knowledge of the pressures or natural open flows to be encountered. Blow-out prevention equipment used shall be in good working condition at all times. The blow-out preventer and all pipe fittings, valves and unions placed on or connected to the blow-out prevention systems shall have a working pressure capability that exceeds the anticipated pressures.

A minimum of two (2) remotely controlled hydraulic ram-type blowout preventers (one equipped with blind rams and one with pipe rams), valves, and manifolds for circulating drilling fluid shall be installed for the purpose of controlling the well at all times. The ram-type blowout preventers, valves, and manifolds shall be tested to 100% of rated working pressure, and the annular-type blowout preventer shall be tested at the time of installation.

The Lessee shall conduct a complete test of the ram type blow-out preventer and related equipment for both pressure and ram operation before placing it in service on a well. The Lessee shall test the annular type blow-out preventer in accordance with the manufacturer's published instructions, or the instructions of a professional engineer, prior to the device being placed in service.

When the equipment is in service, the Lessee shall visually inspect the blow-out prevention equipment during each tour of drilling operation and during actual drilling operations test the pipe rams for closure daily and the blind rams for closure on each round trip. Testing shall be conducted in accordance with American Petroleum Institute publication API RP53, "API Recommended Practice for Blowout Prevention Equipment Systems for Drilling Wells." The Lessee shall record the results of the inspection and closure tests in the drillers log after each occurrence.

During drilling when conditions are such that the use of a blowout preventer can be anticipated, there shall be present on the rig floor a certified individual responsible to the Lessee who has satisfactory completed an approved well control course or equivalent.

Lessee shall provide Lessor with a copy of all blow-out prevention testing records referenced in this section.

q. Completion Well Control. Upon completion of the drilling operations at a well, the Lessee shall install and utilize equipment, such as a shut-off valve of sufficient rating to contain anticipated pressure, lubricator or similar device, as may be necessary to enable the well to be effectively shut-in while logging and servicing the well both during and after completion of the well.

Equipment capable of controlling appropriate pressure shall be used to clean out the composite frac plugs and sand during post-fracturing operations. All blowout prevention equipment should be tested after its installation and before its use. Operations shall be, at a minimum, consistent with the below requirements or any equipment or methods with the same result or effect. A minimum of two pressure barriers should be in place during all post-fracturing operations. A remote controlled, independently powered blowout preventer unit, which allows workers to control the unit at a safe distance of a minimum of 100 feet from the well and operational during all post-frac cleanout operations. A minimum of one well site supervisor who has a current well control certification should be on the site during post-frac cleanout operations. Operations shall be conducted in accordance with all applicable state and federal regulations.

A sign with ODNR's 24-hour emergency telephone number and local emergency response telephone numbers should be posted prominently at the well site entrance.

r. Hydrogen Sulfide Areas.

- i. In the event Lessee proposes to drill a well in an area through the same formation where hydrogen sulfide has been found while drilling, Lessee shall install monitoring equipment during drilling at the well site to detect the presence of hydrogen sulfide in accordance with American Petroleum Institute publication RP49, "Recommended Practices for Safe Drilling of Wells Containing Hydrogen Sulfide." When hydrogen sulfide is detected in concentrations of 20 ppm or greater, the well shall be drilled in accordance with American Petroleum Institute publication API RP49, "Recommended Practices for Safe Drilling of Wells Containing Hydrogen Sulfide."
- ii. In the event Lessee drills and/or operates a well in which hydrogen sulfide is discovered in concentrations of 20 ppm or greater, Lessee shall operate the well in a way that presents no danger to human health or to the environment. The Lessee shall notify ODNR and Lessor of the location of the well and the concentration of hydrogen sulfide detected.

s. Best Management Practices

Before conducting earth disturbance activities the operator must propose, develop, implement and maintain a Best Management Practice (BMP) to minimize the potential for accelerated erosion and sedimentation and to manage post construction stormwater. The BMPs shall be undertaken to protect, maintain, reclaim and restore water quality at the well site. Activities, facilities, measures, planning or procedures shall be used to minimize accelerated erosion and sedimentation and management of stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this construction area before, during, and after earth disturbance activities on Units containing any portion of the Leasehold.

An Erosion and Sedimentation (E&S) Plan must also be developed and provided to Lessor 30 days prior to construction for timely review and comment, except as otherwise approved by Lessor in an emergency or other extenuating circumstance, which contains plan maps that show the location of features including surface waters of this well site and surrounding areas, drainage patterns, field and property boundaries, buildings and farm structures, animal heavy use areas, roads and crossroads, and soils maps on Units containing any portion of the Leasehold. The E&S Plan must contain an implementation schedule. Earth disturbance activities shall be planned and implemented to the extent practicable in accordance with the following:

- (1) Minimize the extent and duration of the earth disturbance.
- (2) Maximize protection of existing drainage features and vegetation.
- (3) Minimize soil compaction.
- (4) Utilize other measures or controls that prevent or minimize the generation of increased stormwater runoff.

The E&S Plan must contain drawings and narrative which describe the following:

- (1) The existing topographic features of the operation site and the immediate surrounding area.
- (2) The types, depth, slope, locations and limitations of the soils.
- (3) The characteristics of the earth disturbance activity, including present and proposed land uses and the proposed alteration to the operation site.
- (4) The volume and rate of runoff from the operation site and its upstream watershed area.
- (5) The location of all surface waters of this surrounding area which may receive runoff within or from the operation site.
- (6) A narrative description of the location and type of perimeter and onsite BMPs used before, during and after the earth disturbance activity.
- (7) Plan drawings.
- (8) Procedures which ensure that the proper measures for the recycling or disposal of materials associated with or from the operation site will be undertaken in accordance with BMP and the Clean Water Act and other applicable Federal and State laws.
- (9) The management of post construction stormwater shall be planned and conducted to the extent practicable to preserve the integrity of stream channels and maintain and protect the physical, biological and chemical qualities of the receiving stream, prevent an increase in the rate of stormwater runoff, minimize any increase in stormwater runoff volume, maximize the protection of existing drainage features and existing vegetation and minimize land clearing and grading.
- (10) The BMP shall include the above as a minimum and be consistent with ODNR requirements.

t. Preparedness, Prevention and Contingency Plan

A written plan that identifies an emergency response program, material and waste inventory, spill and leak prevention and response, inspection program, housekeeping program, security and external factors, and that is developed and implemented at the operation site to control potential discharges of pollutants into waters of the State. This plan shall be provided to Lessor 30 days prior to construction for timely review and comment, except as otherwise approved by Lessor in an emergency or other extenuating circumstance.

(1) If, because of an accident or other activity or incident, a toxic substance or another substance which would endanger downstream users of the waters of the State, would otherwise result in pollution or create a danger of pollution of the waters, or would damage property, is discharged into these waters, it is the responsibility of the operator of the well site to immediately notify the ODNR and the MCWD by telephone of the location and nature of the danger and, if reasonably possible to do so, to notify known downstream users of the waters.

(2) In addition to the notices a person shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution. The Lessee may not operate, maintain or use or permit the operation, maintenance or use of a wastewater impoundment for the production, processing, storage, treatment or disposal of pollutants.

(3) Each well site will use a 60 mil synthetic liner under and around the drilling rig and hydraulic fracturing operations to prevent any discharge of floating materials, oil, grease, scum, foam, sheen or substances which produce odor, or have turbidity or settle to form deposits in concentrations or amounts sufficient to be, or create a danger of being harmful to the water uses that are to be protected or to human, animal, plant or aquatic life. The liner shall be installed with a vertical wall or edge or other protective equipment in accordance with industry standards to prevent any accidental discharge of waste material, oils, chemicals, etc. The diked and lined area shall be properly maintained to allow only minimal quantities of these liquids from accumulating. All liquids pumped or collected from the diked and lined area shall be disposed of in a proper manner in accordance with Federal and State rules and regulations.

(4) The well site shall also be diked in accordance with industry standards to prevent any accidental fluid releases from being discharged onto adjacent lands and water bodies. All fluids collected from the drill site must be disposed of in a proper manner in accordance with Federal and State rules and regulations. The lessee shall not allow wastes to be disposed, buried, dumped, or discharged on the grounds of the Lessor.

(5) In addition the Lessee shall provide prompt and adequate response to all emergencies and accidental spills of polluting substances for the protection of public health, animal and aquatic life and for recreation. Oil and gas well operators must prepare and implement a plan describing the measures to prevent pollution of the surface water and groundwater and for the control and disposal of pollutional substances and waste. During an emergency, the Lessee's emergency coordinator should activate alarm systems, notify emergency response agencies, identify the problem, assess the health or environmental hazards, and take all reasonable measures to stabilize the situation. The emergency coordinator should also be responsible for follow-up activities after the incident such as treating, storing, or disposing of residues and contaminated soil, decontamination and maintenance of emergency equipment, and submission of any reports.

(6) Efforts should be made to familiarize police, fire departments, emergency response teams, and the County Emergency Management Coordinator with the layout of the well site and dangers associated with the hazardous materials handled, places where personnel would normally be working, entrances to roads to the operations, and the possible evacuation routes.

(7) The plan shall include the above as a minimum and be consistent with ODNR requirements.

**LESSOR LIABILITY:** The Lessor shall not be liable for any damages of any kind to the wells, pipe lines or other property of the Lessee, or any one claiming under it, and resulting from the operation of dams, reservoirs or other structures owned, constructed or maintained by the Lessor or the United States of America.

**BUILDING RESTRICTION:** No buildings, production storage tanks, or tank batteries of the Lessee shall be constructed below the spillway elevation of 842.5' above mean sea level at the Seneca Lake, with the exception of pipelines, or other structures approved by the United States of America Corps of Engineers.

**SITE PLAN:** A detailed location and site plan may be required by Lessor. This plan must show the dimensions of the clearing, the dimensions, elevations and locations of pits, roads and protective levees, extent of clearing, and location of pipe lines for any Unit containing any portion of the Leasehold.

**NOTICE:** All notices and other papers to be served by the Lessee upon the Lessor shall be deemed to be sufficiently served if sent by registered or certified mail addressed to the Lessor at its address hereinbefore appearing or to such other address as the Lessor may hereafter, by notice in writing to the Lessee designate for that purpose. All notices and other papers to be served by the Lessor shall be deemed to be sufficiently served if sent by registered or certified mail addressed to the Lessee at 1625 17<sup>th</sup> Street, Denver, CO 80202, Attn: Vice President, Land or to such other address as the Lessee may hereafter, by notice in writing to the Lessor, designate for that purpose.

**SITE ACCESS:** Lessor or its representative may obtain access to the Lessee's areas of operation, to the extent permitted by leases in the unit, as applicable. This access must be preceded by reasonable notice to the Lessee's representative designated by the Lessee. Lessee shall allow access within two (2) hours after requested when possible, but in no event shall restrict access for greater than eight (8) hours. Access pursuant to this paragraph shall be at Lessor's sole risk, except for negligence or gross negligence by Lessee. Lessor or its representative must adhere to all safety procedures at all times while present on the Lessee's areas of operation.

**TESTING, OPERATIONS AND PROCEDURE REQUIREMENTS:** For any testing, operations or procedure requirements listed above, Lessee may conduct similar or equivalent tests, operations or procedures, if the end result provides for the same level of protection or greater, in the instance that industry best practices change or requirements and regulations are changed.

**WATER RE-CYCLE:** Lessee shall use best efforts to recycle as much of the water used in completion operations as possible.

**COMMUNITY MEETINGS:** Prior to commencement of initial drilling operations pursuant to this Lease, Lessee shall hold an informational meeting that is open to the general public and located in the vicinity of the Leasehold.

**ANNUAL MEETINGS WITH LESSOR:** Prior to commencement of drilling operations, and on an annual basis thereafter, Lessee shall meet with Lessor to discuss Lessee's annual drilling and development plan, including any seasonal limitations on drilling operations. In addition to such annual meeting, Lessee shall be available to discuss any operational or development issues upon request by Lessor.

**CONSENT:** Notwithstanding anything to the contrary in this Lease, in every instance in which the consent of Lessor or Lessee is required, and such consent is not subject to a separate agreement requirement under this Lease, such consent shall not be unreasonably withheld, conditioned or delayed.

**NO THIRD PARTY BENEFICIARIES:** Notwithstanding anything to the contrary in this Lease, this Lease is only intended to benefit the parties hereto, and their respective permitted successors and assigns.

By: \_\_\_\_\_  
Name: John Hoopingarner  
Title: Executive Director/Secretary

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

**SIGNED FOR IDENTIFICATION ONLY:**

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Witness

**ACKNOWLEDGEMENT**

STATE OF Ohio)

COUNTY OF \_\_\_\_\_)

On this, the \_\_\_\_ day of \_\_\_\_\_, 2013, 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 they executed the same for the purposes therein contained.

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 \_\_\_\_\_, 2013, 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 they executed the same for the purposes therein contained.

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

My Commission Expires: \_\_\_\_\_

Signature/Notary Public: \_\_\_\_\_

Name/ Notary Public (print): \_\_\_\_\_