

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

In re the Matter of the Application of	:	
Chesapeake Exploration, L.L.C., for	:	
Unit Operation	:	Application Date: July 21, 2015
	:	Updated: September 24, 2015
<u>R Kirk South Unit</u>	:	

**APPLICATION OF CHESAPEAKE EXPLORATION, L.L.C.,
FOR UNIT OPERATION**

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**STATE OF OHIO
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In re the Matter of the Application of :
Chesapeake Exploration, L.L.C., for :
Unit Operation :
: :
R Kirk South Unit :

APPLICATION

Pursuant to Ohio Revised Code Section 1509.28, Chesapeake Exploration, L.L.C. (“Chesapeake”), hereby respectfully requests the Chief of the Ohio Department of Natural Resources’ Division of Oil and Gas Resources Management (“Division”) to issue an order authorizing Chesapeake to operate the Unitized Formation and applicable land area in Jefferson County, Ohio (hereinafter, the “R Kirk South Unit”) as a unit according to the Unit Plan attached hereto and as more fully described herein. Chesapeake makes this request for the purpose of substantially increasing 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**

Chesapeake Exploration, L.L.C., is a limited liability company organized under the laws of the State of Oklahoma and a wholly-owned subsidiary of Chesapeake Energy Corporation. Chesapeake has its principal office in Oklahoma City, Oklahoma, and local offices at 2321 Energy Drive, Louisville, OH 44641. Chesapeake is one of the most active drillers of horizontal wells in Northeast Ohio and is registered in good standing as an “owner” with the Division.

Chesapeake 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 R Kirk South Unit is located in Jefferson County, Ohio, and consists of fifty-one (51) 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 R Kirk South Unit is approximately 983.227883 acres and, at the time of this Application, Chesapeake and Ascent Resources – Utica have the right to drill on and produce from 975.315968¹ acres of the proposed unit – i.e., more than ninety-nine percent (99%) of the unit area, above the sixty-five percent (65%) threshold required by Ohio Revised Code § 1509.28.² As more specifically described herein, Chesapeake seeks authority to drill and complete one or more horizontal wells in the Unitized Formation from a single well pad located offset on the northwest corner of the Unit to efficiently test, develop, and operate the Unitized Formation for oil, natural gas, and related liquids production.

Chesapeake's plan for unit operations (the "Unit Plan") is attached to this Application and consists of the Unit Agreement, attached as Exhibit 1; and the Unit Operating Agreement, attached as Exhibit 2. Among other things, the Unit Plan allocates unit production and expenses based upon each tract's surface acreage participation in the unit; includes a carry provision for those unit participants unable to meet their financial obligations, the amount of which is based upon the risks of and costs related to the project; and conforms to industry standards for the drilling and operating of horizontal wells generally used by the Applicant with other interest owners.

III. TESTIMONY

The following pre-filed testimony has been attached to the Application supporting the R Kirk South Unit's formation: (i) testimony from a Geologist establishing that the Unitized Formation is part of a pool and supporting the Unit Plan's recommended allocation of unit produc-

¹ Chesapeake Exploration, LLC, as Operator, is authorized to file this application on behalf of TOTAL E&P USA, Inc. and CHK Utica, LLC as other working interest owners in this acreage. As of the date of this application, ARU has indicated that it would prefer to trade its working interest in the R Kirk South Unit to Chesapeake for like acreage in Jefferson County. A copy of ARU's WI Approval is attached as Exhibit 6.

² See Prepared Direct Testimony of Robert S. Highsaw at 2, attached as Exhibit 5.

tion and expenses on a surface acreage basis;³ (ii) testimony from a Reservoir Engineer establishing that unitization is reasonably necessary to increase substantially the recovery of oil and gas, and that the value of the estimated additional resource recovery from unit operations exceeds its additional costs;⁴ and (iii) testimony from an operational Landman with firsthand knowledge of Chesapeake's Ohio development who describes the project generally, the Unit Plan, efforts to lease unleased owners, and the approvals received for unit development.^{5,6}

IV.
THE CHIEF SHOULD GRANT AN ORDER FOR THIS APPLICATION

A. 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 – when the applicant shows that 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. See Ohio Rev. Code § 1509.28(A). Chesapeake proposes the following conditions for its operation of the R Kirk South Unit that will satisfy the statutory requirements set forth below:

(1) A description of the unit area.

See the above section on "PROJECT DESCRIPTION."

(2) A statement of the nature of the contemplated operations.

Chesapeake anticipates drilling three (3) wells from a pad location located in the northwest area of the R Kirk South Unit for the purpose of recovering oil and gas. Drilling operations in the Unit will commence within twelve (12) months from the date of approval of the Division's Unitization Order. Notwithstanding any unforeseen developments, in Q4 of 2015, at the latest, Chesapeake intends to drill the initial well within the R Kirk South Unit. Thereafter, Chesapeake plans to drill the two (2) subsequent wells within four (4) years from the completion of the initial well.⁷

(3) An allocation of production from the unit area not used in unit operations, or otherwise lost, to the separately owned tracts.

Chesapeake's geology testimony illustrates that the Utica/Point Pleasant Formation uniformly underlies the Unit Area.⁸ Therefore, the value of each separate tract in the Unit Area shall be determined by calculating the ratio of its surface acreage to the to-

³ See Prepared Direct Testimony of Travis Glauser, attached as Exhibit 3.

⁴ See Prepared Direct Testimony of Drew Hopson, attached as Exhibit 4.

⁵ See Prepared Direct Testimony of Robert Highsaw, attached as Exhibit 5.

⁶ Each of the witnesses is an employee of Chesapeake Energy Corporation, testifying on behalf of the Applicant, its wholly-owned subsidiary, Chesapeake Exploration, L.L.C., which operates Chesapeake's Ohio wells.

⁷ Exhibit 5 at 4.

⁸ Exhibit 3 at 2-3.

tal surface acreage of the Unit Area; this is known as "Unit Participation". The allocated share of production to each separate tract shall be equal to its Unit Participation.

(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.

Owners in the Unit Area are responsible for their pro rata share of these credits and charges based upon their total Unit Participation within the Unit Area.

(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.

Expenses related to unit operations shall be charged to owners on a pro rata basis based upon their Unit Participation. These charges shall be just and reasonable.

(6) A provision, if necessary, for carrying someone unable to meet their financial obligations in connection with the unit.

Chesapeake will carry, or otherwise finance, an owner who is unable to meet its financial obligations in connection with unit operations. Chesapeake shall comply with the Unit Agreement and Unit Operating Agreement included in the subject unitization application should enactment of this provision become necessary.

(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.

Chesapeake, or its successors in interest, shall supervise and conduct all unit operations. Each working interest owner in the Unit Area shall have a voting interest equal to its Unit Participation. If the operator owns fifty-one percent (51%) or more of the Unit Area, unit operations shall not require an affirmative vote of all working interest owners. Otherwise, no unit operation shall be approved without an affirmative vote of at least fifty-one percent (51%) of the combined voting interest of the working interest owners.

(8) The time when operations shall commence and the manner in which, and circumstances under which, unit operations will terminate.

Unit operations may commence as of 7:00 a.m. on the day following the effective date of the Order, when and if one is issued by the Division, and may continue as long as oil and/or gas are produced. Working interest owners comprising at least fifty-one percent (51%) of the working interest owners in the Unit Area may terminate unit operations whenever they determine unit operations are no longer warranted. If unit operations are so terminated, Chesapeake shall provide written notice of the termination to the Division and to all unitized non-consenting working interest owners, as further defined in 9(b)(ii). In the event that termination of unit operations occurs prior to drilling and completing for production three (3) wells in the R Kirk South Unit, the Chief may issue an order reducing the Unit Area to the minimum amount of acreage necessary to support those wells that have been drilled and are producing.

(9) Such other provisions appropriate for engaging in unit operation and for the protection or adjustment of correlative rights.

Chesapeake proposes the following as additional provisions:

(a) No activity associated with the drilling, completion, or operation of the R Kirk South Unit shall be conducted on the surface of any unleased property without prior written consent of the landowner.

(b) If an Order is granted, Chesapeake shall present Unitized parties with the option to:

(i) lease their minerals to Chesapeake for a seventeen and one half percent (17.5%) royalty rate on production, and a lease bonus payment of two thousand dollars (\$2,000) per net mineral acre. This lease option shall be for a non-surface use lease, meaning that Chesapeake shall not use the surface of the mineral owner's property without separate prior written consent by the mineral owner; or

(ii) participate in unit operations as a non-consenting working interest owner. The mineral owner shall receive a monthly cash payment equal to a one-eighth (1/8) landowner royalty interest calculated on gross revenues. The one-eighth (1/8) royalty interest shall be calculated based on the Unit Participation of the mineral owner's tract. Chesapeake shall make the royalty payment contemporaneously with those it makes to leased individuals within the Unit Area. In addition to the royalty payment, the non-consenting working interest owner shall have a working interest ownership in the well equal to seven-eighths (7/8) of the Unit Participation of his/her tract. This seven-eighths of his/her Unit Participation shall accrue based upon net production revenue until Chesapeake recovers 200% of the cost of drilling, testing, completing, and producing the initial well. Once Chesapeake recovers 200% of these costs, Chesapeake shall begin making monthly payments on net production revenue for that well equal to seven-eighths (7/8) of the non-consenting working interest owner's Unit Participation, while continuing the one-eighth (1/8) royalty interest in the well for the unitized party. For any subsequent wells drilled in the Unit Area, seven-eighths (7/8) of the non-consenting working interest owner's Unit Participation shall accrue until Chesapeake has recovered 150% of the cost of drilling, testing, completing, and producing the subsequent wells. Once Chesapeake recovers 150% of these costs, Chesapeake shall begin making monthly payments on net production revenue for the subsequent wells equal to seven-eighths (7/8) of the non-consenting working interest owner's Unit Participation, while continuing the one-eighth (1/8) royalty interest in the well for the unitized party. Once a specific cost is charged to a well, that same cost cannot be charged to the subsequent wells in the Unit Area.

(iii) Chesapeake shall present these options via certified mail. Should the Unitized Party not make an affirmative selection as to one of the two options, the Unitized Party will be deemed to have selected option 9(b)(i) to lease their tract under the terms of the lease form attached as Exhibit "B" to Exhibit 2 of this Application.

(c) If an Order is granted, Chesapeake shall present Unitized parties who are non-operator lessees with the option to:

(i) participate in unit operations by agreeing to pay such owner's proportionate part of the actual cost of such development and operation of the unit; or

(ii) participate in unit operations as a non-consenting working interest owner. The non-consenting working interest owner shall have a working interest ownership in the well equal to eight-eighths (8/8) of the Unit Participation per tract. This eight-eighths of Unit Participation shall accrue based upon net production revenue until Chesapeake recovers 500% of the cost of drilling, testing, completing, and producing the initial well. Once Chesapeake recovers 500% of these costs, Chesapeake shall begin making monthly payments on net production revenue for that well equal to eight-eighths (8/8) of the non-consenting working interest owner's Unit Participation. For any subsequent wells drilled in the Unit Area, eight-eighths (8/8) of the non-consenting working interest owner's Unit Participation shall accrue until Chesapeake has recovered 500% of the cost of drilling, testing, completing, and producing the subsequent wells. Once Chesapeake recovers 500% of these costs, Chesapeake shall begin making monthly payments on net production revenue for the subsequent wells

equal to eight-eighths (8/8) of the non-consenting working interest owner's Unit Participation. Once a specific cost is charged to a well, that same cost cannot be charged to the subsequent wells in the Unit Area.

(iii) Chesapeake shall present these options via certified mail. Should the Unitized Party not make an affirmative selection as to one of the two options, the Unitized Party will be deemed to have selected option 9(c)(ii) and shall relinquish its interest subject to the risk factor noted in 9(c)(ii).

(d) Unitized parties shall not incur liability for any personal or property damage associated with any drilling, testing, completing, producing, operating, or plugging activities within the GND Trust South Unit.

(e) If requested by an unleased mineral owner selecting option 9(b)(ii) above, or by the Division, Chesapeake shall provide, not later than thirty (30) days after receipt of the request, any of the following:

(10) The Order will become effective when Chesapeake provides the Chief with final written approval of the unit operations from sixty-five percent (65%) of the working interest owners in the Unit Area, and sixty-five percent (65%) of the royalty interest owners in the Unit Area. Upon receipt of these approvals, the Order shall become effective, and unit operations may commence as set forth above. Chesapeake will have six (6) months to provide these required approvals, and, if it does not do so, the Order will be deemed revoked, and the Chief shall provide notice of the revocation to Chesapeake and the unleased mineral interest owners in the Unit Area.

(11) Within twenty-one (21) days of the Order becoming effective, Chesapeake will file a copy of the Order with the Jefferson County Recorder's Office.

(12) Chesapeake requests that its Unit Agreement and Unit Operating Agreement are adopted by the Order. In the event of a conflict between the Plan for Unit Operations approved by the Chief and contained in the Order, and Chesapeake's Unit Agreement and Unit Operating Agreement, the Order shall take precedence and the Unit Agreement and Unit Operating Agreement shall conform to the Order.

B. Chesapeake's Application Meets the Legal 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 a 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 in this Application establishes that the Unitized Formation is part of a pool and thus an appropriate subject of unit operation under Ohio Rev. Code § 1509.28.⁹ Additionally, that evidence establishes that the Unitized Formation is likely to be reasonably uniformly distributed throughout the Unit Area – and thus that it is reasonable for the Unit Plan to allocate unit production and expenses to separately owned tracts on a surface acreage basis.¹⁰

⁹ 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). See also Exhibit 3 at 2-3.

¹⁰ Exhibit 3 at 4-5.

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

The evidence presented in this Application establishes that unit operations are reasonably necessary to increase substantially the ultimate recovery of oil and gas from the lands making up the R Kirk South Unit. The Unit Plan contemplates the drilling of three (3) horizontal wells from a single well pad, all with estimated lateral lengths of approximately 12,856 feet each.¹¹ Chesapeake estimates the total amount of gas in place (“GIP”) through the planned unit development is approximately 100.9 billion cubic feet equivalent (“BCFE”) of natural gas from the Unitized Formation, of which 62.7 BCFE is currently developable when considering regulatory setbacks.¹² Absent unit development contemplated in the unitized project, the recoverable GIP is substantially less: First, the evidence shows that it is unlikely that vertical development of the unit would ever take place because it is likely to be uneconomic – resulting in potentially no resource recovery from portions of the Unitized Formation.¹³ Second, avoiding unleased tracts by relying on shorter horizontal laterals to develop the Unitized Formation underlying the R Kirk South Unit would result in a substantially lower ultimate recovery of oil and gas, as it would strand approximately 10.3 BCFE.¹⁴ Natural gas recovery from horizontal drilling methods is directly related to the length of the lateral. Chesapeake estimates the Anticipated Gas Recovery will increase by 20% from 52.4 BCFE to 62.7 BCFE if the unit is developed utilizing the proposed unit development.¹⁵

The evidence thus shows that the contemplated unit operations are reasonably necessary to increase substantially the recovery of oil and gas from the Unitized Formation.¹⁶

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

Capital expenditure (“CAPEX”) to develop the unitized project (\$34.7 mm) increases by \$2.2 mm over CAPEX to develop the non-unitized project (\$32.5 mm).¹⁷ As set forth in Mr. Hopson’s testimony, by using the current price of \$3.390 per thousand cubic feet of natural gas, Chesapeake estimates that the value of the additional future cash flow from the unitized project, when compared to the cash flow generated by the non-unitized project, increases from \$85.03

¹¹ See, e.g., Exhibit 5 at 4.

¹² Exhibit 4 at 2. 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.

¹³ Id. at 3.

¹⁴ Id. at 4-5.

¹⁵ Id. at 4.

¹⁶ There are also substantial benefits in the form of reduced surface impacts as a result of the contemplated unit operations. For example, the use of a single, centrally-located well pad to drill, for instance, six eventual horizontal wells causes significantly less surface disruption than a vertical well drilling program designed to recover the same resource volumes. See, e.g., Exhibit 5 at 5.

¹⁷ Exhibit 4 at 3.

mm to \$103.45 mm; an increase of \$18.42 mm in potential value.¹⁸ As expressed in Mr. Hopson's testimony, it is realistic to expect a recovery factor range from 30% to 70% in this area, while the R Kirk South Unit itself is estimated to yield a 64% recovery factor.¹⁹ Thus, the evidence establishes that the value of the estimated additional recovery is expected to exceed the estimated additional costs incident to conducting unit operations.

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

The Unit Plan proposed by Chesapeake meets the requirements set forth in Ohio Revised Code § 1509.28. The unit area is described in the Unit Agreement 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 Agreement at Article 3, with greater specificity throughout the Unit Agreement and Unit Operating Agreement.²⁰ Unit production and unit expenses are allocated on a surface acreage basis as set forth in the Unit Agreement at Articles 3 through 5 (generally), except where otherwise allocated by the Unit Operating Agreement.²¹ Payment of unit expenses is addressed generally in Article 3 of the Unit Agreement.²² No provision for credits and charges related to contributions made by owners in the unit area regarding wells, tanks, pumps and other equipment for unit operations are addressed in the Unit Operating Agreement because none are contemplated.²³ The Unit Plan provides for various carries 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.²⁴ Voting provisions related to the supervision and conduct of unit operations are set forth in Article XVI of the Unit Operating Agreement, with each person having a vote that has a value corresponding to the percentage of unit expenses chargeable against that person's interest.²⁵ Commencement and termination of operations are addressed in Articles 11 and 12 of the Unit Agreement.

¹⁸ Exhibit 4 at 4.

¹⁹ Id. at 4.

²⁰ See also, e.g., Exhibit 5 at 6-13.

²¹ Id. at 6-8.

²² Id. at 8.

²³ Id. at 10.

²⁴ Id. at 11.

²⁵ Id. at 12-13.

V.
APPROVALS

As of the filing of this Application, the Unit Plan has been agreed to or approved by over ninety-nine percent (99%) of Working Interest Owners. See Exhibit 5 at 14, and Exhibit 6. This working interest owner approval exceeds the statutory minimum requirements set forth in Ohio Revised Code § 1509.28(B) for the Chief's order, if issued, to become effective.

VI.
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 Note 2 above. Accordingly, Chesapeake respectfully requests that the Division schedule a hearing at an available hearing room located at the Division's Columbus complex on or before November 18, 2015, to consider the Application filed herein.

VII.
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 additional costs. Chesapeake respectfully submits that the Application meets this standard, and that the terms and conditions of the Unit Plan are just and reasonable and satisfy the requirements of Ohio Revised Code § 1509.28(B). Chesapeake therefore asks the Chief to issue an order authorizing Chesapeake to operate the R Kirk South Unit according to the Unit Plan attached hereto.

Respectfully submitted,

/s/ Kathy Milenkovski

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Attorneys for Applicant,
Chesapeake Exploration, L.L.C.

Exhibit "A-2"
Leases Within the Contract Area

Attached to and made a part of that certain Unit Operating Agreement dated July 21, 2015 for the R Kirk South Unit.

TRACT NUMBER	CHESAPEAKE LEASE ID NUMBER	LESSOR	LEASED YES/NO	SURFACE ACRES IN UNIT	TRACT PARTICIPATION	TAX MAP PARCEL ID NUMBERS	TOWNSHIP	COUNTY	STATE	UNIT WORKING INTEREST	CHESAPEAKE WORKING INTEREST	CHESAPEAKE UNIT PARTICIPATION	ARU WORKING INTEREST	ARU UNIT PARTICIPATION	ADDRESS	CITY	STATE	ZIP CODE
1	ARU	JAMES MILLS	Y	0.517895	0.0005267	23-00046-000	Ross	JEFFERSON	OH	0.05267%			100.00000%	0.05267%	1819 Township Road 219	Richmond	OH	43944
2	ARU	JAMES MILLS	Y	57.972837	0.0589618	23-00047-000	Ross	JEFFERSON	OH	5.89618%			100.00000%	5.89618%	1819 Township Road 219	Richmond	OH	43944
3	34-017032-000	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	Y	33.548951	0.0341212	23-00051-000	Ross	JEFFERSON	OH	3.41212%	100.00000%	3.412124%			2115 Township Road 263	Bergholz	OH	43908
4	34-0002138-000	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	Y	0.000000	0.0000000	23-00183-000	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.000000%			2116 Township Road 263	Bergholz	OH	43908
4	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	5.113953	0.0052012	23-00183-000	Ross	JEFFERSON	OH	0.52012%	100.00000%	0.520119%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
4	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.022791	0.0010402	23-00183-000	Ross	JEFFERSON	OH	0.10402%	100.00000%	0.104024%			906 NW 104th Street	Vancouver	WA	98685
5	34-004605-000	MILDRED E. HUBER	Y	0.000000	0.0000000	23-00184-000	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			7166 State Road 43	Bergholz	OH	43908
5	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	1.337671	0.0013605	23-00184-000	Ross	JEFFERSON	OH	0.13605%	100.00000%	0.136049%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
5	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	0.267534	0.0002721	23-00184-000	Ross	JEFFERSON	OH	0.02721%	100.00000%	0.027210%			906 NW 104th Street	Vancouver	WA	98685
6	34-0002138-000	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	Y	0.000000	0.0000000	23-00184-001	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2116 Township Road 263	Bergholz	OH	43908

TRACT NUMBER	CHESAPEAKE LEASE ID NUMBER	LESSOR	LEASED YES/NO	SURFACE ACRES IN UNIT	TRACT PARTICIPATION	TAX MAP PARCEL ID NUMBERS	TOWNSHIP	COUNTY	STATE	UNIT WORKING INTEREST	CHESAPEAKE WORKING INTEREST	CHESAPEAKE UNIT PARTICIPATION	ARU WORKING INTEREST	ARU UNIT PARTICIPATION	ADDRESS	CITY	STATE	ZIP CODE
6	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	7.546695	0.0076754	23-00184-001	Ross	JEFFERSON	OH	0.76754%	100.00000%	0.76754%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
6	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.509339	0.0015351	23-00184-001	Ross	JEFFERSON	OH	0.15351%	100.00000%	0.15351%			906 NW 104th Street	Vancouver	WA	98685
7	34-0001980-000	JENNIFER M. HALL	Y	1.529934	0.0015560	23-00184-002	Ross	JEFFERSON	OH	0.15560%	100.00000%	0.15560%			2524 County Highway 59	Bergholz	OH	43908
8	34-001184-000	GEORGE A. POTKRAJAC	Y	0.000000	0.0000000	23-00184-003	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2413 County Road 59	East Springfield	OH	43925
8	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	7.016426	0.0071361	23-00184-003	Ross	JEFFERSON	OH	0.71361%	100.00000%	0.71361%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
8	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.403285	0.0014272	23-00184-003	Ross	JEFFERSON	OH	0.14272%	100.00000%	0.14272%			906 NW 104th Street	Vancouver	WA	98685
9	34-001184-000	GEORGE A. POTKRAJAC	Y	0.000000	0.0000000	23-00184-004	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2413 County Road 59	East Springfield	OH	43925
9	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	8.151022	0.0082901	23-00184-004	Ross	JEFFERSON	OH	0.82901%	100.00000%	0.82901%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
9	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.630204	0.0016580	23-00184-004	Ross	JEFFERSON	OH	0.16580%	100.00000%	0.16580%			906 NW 104th Street	Vancouver	WA	98685
10	34-001260-000	RONALD R. REASONER AND AMY D. REASONER	Y	0.000000	0.0000000	23-00184-007	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2617 County Road 59	Bergholz	OH	43908

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10	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	1.199459	0.0012199	23-00184-007	Ross	JEFFERSON	OH	0.12199%	100.00000%	0.12199%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
10	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	0.239892	0.0002440	23-00184-007	Ross	JEFFERSON	OH	0.02440%	100.00000%	0.02440%			906 NW 104th Street	Vancouver	WA	98685
11	34-008810-000	FREDERICK A. HUBER AND CYNTHIA A. HUBER	Y	1.634924	0.0016628	23-00184-010	Ross	JEFFERSON	OH	0.16628%	100.00000%	0.16628%			2040 County Road 59	Bergholz	OH	43908
12	34-013845-000	MARK A. KINCAID AND JILL A. KINCAID	Y	0.000000	0.0000000	23-00184-011	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2349 County Road 59	Bergholz	OH	43908
12	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	6.270030	0.0063770	23-00184-011	Ross	JEFFERSON	OH	0.63770%	100.00000%	0.63770%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
12	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.254006	0.0012754	23-00184-011	Ross	JEFFERSON	OH	0.12754%	100.00000%	0.12754%			906 NW 104th Street	Vancouver	WA	98685
13	34-001183-000	KELLY M. BETHEL	Y	0.000000	0.0000000	23-00184-012	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2251 County Road 59	East Springfield	OH	43925
13	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	3.837825	0.0039033	23-00184-012	Ross	JEFFERSON	OH	0.39033%	100.00000%	0.39033%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
13	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	0.767565	0.0007807	23-00184-012	Ross	JEFFERSON	OH	0.07807%	100.00000%	0.07807%			906 NW 104th Street	Vancouver	WA	98685
14	34-004212-000	CARYL A. TAYLOR AND FRANK PHILLIPS	Y	33.101256	0.0336659	23-00184-013	Ross	JEFFERSON	OH	3.36659%	100.00000%	3.36659%			2566 County Road 59	Bergholz	OH	43908
15	34-001260-000	RONALD R. REASONER AND AMY D. REASONER	Y	0.000000	0.0000000	23-00184-014	Ross	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			2617 County Road 59	Bergholz	OH	43908

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15	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	0.046254	0.0000470	23-00184-014	Ross	JEFFERSON	OH	0.00470%	100.00000%	0.00470%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
15	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	0.009251	0.0000094	23-00184-014	Ross	JEFFERSON	OH	0.00094%	100.00000%	0.00094%			906 NW 104th Street	Vancouver	WA	98685
16	34-00183-000	KELLY M. BETHEL	Y	0.000000	0.0000000	23-00184-016	Ross	JEFFERSON	OH	0.000000%	100.00000%	0.000000%			2251 County Road 59	East Springfield	OH	43925
16	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	8.681560	0.0088297	23-00184-016	Ross	JEFFERSON	OH	0.88297%	100.00000%	0.88297%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
16	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.736312	0.0017659	23-00184-016	Ross	JEFFERSON	OH	0.17659%	100.00000%	0.17659%			906 NW 104th Street	Vancouver	WA	98685
17	34-0002137-000	ROBERT SENSIBAUGH AND CAROL SENSIBAUGH	Y	0.000000	0.0000000	23-00187-000	Ross	JEFFERSON	OH	0.000000%	100.00000%	0.000000%			2101 County Road 59	Bergholz	OH	43908
17	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	8.841945	0.0089928	23-00187-000	Ross	JEFFERSON	OH	0.89928%	100.00000%	0.89928%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
17	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.768389	0.0017986	23-00187-000	Ross	JEFFERSON	OH	0.17986%	100.00000%	0.17986%			906 NW 104th Street	Vancouver	WA	98685
18	34-011550-000	ROBERT H. AND DARLA KAY KIRK	Y	182.257790	0.1853668	23-00197-000	Ross	JEFFERSON	OH	18.53668%	100.00000%	18.53668%			7086 County Road 58	Bergholz	OH	43908
19	34-011550-000	ROBERT H. AND DARLA KAY KIRK	Y	74.801522	0.0760775	23-00198-000	Ross	JEFFERSON	OH	7.60775%	100.00000%	7.60775%			7086 County Road 58	Bergholz	OH	43908
20	34-011550-000	ROBERT H. AND DARLA KAY KIRK	Y	0.048111	0.0000489	23-00199-000	Ross	JEFFERSON	OH	0.00489%	100.00000%	0.00489%			7086 County Road 58	Bergholz	OH	43908
21	34-0002054-000	DAVID R. MCELWAIN AND EDWINNA MCELWAIN	Y	0.585161	0.0005951	23-00228-000	Ross	JEFFERSON	OH	0.05951%	100.00000%	0.05951%			1899 County Highway 59	Bergholz	OH	43908
22	34-0002949-000	DAVID R. MCELWAIN AND EDWINNA MCELWAIN	Y	1.894627	0.0019269	23-00229-000	Ross	JEFFERSON	OH	0.19269%	100.00000%	0.19269%			1899 County Highway 59	Bergholz	OH	43908
22	34-0003021-001	EDWARD MCLAIN AND PATRICIA MCLAIN	Y	1.894627	0.0019269	23-00229-000	Ross	JEFFERSON	OH	0.19269%	100.00000%	0.19269%			1681 State Route 43	Richmond	OH	43944

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23	34-004605-000	MILDRED E. HUBER	Y	55.898293	0.0568518	23-00625-000	Ross	JEFFERSON	OH	5.68518%	100.00000%	5.68518%			7166 State Road 43	Bergholz	OH	43908
24	34-004604-000	FREDERICK A. HUBER AND CYNTHIA A. HUBER	Y	9.943148	0.0101128	23-00627-000	Ross	JEFFERSON	OH	1.01128%	100.00000%	1.01128%			2040 County Road 59	Bergholz	OH	43908
25	ARU	PENNY L. MILLS	Y	20.619882	0.0209716	24-00005-000	Salem	JEFFERSON	OH	2.09716%			100.00000%	2.09716%	1251 Township Road 263	Bergholz	OH	43908
26	ARU	JAMES MILLS	Y	12.943073	0.0131639	24-00006-000	Salem	JEFFERSON	OH	1.31639%			100.00000%	1.31639%	1819 Township Road 219	Richmond	OH	43944
27	34-016745-000	JACK C. CAGOT	Y	0.746157	0.0007589	24-00213-000	Salem	JEFFERSON	OH	0.07589%	100.00000%	0.07589%			P.O. Box 154	East Springfield	OH	43925
28	34-017242-000	CHARLES W. CORDER, SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	Y	81.133917	0.0825179	24-00487-000	Salem	JEFFERSON	OH	8.25179%	100.00000%	8.25179%			P.O. Box 128	East Springfield	OH	43925
29	UNLEASED	JEROME V. GUNDRUM, DECEASED	N	7.911914	0.0080469	24-00487-001	Salem	JEFFERSON	OH	0.80469%					c/o Jeffrey Gundrum 4589 Swonger Road NW Apt B	Dover	OH	44622
30	34-005006-001	ELIZABETH L. BOGGESS	Y	1.095477	0.0011142	24-00520-000	Salem	JEFFERSON	OH	0.11142%	100.00000%	0.11142%			147 Heights Street	Weirton	WV	26062
30	34-005006-002	EDGAR L. HARMON AND GLORIA F. HARMON	Y	1.095477	0.0011142	24-00520-000	Salem	JEFFERSON	OH	0.11142%	100.00000%	0.11142%			8674 Tanglewood Trail	Chagrin Falls	OH	44023
31	34-0003013-001	CHARLES WILLIAM CORDER, SR. AND DIANE L. CORDER	Y	6.402262	0.0065115	24-00557-000	Salem	JEFFERSON	OH	0.65115%	100.00000%	0.65115%			P.O. Box 128	East Springfield	OH	43925
31	34-0002263-000	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	Y	5.335218	0.0054262	24-00557-000	Salem	JEFFERSON	OH	0.54262%	100.00000%	0.54262%			c/o George Knapp 1637 Township Road 219	Richmond	OH	43944
31	34-0002969-001	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	Y	1.067044	0.0010852	24-00557-000	Salem	JEFFERSON	OH	0.10852%	100.00000%	0.10852%			906 NW 104th Street	Vancouver	WA	98685
32	ARU	JAMES MILLS	Y	36.762521	0.0373896	24-00806-000	Salem	JEFFERSON	OH	3.73896%			100.00000%	3.73896%	1819 Township Road 219	Richmond	OH	43944
33	34-004602-000	PHILLIP B. JORDAN	Y	15.061244	0.0153182	24-00809-000	Salem	JEFFERSON	OH	1.53182%	100.00000%	1.53182%			1004 Township Road 263	Bergholz	OH	43908
34	34-0002968-000	ROBERT W. YEAGER AND BETH A. YEAGER	Y	20.029212	0.0203709	24-00809-001	Salem	JEFFERSON	OH	2.03709%	100.00000%	2.03709%			1242 Township Road 263	Bergholz	OH	43908
35	34-022433-000	ROBERT H. AND LORI D. NEWLIN	Y	21.602109	0.0219706	24-00809-002	Salem	JEFFERSON	OH	2.19706%	100.00000%	2.19706%			1224 Township Road 263	Bergholz	OH	43908
36	34-0002035-000	ROBERT H. NEWLIN AND LORI D. NEWLIN	Y	21.299934	0.0216633	24-00809-003	Salem	JEFFERSON	OH	2.16633%	100.00000%	2.16633%			1224 Township Road 263	Bergholz	OH	43908
37	34-014048-000	THOMAS E. MCGAUGHEY	Y	21.054401	0.0214136	24-00809-004	Salem	JEFFERSON	OH	2.14136%	100.00000%	2.14136%			1136 Township Road 263	Bergholz	OH	43908
38	34-017035-000	ROBERT SERDAR AND JUDITH I. SERDAR	Y	20.294780	0.0206410	24-00809-005	Salem	JEFFERSON	OH	2.06410%	100.00000%	2.06410%			P.O. Box 205	East Springfield	OH	43925
39	34-017035-000	ROBERT SERDAR AND JUDITH I. SERDAR	Y	19.043146	0.0193680	24-00809-006	Salem	JEFFERSON	OH	1.93680%	100.00000%	1.93680%			P.O. Box 205	East Springfield	OH	43925
40	ARU	CHARLES J. AND SUSAN A. LONG	Y	17.195970	0.0174893	24-00809-007	Salem	JEFFERSON	OH	1.74893%			100.00000%	1.74893%	59 Quail Meadow Road	Plactis	NM	87043
41	34-015503-000	CHARLES W. CORDER, JR. AND NANCY S. CORDER	Y	12.523870	0.0127375	24-01019-001	Salem	JEFFERSON	OH	1.27375%	100.00000%	1.27375%			661 Township Road 261	Bergholz	OH	43908
42	34-017040-000	SALINE OIL COMPANY DBA SPRING HILLS GOLF CLUB, CHARLES W. CORDER, SR., PRESIDENT	Y	3.203635	0.0032583	24-01101-000	Salem	JEFFERSON	OH	0.32583%	100.00000%	0.32583%			P.O. Box 128	East Springfield	OH	43925
43	34-017242-000	CHARLES W. CORDER SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	Y	0.344141	0.0003500	24-01317-000	Salem	JEFFERSON	OH	0.03500%	100.00000%	0.03500%			P.O. Box 128	East Springfield	OH	43925
44	34-015502-000	SHIRLEY A. MCCOURT AND LESTER P. MCCOURT	Y	0.559169	0.0005687	24-01844-000	Salem	JEFFERSON	OH	0.05687%	100.00000%	0.05687%			17 Township Road 261	Bergholz	OH	43908
45	34-017242-000	CHARLES W. CORDER SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	Y	37.942244	0.0385895	24-01845-000	Salem	JEFFERSON	OH	3.85895%	100.00000%	3.85895%			P.O. Box 128	East Springfield	OH	43925
46	34-036194-000	MARIAN DECKER	Y	0.088929	0.0000904	24-01981-000	Salem	JEFFERSON	OH	0.00904%	100.00000%	0.00904%			P.O. Box 86	East Springfield	OH	43925
47	ARU	RANDY J. TINNEY	Y	14.831869	0.0150849	24-01982-000B	Salem	JEFFERSON	OH	1.50849%			100.00000%	1.50849%	556 Township Road 263	Bergholz	OH	43908
47	34-0003069-001	MARY E. SCOTT FKA MARY E. SIMMONS	N	14.831869	0.0150849	24-01982-000B	Salem	JEFFERSON	OH	1.50849%	100.00000%	1.50849%			24192 Deep Branch Road	Georgetown	DE	19947
47	34-0003145-001	RANDY J. TINNEY	N	0.000000	0.0000000	24-01982-000B	Salem	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			556 Township Road 263	Bergholz	OH	43908
48	ARU	JAMES MILLS	Y	6.919878	0.0070379	24-01982-001	Salem	JEFFERSON	OH	0.70379%			100.00000%	0.70379%				
48	34-0003069-001	MARY E. SCOTT FKA MARY E. SIMMONS	N	6.919878	0.0070379	24-01982-001	Salem	JEFFERSON	OH	0.70379%	100.00000%	0.70379%			24192 Deep Branch Road	Georgetown	DE	19947

TRACT NUMBER	CHESAPEAKE LEASE ID NUMBER	LESSOR	LEASED YES/NO	SURFACE ACRES IN UNIT	TRACT PARTICIPATION	TAX MAP PARCEL ID NUMBERS	TOWNSHIP	COUNTY	STATE	UNIT WORKING INTEREST	CHESAPEAKE WORKING INTEREST	CHESAPEAKE UNIT PARTICIPATION	ARU WORKING INTEREST	ARU UNIT PARTICIPATION	ADDRESS	CITY	STATE	ZIP CODE
48	34-0003146-001	JAMES MILLS	N	0.000000	0.0000000	24-01982-001	Salem	JEFFERSON	OH	0.00000%	100.00000%	0.00000%			1819 Township Road 219	Richmond	OH	43944
49	1-301979-000	BETTY MAZUR AND ALFRED J. MAZUR, ACTING BY AND THROUGH HIS AGENT AND ATTORNEY-IN-FACT, FRANKLIN J. MAZUR	Y	15.712642	0.0159807	24-02511-001	Salem	JEFFERSON	OH	1.59807%	100.00000%	1.59807%			201 Township Road 263	Bergholz	OH	43908
50	34-015505-000	SCOTT M. RENFORTH AND CHRISTY M. RENFORTH	Y	1.560973	0.0015876	24-02512-000	Salem	JEFFERSON	OH	0.15876%	100.00000%	0.15876%			371 Township Road 259	Richmond	OH	43944
51	34-000880-000	GEORGE N. DAVIS	Y	11.814563	0.0120161	34-00295-000	Springfield	JEFFERSON	OH	1.20161%	100.00000%	1.20161%			2595 County Road 60	Bergholz	OH	43908
TOTAL LEASED ACRES:				975.315968	0.96983033					96.983033%	82.132744%							
TOTAL UNIT ACRES:				983.227883														

Exhibit "A-3"
Unitized Parties

Attached to and made a part of that certain Unit Operating Agreement dated July 21, 2015 for the R Kirk South Unit.

TRACT NUMBER	OWNER	ADDRESS	LEASED YES/NO	SURFACE ACRES IN UNIT	TRACT PARTICIPATION	TAX MAP PARCEL ID NUMBERS	TOWNSHIP	COUNTY	STATE	WORKING INTEREST	UNIT PARTICIPATION
29	JEROME V. GUNDRUM, DECEASED	c/o Jeffrey Gundrum 4589 Swonger Road NW, Apt B, Dover, OH 44622 Cc: Attorney Kristopher Haught Scarpone Law Offices 2021 Sunset Boulevard Steubenville, OH 43952	N	7.911914	0.0080469	24-00487-001	Salem	JEFFERSON	OH	100.00%	0.80469%
29	WELLS FARGO BANK, N.A.	3476 Stateview Boulevard Fort Mill, SC 29715 Cc: Attorney Jennifer Schaeffer Lerner, Sampson & Rothfuss Attorneys for Wells Fargo Bank, N.A. P.O. Box 5480 Cincinnati, OH 45201-5480	N	0.000000	0.0000000	24-00487-001	Salem	JEFFERSON	OH	0.00%	0.00000%
29	THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT	451 Seventh Street, S.W. Washington, DC 20410 Cc: United States of America c/o U.S. Attorney 303 Marconi Boulevard, Suite 200 Columbus, OH 43215	N	0.000000	0.0000000	24-00487-001	Salem	JEFFERSON	OH	0.00%	0.00000%
TOTAL UNITIZED ACRES:				7.911914	0.008047						
TOTAL UNIT ACRES:				983.227883							

R Kirk South Offset Stratigraphic Cross Section

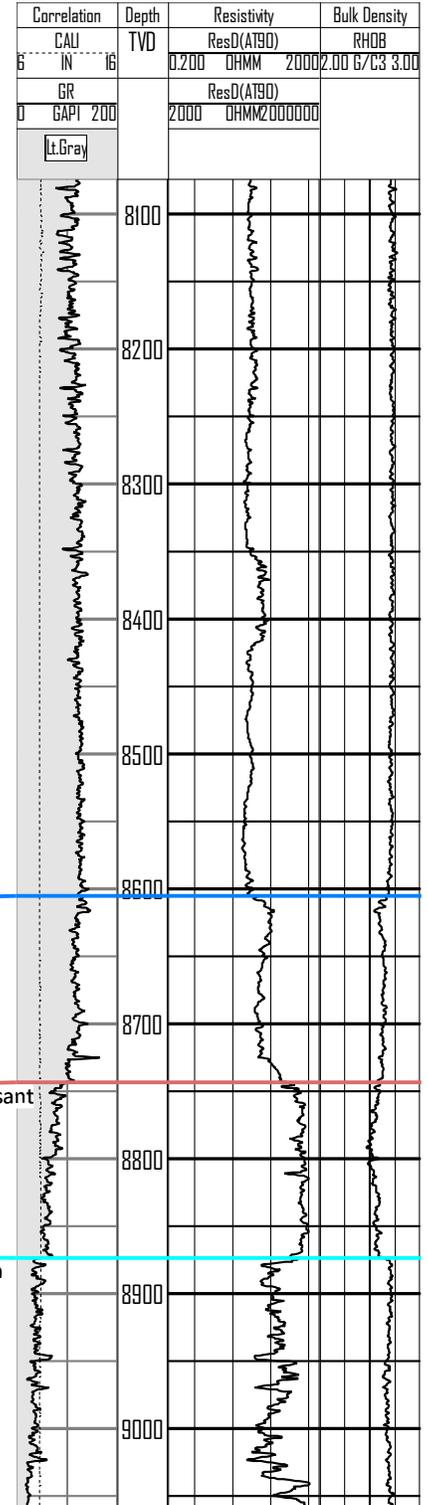
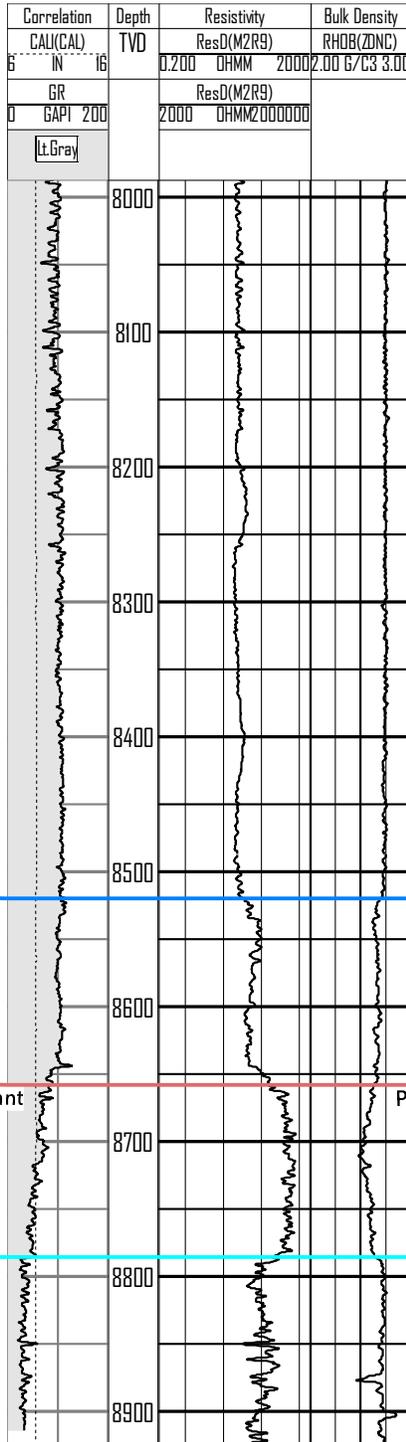
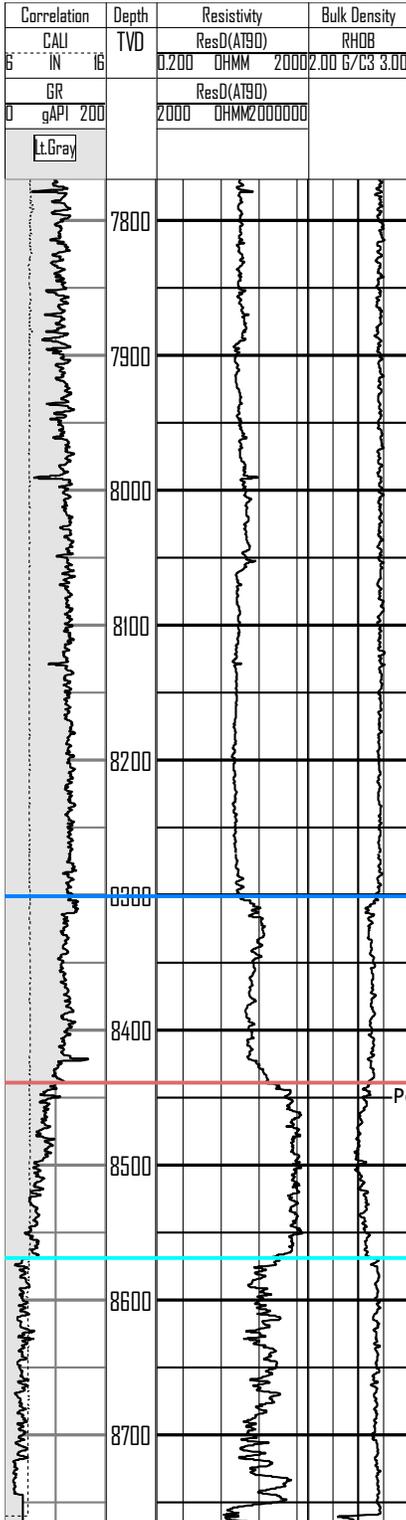
Gamma Ray Logs (0-200 API)
 Resistivity Logs (0.2 – 2000 OHMM)
 Bulk Density (2.00-3.00 g/cm3)

A 
 34081205120009
 CHK
 VAHALIK 18-11-4 8P


 34081205180009
 CHK
 DAILEY 28-10-3 3P


 34081205080009
 CHK
 ASUNCION 15-11-3 3P

A'



Utica

Utica

Point Pleasant

Point Pleasant

Trenton

Trenton

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

In re the Matter of the Application of :
Chesapeake Exploration, L.L.C., for :
Unit Operation :
: :
R Kirk South Unit :

**PREPARED TESTIMONY OF ANDREW W. HOPSON
ON BEHALF OF CHESAPEAKE EXPLORATION, L.L.C.**

R. Neal Pierce (0028379)
Katerina E. Milenkovski (0063314)
STEPTOE & JOHNSON PLLC
Huntington Center
41 South High Street, Suite 2200
Columbus, OH 43215

Attorneys for Applicant,
Chesapeake Exploration, L.L.C.

PREPARED DIRECT TESTIMONY OF ANDREW W. HOPSON

1 **Q1. Please introduce yourself.**

2 **A1.** My name is Andrew Hopson and my business address is 6100 N. Western Avenue,
3 Oklahoma City, Oklahoma 73154-0496. I am a Reservoir Engineer for Chesapeake
4 Energy Corporation.

5 **Q2. What is the purpose of your testimony today?**

6 **A2.** I am testifying in support of the Application of Chesapeake Exploration, L.L.C., for Unit
7 Operation filed with respect to the R Kirk South Unit. My testimony addresses the
8 following: (1) that unit operations for the R Kirk South Unit are reasonably necessary to
9 increase substantially the recovery of oil and gas, protect the correlative rights of the
10 mineral owners, and (2) that the estimated additional revenue, due to unit operations,
11 exceeds the estimated additional capital investment.

12 **Q3. Can you summarize your educational experience for me?**

13 **A3.** I hold a Bachelors of Science degree from Texas A&M University, College Station.

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

15 **A4.** I am a member of the Society of Petroleum Engineers.

16 **Q5. How long have you been a Reservoir Engineer for Chesapeake?**

17 **A5.** Approximately a year and a half.

18 **Q6. What other work experiences have you had?**

19 **A6.** Prior to working that asset I supported the Utica team as a Field Engineer in Canton, OH.

20 **Q7. What do your job responsibilities entail?**

21 **A7.** I am responsible for the strategy and development of Chesapeake's Utica asset. In
22 addition to providing reserve estimates it is my job to drive development that optimizes
23 oil and gas recovery in an efficient and responsible manner. Finally I am responsible for
24 the preparation of expert engineering testimony for the Utica play in Ohio.

25 **Q8. How do you do that?**

26 **A8.** I use public and proprietary information, coupled with sound engineering practices to
27 audit the value of Chesapeake assets. Practices include, but are not limited to,
28 volumetrics, material balance, Arps (decline curve) analysis, as well as other forms of
29 rate-time analysis and analytical models.

30 **Q9. Did you perform any analysis to support Chesapeake's application for unitization**
31 **for the proposed R Kirk South Unit?**

1 **A9.** Yes.

2 **Q10. What sort of analysis did you perform?**

3 **A10.** Using volumetric analysis, based on provided petrophysical data, I estimated the original
4 gas-in-place. Then, using estimates of ultimate production from analogy wells in the
5 area, I estimated the recoverable hydrocarbons (gas, condensate, and natural gas liquids)
6 foregoing unitization, observing current regulatory setbacks. Next, I calculated the
7 recoverable hydrocarbons pursuant to a unitization order. Recovery factors (RF %) for
8 the project, both unitized and abbreviated were calculated. And lastly I calculated an
9 estimate of future cashflow associated with the extracted hydrocarbons, based on current
10 SEC pricing.

11 **Q11. Why is Chesapeake looking at drilling horizontal wells?**

12 **A11.** The permeability of unconventional resource plays is so low (in nano-darcy units (nd),
13 i.e. 1.0×10^{-9} darcies) that the hydrocarbons cannot be economically produced without
14 the use of horizontal drilling, coupled with massive stimulation treatments (i.e. hydraulic
15 fracturing). Horizontal drilling is the predominant method used to develop shale
16 formations such as the Utica/Point Pleasant.

17 **Q12. Turning specifically to the R Kirk South Unit, have you made an estimate of the
18 production you anticipate from the proposed unit's operations?**

19 **A12.** Yes. I have estimated the GIP from the proposed Unit Area in the R Kirk South Unit to
20 be 100.9 BCFE. Likewise I have estimated the recoverable gas to be 62.7 BCF,
21 recoverable condensate to be 0 MBBLS, and recoverable natural gas liquids to be 0
22 MBBLS, if unitization is granted.

23 **Q13. How did you make those estimates?**

24 **A13.** I used isopleth maps of petrophysical data, obtained from other wells in the area, to
25 estimate the anticipated GIP. Then I used forecasted recoveries from all producing wells
26 within a 5 mile radius to estimate expected recovery from this unit.

27 **Q14. Once you had that data from the other Utica/Point Pleasant wells, what did you do
28 with it?**

29 **A14.** I used the porosity, water saturations, net pay, formation pressures, etc. to do volumetric
30 calculations of the GIP based on industry accepted methodologies. The RF % was then
31 calculated by dividing the estimated ultimate recovery (BCFE) by the GIP (BCF).

1 **Q15. Why do you qualify your calculations as an estimate?**

2 **A15.** There is always the possibility that the petrophysical and geological data used from offset
3 wells may be slightly different than the characteristics of the productive horizon at this
4 location. However, the volumetric calculations of GIP should be a reasonably certain
5 estimate in this statistical unconventional play.

6 **Q16. In your professional opinion, would it be economic to develop the R Kirk South Unit
7 using traditional vertical drilling?**

8 **A16.** Absolutely not.

9 **Q17. Are the estimates that you made based on good engineering practices and accepted
10 methods in the industry?**

11 **A17.** Yes.

12 **Q18. Do you have the calculations you performed?**

13 **A18.** The results of my calculations are attached to this prepared testimony as Exhibit AWH-1.

14 **Q19. Can you summarize what your calculations show?**

15 **A19.** The results of my prior stated methodology are;

16 1) Capital expenditure (CAPEX) to develop the unitized project is \$34.7 million.
17 Anticipated recoverable gas from the project is 62.7 BCFE and future cashflow (CF)
18 (using current SEC pricing of \$3.390/Mcf (no btu adjustments)) is \$103.5 million. A
19 recovery factor (RF) of 63.6% is anticipated.

20 2) CAPEX to develop the abbreviated project is \$32.5 million. GIP from the project is
21 52.4 BCFE and future CF (using current SEC pricing of \$3.39/Mcf (no btu adjustments))
22 are \$85.0 million. A recovery factor (RF) of 54.3% is anticipated.

23 **Q20. Can you briefly explain why you are using current SEC pricing in this application?**

24 **A20.** Every company has its own ideas of economic indicators by which it decides to invest in
25 an opportunity or not. Current SEC pricing, un-escalated, eliminates all the issues
26 associated with corporate decision trees and reduces the evaluation of corporate assets,
27 and projects, to a single deterministic standard. We have no clear crystal ball into the
28 future of oil and gas prices. What we do know, and can verify, is the price we currently
29 and historically get for each barrel of oil and each MMBtu of gas.

30 **Q21. Can you briefly discuss why your analysis in this application considers natural gas
31 as the only product to be produced?**

1 **A21.** We know that the products ultimately purchased from these wells will be comprised of
2 natural gas, condensate, and natural gas liquids. However, for the purpose of conducting
3 a volumetric analysis of the reservoir at initial conditions, there is only natural gas in the
4 reservoir. The condensates and natural gas liquids are separated out at the surface and
5 sold separately, when economic to do so, in an attempt to maximize cash flow.
6 Ultimately, as the reservoir pressure drops below the dew point, condensate will drop out
7 in the reservoir. However, under initial conditions the reservoir is only natural gas.
8 Therefore to determine an estimate of the RF % we need to begin with initial conditions
9 in the reservoir.

10 **Q22. Can you briefly comment on the anticipated range of recovery factors that**
11 **Chesapeake would expect to achieve for the R Kirk South Unit?**

12 **A22.** Based upon the current statistical distribution of known data, a range of 30% to 70% is
13 anticipated. The statistical mean of the data is 49%. I expect a 64 % recovery, of
14 original hydrocarbon, from this location.

15 **Q23. Based on this information and your professional judgment, do unit operations**
16 **increase substantially the ultimate recovery of oil and gas?**

17 **A23.** Yes. The recoverable gas in the unitized project increases by approximately 20% from
18 52.4 BCFE to 62.7 BCFE.

19 **Q24. Based on this information and your professional judgment, does the value of the**
20 **estimated additional recovery of hydrocarbons from the unitized project exceed its**
21 **estimated costs?**

22 **A24.** Yes. CAPEX increases by \$2.2 million for the unitized project from the non-unitized
23 project. The estimated additional cashflow from the proposed R Kirk South Unit is
24 approximately \$18.4 million as compared to what could be realized if the ODNR does
25 not grant this application for unit operations.

26 **Q25. In your professional opinion, do you believe that the proposed unit operations for**
27 **the R Kirk South Unit are reasonably necessary to increase substantially the**
28 **ultimate recovery of oil and gas from the unit area?**

29 **A25.** Yes. The unitization of the R Kirk South Unit is definitely needed to maximize the
30 economic benefit to the interest owners, and protect the correlative rights of the mineral
31 owners. If the project is not unitized it will strand 16.3% of the recoverable gas, or 10.2

1 BCFE in the ground from which mineral owners would, most likely, never see financial
2 benefit, nor Chesapeake, nor the State of Ohio.

3 **Q26. Does this conclude your testimony?**

4 **A26.** Yes.

5

EXHIBIT “AWH-1”

R Kirk South Unit

UNITIZED

Well Name	Lateral Length (ft)	Anticipated Gas Recovery, BCFE	Capital (MM\$)
R KIRK 32-11-3 6H	12856	20.9	\$11.58
R KIRK 32-11-3 8H	12856	20.9	\$11.58
R KIRK 32-11-3 10H	12856	20.9	\$11.58
Unitized Totals	38,568	62.7	\$34.7

NON-UNITIZED

Well Name	Lateral Length (ft)	Anticipated Gas Recovery, BCFE	Capital (MM\$)
R KIRK 32-11-3 6H	11580	15.7	\$10.18
R KIRK 32-11-3 8H	9747	15.8	\$10.74
R KIRK 32-11-3 10H	12856	20.9	\$11.58
Abbreviated Totals	34,183	52.4	\$32.5

* 1276' NPZ

* NPZ = No Perf Zone

	Unitized	Non-Unitized	Increases due to Unitization
Total Capital (MM\$) *	\$34.74	\$32.50	\$2.24
Anticipated Recoverable Gas, BCFE	62.67	52.44	10.23
Anticipated Recoverable Gas, BCF	62.7	53.5	9.19
Anticipated Recoverable Oil, MBBL	0.0	0.0	0.00
Anticipated Recoverable NGLs, MBBL	0.0	0.0	0.00
Estimated Project CF, (MM\$) @ SEC Prices	\$103.45	\$85.03	\$18.42

* CAPEX for compression and pipeline will be burden of midstream operator

% increase in Total Capital due to Unitization:	7%
% increase in CF due to Unitization:	22%
Est. Disc. Time to PO (Unitized), Yrs:	3.0
Est. Disc. Time to PO (Abbreviated), Yrs:	3.2
Anticipated Initial LOE per well, \$/month:	\$19,646
Est. RF% due to Unitization:	64%
Est. Abbreviated RF%:	54%

* Used Toe Setback of 150'

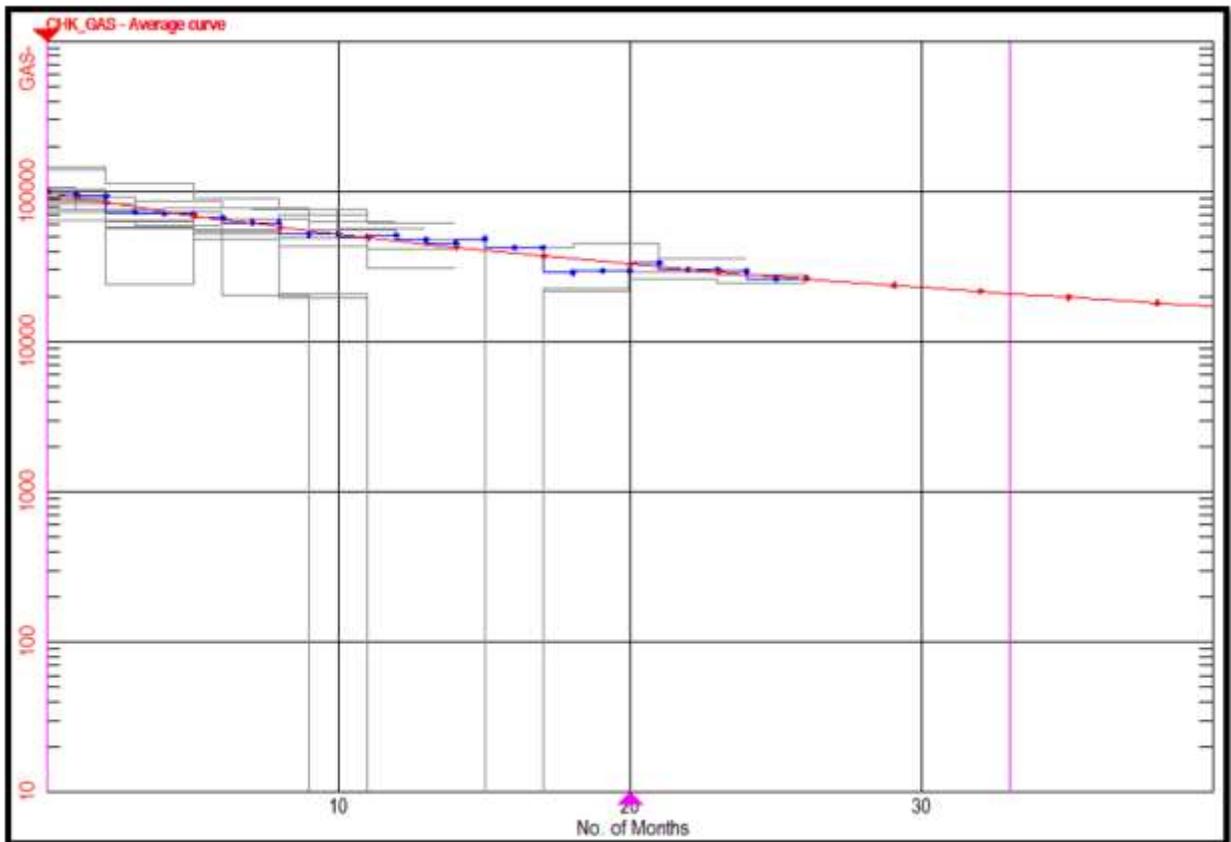
** Used Heel Setback of 150'

EXHIBIT "AWH-2"

Support Data

R Kirk South Unit

LEASE	API	OPERATOR	LL, FT.	MILES
CAIN SOUTH 16-12-4 8H	3408120520	CHESAPEAKE EXPLORATION LLC	4,896	3.4
CAIN 16-12-4 3H	3408120514	CHESAPEAKE EXPLORATION LLC	4,081	3.4
BROWN 36-11-3 10H	3408120507	CHESAPEAKE EXPLORATION LLC	3,836	4.3
ANDERSON 31-12-4	3401922274	CHESAPEAKE EXPLORATION LL	4,822	5.0
ANDERSON 31-12-4	3401922272	CHESAPEAKE EXPLORATION LL	7,964	5.0
ANDERSON 31-12-4	3401922275	CHESAPEAKE EXPLORATION LL	4,676	5.0
ANDERSON 31-12-4	3401922276	CHESAPEAKE EXPLORATION LL	4,546	5.0
ANDERSON 31-12-4	3401922273	CHESAPEAKE EXPLORATION LL	2,417	5.0
TANNER 24-12-4 10H	3401922090	CHESAPEAKE EXPLORATION LLC	4,958	5.4
PALMER 1-13-5	3401922268	CHESAPEAKE EXPLORATION LL	4,451	5.7
TUCKOSH 35-11-4	3401922138	CHESAPEAKE EXPLORATION LL	5,291	5.8



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

In re the Matter of the Application of :
Chesapeake Exploration, L.L.C., for :
Unit Operation :
: :
R Kirk South Unit :

**PREPARED TESTIMONY OF ROBERT S. HIGSAW
ON BEHALF OF CHESAPEAKE EXPLORATION, L.L.C.**

R. Neal Pierce (0028379)
Katerina E. Milenkovski (0063314)
STEPTOE & JOHNSON PLLC
Huntington Center
41 South High Street, Suite 2200
Columbus, Ohio 43215

Attorneys for Applicant,
Chesapeake Exploration, L.L.C.

PREPARED DIRECT TESTIMONY OF ROBERT S. HIGSAW

1 **INTRODUCTION.**

2 **Q1. Please state your name and business address.**

3 A1. My name is Robert S. Highsaw and my business address is 6100 N. Western
4 Avenue, Oklahoma City, Oklahoma 73154-0496.

5 **Q2. Who is your employer?**

6 A2. Chesapeake Energy Corporation.

7 **Q3. What is your position with Chesapeake?**

8 A3. My official title at Chesapeake Energy Corporation is Landman II.

9 **Q4. Please describe your professional responsibilities at Chesapeake.**

10 A4. I am responsible for assisting with our oil and gas development program in eastern
11 Ohio in Chesapeake's Appalachia South business unit.

12 **Q5. Starting with college, please describe your educational background.**

13 A5. I hold a Bachelor of Arts from the University of Oklahoma and a Juris Doctor from
14 University of Oklahoma College of Law.

15 **Q6. Please briefly describe your professional experience.**

16 A6. After graduation from law school, I worked for a number of months as a contract
17 attorney with a downtown Oklahoma City law firm performing title work.
18 Following this brief period, I have worked for Chesapeake since January 2011.

19 **Q7. What do you do as a Landman II?**

20 A7. I essentially engage in what can be considered "prospect building." After our
21 geology department identifies a play, I help execute the company's leasing and
22 development efforts in a particular area. I help facilitate development of the Utica
23 play through lease acquisitions and negotiations, joint operation negotiations, title
24 review, unit formation, wellbore planning, various permitting activities, drilling
25 wells, and other related operational activities.

26 **Q8. Are you a member of any professional associations?**

27 A8. Yes. The American Association of Professional Landmen and the Oklahoma Bar
28 Association.

29 **Q9. Were you involved in the preparation of Chesapeake Exploration, L.L.C.'s**
30 **Application for unitization with respect to the R Kirk South Unit?**

1 A9. Yes. I also am familiar with the efforts made by Chesapeake to put the R Kirk
2 South Unit together and the Unit Plan that Chesapeake is proposing.

3 **Q10. Can you generally describe the R Kirk South Unit?**

4 A10. Yes. The R Kirk South Unit consists of fifty-one (51) separate tracts of land
5 totaling approximately 983.227883 acres in Jefferson County, Ohio.

6 **EFFORTS MADE BY CHESAPEAKE TO LEASE UNIT TRACTS.**

7 **Q11. The Application submitted by Chesapeake indicates that it owns the oil and
8 gas rights to 807.552042 acres of the proposed 983.227883-acre unit. Would
9 you describe how Chesapeake acquired its rights?**

10 A11. Chesapeake acquired its working interest in this unit through acquisitions and a
11 ground floor leasing effort. In the leasing effort, Chesapeake assigned field title
12 and leasing agents to research the county records for a specific area and then secure
13 oil and gas leases with the relevant mineral owners for those particular tracts. As
14 for the acquisitions, Chesapeake purchased some of its leasehold interest in the R
15 Kirk South Unit from Cavalier Energy.

16 **Q12. What percentage of the total acreage of the R Kirk South Unit is represented
17 by the oil and gas rights held by Chesapeake and its working interest
18 partners?**

19 A12. Chesapeake and other operators control over 99% of the acreage in the unit, with
20 Chesapeake holding 82.132744% and Ascent Resources – Utica, LLC (“ARU”)
21 holding 17.062568% of the acreage in the R Kirk South Unit. Not including the
22 non-operated acreage of ARU, Chesapeake alone accounts for over 82% of this
23 Unit which still substantially exceeds the 65% statutory minimum requirement for
24 seeking unitization.

25 **Q13. Why was Chesapeake not able to acquire the oil and gas rights to all of the
26 acreage in the proposed unit?**

27 A13. There is one (1) wholly unleased tract owned of record by Jerome V. Gundrum,
28 who is deceased (Unit Tract 29) in the R Kirk South Unit. Lease negotiations have
29 occurred with Attorney Kristopher Haught of Steubenville, OH who represents Jeff
30 Gundrum, the sole devisee under the Last Will & Testament of Jerome V.
31 Gundrum, deceased. Mr. Haught has indicated that Jeff Gundrum is disinclined to

1 execute an oil and gas lease at this time and that Jeff Gundrum may walk away
2 from the property.

3 **Q14. Have you prepared affidavits detailing Chesapeake's efforts to obtain a lease**
4 **from the unleased mineral owners in the proposed unit?**

5 A14. Yes. As just discussed, Exhibit RH-1 contains one (1) affidavit which identifies
6 lease efforts which were made with the unleased mineral owner(s). Additionally,
7 there are two (2) affidavits which identify that lease efforts have not yet been
8 undertaken insofar as two (2) additional parties which may have an interest in Tract
9 29.

10 **Q15. If the unleased tract owners in the unit were to ask to lease with Chesapeake,**
11 **would Chesapeake be likely to agree?**

12 A15. Absolutely. As Chesapeake has demonstrated on a number of occasions with its
13 previous unitization applications, Chesapeake remains willing to lease on
14 reasonable, fair market value terms.

15 **Q16. Could you describe the location of the leased and unleased tracts within the R**
16 **Kirk South Unit?**

17 A16. Yes. Exhibit RH-2, which is attached to my testimony, is a colored plat showing
18 each of the tracts in the R Kirk South Unit, along with the wellbores in same. The
19 tracts in yellow indicate that Chesapeake has acquired the necessary mineral
20 interests for those particular tracts. The tract in red indicates the tract that is still
21 open or unleased for purposes of putting this unit together. The tracts in green
22 indicate the acreage owned by ARU in the R Kirk South Unit. Further, the cross-
23 hatched green and olive portions of Exhibit RH-3 depict the approximate
24 104.90907-acre area of leasehold that is currently stranded from development due
25 to the aforementioned unleased tracts within the R Kirk South Unit.

26 **UNIT PLAN PROVISIONS.**

27 **Q17. Would you describe generally the development plan for the R Kirk South**
28 **Unit?**

29 A17. Chesapeake plans to develop the R Kirk South Unit from a pad site located in the
30 northwest portion of the Unit, which would facilitate drilling three (3) planned
31 horizontal wells in the Unit. The Unit is configured to accommodate three (3)

1 horizontal wellbores, all with projected lateral lengths of 12,856 feet. These
2 planned wellbores will be drilled to the southeast from the aforementioned pad site.
3 If an Order is granted for this application, and depending upon rig availability and
4 other logistical considerations, Chesapeake intends to drill the R Kirk South initial
5 well beginning sometime in Q4 2015, at the latest.

6 **Q18. Can you describe the location of the proposed wellbore within the R Kirk**
7 **South Unit?**

8 A18. Yes, the above-referenced Exhibit RH-2 depicts the configuration I just mentioned.
9 As you can see, it illustrates that we anticipate using a surface location in the
10 northwest portion of the R Kirk South Unit, and then drilling three (3) wells in the
11 Unit Area to the southeast. Additionally, in a separate unit or units which are
12 outside of the scope of this hearing, Chesapeake anticipates drilling an additional
13 three (3) wells off of the same surface location to the northwest. Using one
14 centrally located pad site to drill up to six (6) potential wellbores minimizes surface
15 disturbance in the region by fully developing multiple unit areas from only one
16 surface location. I have also attached to my testimony an aerial map illustrating the
17 pad location, identified as Exhibit RH-4.

18 **Q19. Do you know with certainty today where the drilling and completion equip-**
19 **ment will be located on the pad?**

20 A19. We have negotiated surface rights with a leased party for the area indicated on Ex-
21 hibit RH-4. A surface use agreement has been agreed upon and signed between the
22 surface owner and Chesapeake. At their closest point, the nearest unleased or par-
23 tially unleased parcels are over 9,500 Feet away from Chesapeake's planned sur-
24 face location. Furthermore, Chesapeake has no plans to utilize the surface of any
25 presently unleased or partially unleased parcel.

26 **Q20. What are the benefits to this type of unit development?**

27 A20. Developing the R Kirk South Unit in the manner previously described not only
28 protects the correlative rights of the unit participants, but has substantial economic
29 and environmental benefits as well. Drilling, completing and producing multiple
30 wells from a single surface location significantly reduces the impact on the surface.
31 Only one access road is constructed instead of several, the need for separate tank

1 batteries at multiple locations is eliminated, traffic to and from the area is
2 significantly reduced, and it allows development of acreage that might not
3 otherwise be developed with traditional drilling methods due to surface limitations,
4 such as local water features and residential and commercial activities. There is a
5 significant amount of acreage in eastern Ohio, where operators like Chesapeake
6 believe the Utica formation is prospective. Development through vertical wells
7 would not be practicable for two reasons: (1) because unconventional reservoirs
8 cannot be produced at economic flow rates or volumes with vertical drilling (as
9 described by Drew Hopson); and (2) because vertical wells, even if they were
10 practical, require numerous surface locations spaced at consistent intervals, which
11 become impractical in areas where the surface is already occupied with other uses
12 (such as residential and commercial activities, existing surface waters, and,
13 occasionally, timber activities). In contrast, horizontal drilling is expected to be
14 both economically practical and physically viable, since it allows operators to
15 locate surface operations on strategically located properties, which can serve as
16 centralized access points used to develop mineral acreage underlying otherwise
17 inaccessible lands.

18 **Q21. So is it fair to say that the benefits of this type of development are substantial?**

19 A21. Yes, the type of development planned by Chesapeake for the R Kirk South Unit,
20 and its adjacent units, offers significant benefits not only to the operator, but also to
21 the landowners in the unit and the surrounding area.

22 **Q22. Are you familiar with the Unit Plan proposed by Chesapeake for the R Kirk
23 South Unit?**

24 A22. Yes. The Unit Plan proposed by Chesapeake is set out in two documents attached
25 to the Application – the Unit Agreement, which establishes the non-operating
26 relationship between the parties in the unit; and a Unit Operating Agreement and
27 related exhibits, which establish how the unit is going to be explored, developed,
28 and produced.

29 **Q23. Let's turn first to the Unit Agreement, marked as Exhibit 1 to the Application.
30 Would you describe briefly what it does?**

31 A23. Yes. The Unit Agreement in effect combines the oil and gas rights in the R Kirk

1 South Unit so that they can be uniformly developed as if they were part of a single
2 oil and gas lease.

3 **Q24. Are mineral rights to all geological formations combined under the Unit**
4 **Agreement?**

5 A24. No. The Unit Agreement only unitizes the oil and gas rights located fifty feet
6 above the top of the Utica Shale to fifty feet below the base of the Point Pleasant
7 formation, defined in the Agreement as the “Unitized Formation,” to allow
8 development of the Utica Shale formation.

9 **Q25. How will production proceeds from the R Kirk South Unit be allocated among**
10 **royalty interest owners and working interest owners in the Unit?**

11 A25. On a surface-acreage basis. Under Article 4 of the Unit Agreement, every tract is
12 assigned a tract participation percentage based on surface acreage and shown on
13 Exhibit A-2 to the Unit Operating Agreement. Article 5 of the Unit Agreement
14 allocates production based on that tract participation.

15 **Q26. Why use a surface-acreage basis as the method of allocation?**

16 A26. Based on the testimony of Travis Glauser attached to the Application as Exhibit 3,
17 a surface-acreage basis is an appropriate method of allocation because the
18 formation thickness and reservoir quality of the Utica formation is expected to be
19 consistent across the unit.

20 **Q27. Would you go through an example from Exhibit A-2 to the Unit Operating**
21 **Agreement to illustrate how a surface-acreage basis would be applied to the R**
22 **Kirk South Unit?**

23 A27. Yes. If you look at the fifth column on Exhibit A-2 to the Unit Operating
24 Agreement entitled “Surface Acres in Unit,” it shows the number of surface acres
25 in each tract of land within the R Kirk South Unit. Column 6 on Exhibit A-2 shows
26 the related tract participation of each tract, which is calculated by taking the total
27 number of surface acres in the tract and dividing it by the total number of surface
28 acres in the unit. So, for example, if you look at Tract Number 29 on page 5 of
29 Exhibit A-2, it shows that this particular tract owned of record by Jerome V.
30 Gundrum comprises 7.911914 surface acres in the 983.227883 acre R Kirk South
31 Unit, which equates to a tract participation of approximately 0.80469% (7.911914

1 ÷ 983.227883).

2 **Q28. What does that mean in terms of production allocated to that particular tract?**

3 A28. It would mean this particular tract owned of record by Jerome V. Gundrum would
4 have allocated to it roughly 0.80469% of all production from the R Kirk South
5 Unit, which would then be distributed based on the terms of the lease or other
6 relevant document affecting ownership to production proceeds from the tract.

7 **Q29. Does it work the same way for an unleased mineral interest, that is, for the**
8 **tract of a person or entity which did not lease its property in the unit?**

9 A29. Yes. If you take a look at Exhibit A-3(A) to the Unit Operating Agreement, you
10 will see that it lists, among other things, the surface acreage, tract participation and
11 related working interest and unit participations of each unleased parcel in the
12 proposed unit. In the fifty-one-tract R Kirk South Unit, Tract 29 is the only
13 unleased parcel in the unit area. The minerals under this tract are currently owned
14 of record by Jerome V. Gundrum, who is deceased. Specifically, an estimated
15 7.911914 acres are owned of record by Jerome V. Gundrum. If the unleased
16 acreage is divided by the full surface acreage comprising the unit (983.227883
17 acres), the result gives a tract participation of approximately 0.80469% for Jerome
18 V. Gundrum. Under the Unit Agreement, should the unleased landowners
19 affirmatively select the non-consenting working interest option if one is provided
20 for in the Order, the landowners would receive a 7/8 working interest and a 1/8
21 royalty interest on its respective tract participation. The landowner's royalties
22 would be calculated on the net proceeds received by Chesapeake at the well in
23 accordance with the royalty provision contained in Exhibit B to the Unit Operating
24 Agreement and rulings in the majority of gas producing jurisdictions that royalty
25 owners are responsible for their proportionate share of post-production expenses.
26 Allowing deduction of post-production expenses for purposes of royalty calculation
27 provides incentive to producers to add value to their product by post-production
28 treatment and transportation. If producers are not allowed to deduct a proportionate
29 share of royalty owners' post-production expenses that enhance the value of the
30 product, an economic loss to all parties results and the incentive to generate

1 additional value disappears because producers are required to pay for *all* post-
2 production expenses, and also surrender one-eighth of the final proceeds received.

3 **Q30. In your experience, is surface acreage allocation a customary way to allocate**
4 **production in a unit?**

5 A30. In my experience, surface-acreage allocation is both fair and customary for
6 horizontal shale development.

7 **Q31. How are unit expenses allocated?**

8 A31. Like production in the unit, unit expenses are allocated generally on a surface-
9 acreage basis. Article 3 of the Unit Agreement provides that expenses, unless
10 otherwise allocated in the Unit Operating Agreement, will be allocated to each tract
11 of land within the unit in the proportion that the surface acres of each tract bears to
12 the surface acres of the entire unit.

13 **Q32. Who pays the unit expenses?**

14 A32. Working interest owners.

15 **Q33. Do the royalty owners pay any part of the unit expenses?**

16 A33. No. Royalty interest owners are responsible only for their proportionate share of
17 taxes and post-production costs, payable only from their share of the proceeds from
18 sales of production from the unit area.

19 **Q34. Let's turn to the Unit Operating Agreement, marked as Exhibit 2 to the**
20 **Application. It appears to be based upon a form document. Could you please**
21 **identify that form document?**

22 A34. Yes. The Unit Operating Agreement is based upon *A.A.P.L. Form 610 – Model*
23 *Form Operating Agreement – 1989*. We typically use a modified version of that
24 form agreement when we enter into joint operating agreements with other parties.

25 **Q35. Are you familiar with the custom and usage of the Form 610 and other similar**
26 **agreements in the industry?**

27 A35. Yes. The Form 610, together with its exhibits, is a commonly used form in the
28 industry and is frequently modified to fit the needs of the parties and
29 circumstances.

30 **Q36. Turning to the Unit Operating Agreement in particular, does it address how**
31 **unit expenses are determined and paid?**

1 A36. Yes. Article III of the Unit Operating Agreement provides that all costs and
2 liabilities incurred in operations shall be borne and paid proportionately by the
3 working interest owners, according to their Unit Participation percentages. Those
4 percentages can be found in Exhibits A-2 and A-3(A) to the Unit Operating
5 Agreement. Moreover, the Unit Operating Agreement has attached to it an
6 accounting procedure identified as Exhibit C.

7 **Q37. What is the purpose of the document marked Exhibit C in connection with the**
8 **R Kirk South Unit?**

9 A37. The document provides greater details regarding how unit expenses are determined
10 and paid.

11 **Q38. At the top of each page of Exhibit C, there appears a label that reads:**
12 **“COPAS 1984 ONSHORE Recommended by the Council of Petroleum**
13 **Accountants Societies.” Are you familiar with this society?**

14 A38. Yes, COPAS stands for the Council of Petroleum Accountants Societies.

15 **Q39. Is this COPAS document used in oil and gas operations across the country?**

16 A39. Yes. This form is commonly used in the industry.

17 **Q40. In your opinion, is this COPAS document generally accepted in the industry?**

18 A40. Yes. Drafted by an organization that includes members from many different
19 companies in diverse sections of the industry, it was designed to be generally fair to
20 the parties. Chesapeake, in fact, is frequently subject to the COPAS in its
21 operations with other producers.

22 **Q41. Will there be in-kind contributions made by owners in the unit area for unit**
23 **operations, such as contributions of equipment?**

24 A41. No, Chesapeake Energy does not anticipate in-kind contributions for the Unit Op-
25 erations.

26 **Q42. Are there times when a working interest owner in the unit chooses not to – or**
27 **cannot – pay their allocated share of the unit expenses?**

28 A42. Yes, such a situation is not uncommon in the industry. Joint operating agreements
29 contemplate that there will be times when less than all of the working interest
30 owners choose to participate in operations on the Contract Area. The agreements
31 are drafted to allow the parties flexibility. That includes flexibility for one or more

1 working interest owners to decline to participate in an operation that they may not
2 believe will be a profitable venture or one that they cannot afford, as well as
3 flexibility for the remaining parties to proceed with such operation at their own risk
4 and expense if they wish to do so.

5 **Q43. Generally, how is the working interest accounted for when an owner chooses**
6 **not to participate in an operation?**

7 A43. A working interest owner who cannot or chooses not to participate is considered a
8 non-consenting party. If the remaining working interest owners decide to proceed
9 with an operation, then the consenting parties bear the full costs and expenses of
10 that operation. A non-consenting party is deemed to have relinquished its interest
11 in that operation until such time as the well pays out the costs that would have been
12 payable by that party, plus some sort of risk factor, sometimes called a risk penalty
13 or non-consent penalty.

14 **Q44. What is a risk penalty or non-consent penalty, and why are they included in**
15 **the agreement?**

16 A44. A risk penalty or non-consent penalty is a mechanism which recognizes that in
17 instances when a working interest owner chooses not to agree in advance to pay its
18 share of the costs of drilling a well, the other working interest owners should be
19 compensated for the financial risks they undertake in paying the costs of drilling a
20 well considering that the well may be a non-producer. Additionally, a non-consent
21 penalty can serve as a means to allow a working interest owner to finance
22 participation in a well when unable to advance its share of drilling costs.

23 **Q45. Can a working interest owner choose to go non-consent in the initial well in**
24 **the R Kirk South Unit?**

25 A45. Yes. If a working interest owner fails to participate in the unit's initial well, and if
26 that working interest owner is not a party to a separate Joint Operating Agreement
27 with Chesapeake, then Article VI.A of the Unit Operating Agreement attached to
28 this application provides that the working interest owner shall be deemed to have
29 relinquished to the other parties its working interest in the unit with a back-in
30 provision that includes a risk factor of 500%.

31 **Q46. Does the Unit Operating Agreement treat the initial well and subsequent**

1 **operations differently in terms of non-consent penalties, and if so, why?**

2 A46. No. A risk factor of 500% applies to the initial well and subsequent operations.

3 **Q47. But if the working interest owner still has a royalty interest in the unit, that**
4 **royalty interest would remain in place and be paid?**

5 A47. Yes. The royalty interest would still be paid even if the working interest is being
6 used to pay off a risk factor.

7 **Q48. Are the risk penalty/non-consent penalty percentages included in the Unit**
8 **Operating Agreement unusual?**

9 A48. No. A risk penalty of 500% is fair and reasonable for working interest owners in
10 the Utica who have acquired their rights as lessees under current oil and gas leases.
11 While Chesapeake and its peers in the industry are optimistic about development of
12 the Utica and other shale formations, the projects proposed are significant capital
13 investments (often exceeding \$7,000,000 per well to plan, drill and complete). In
14 addition, unconventional plays like the Utica are not simple, homogeneous plays.
15 Within the boundaries of the play (here, the Utica Shale generally), there are likely
16 to be areas of uneven geological performance. Therefore, given the inherent risks
17 and significant capital outlays, it is common for companies to incorporate a higher
18 risk factor in their joint operating agreements.

19 **Q49. Is a risk factor level of 500% common among the industry or in other**
20 **jurisdictions?**

21 A49. Typically within the Utica operators have pre-negotiated Joint Operating
22 Agreements which contain risk factors of 500% or sometimes even higher.

23 **Q50. How are decisions made regarding unit operations?**

24 A50. Article V of the Unit Operating Agreement designates Chesapeake Exploration,
25 L.L.C., as the Unit Operator, with full operational authority for the supervision and
26 conduct of operations in the unit. Additionally, except where otherwise provided,
27 Article XVI of the Unit Operating Agreement states that any decision,
28 determination or action to be taken by the unit participants shall be based on a
29 voting procedure in which each unit participant has a vote that corresponds in value
30 to that participant's allocated responsibility for the payment of unit expenses.

1 **Q51. I believe you've already described generally the documents in Exhibits A and**
2 **C to the Unit Operating Agreement. Let's turn therefore to Exhibit B of the**
3 **Unit Operating Agreement. What is it?**

4 A51. Exhibit B is a standard oil and gas lease form that is attached to the joint operating
5 agreement to govern any unleased interests owned by the parties. Article III.A of
6 the Unit Operating Agreement provides that if any party owns or acquires an oil
7 and gas interest in the Contract Area, then that interest shall be treated for all
8 purposes of the Unit Operating Agreement as if it were covered by the form of
9 lease attached as Exhibit B.

10 **Q52. Does this oil and gas lease contain standard provisions that Chesapeake uses in**
11 **connection with its drilling operations in Ohio and elsewhere?**

12 A52. Yes.

13 **Q53. Moving on to Exhibit D of the Unit Operating Agreement, would you describe**
14 **what it is?**

15 A53. Yes, Exhibit D is the insurance exhibit to the joint operating agreement. It sets
16 forth coverage amounts and limitations, and the insurance terms for operations
17 conducted under the Unit Operating Agreement. It requires the operator, to obtain
18 General Liability coverage, including bodily injury and property damage liability,
19 in an amount of five million dollars, which is substantially similar to those
20 employed in connection with Chesapeake's other unitized projects in the State of
21 Ohio.

22 **Q54. Would you next describe Exhibit E of the Unit Operating Agreement?**

23 A54. Yes. Exhibit E is the Gas Balancing Agreement, which further details the rights
24 and obligations of working interest parties with respect to marketing and selling
25 any production from the Contract Area. It would normally not come in to play with
26 an unleased landowner, but only with a working interest owner who desired to
27 market their share of production separately from the Operator.

28 **Q55. Has Chesapeake documented which of the working interest owners included**
29 **within the R Kirk South Unit have given their consent to the proposed**
30 **unitization?**

31 A55. Yes. Exhibit 6 to the Application documents the approvals for the Unit Plan

1 received from working interest owners included within the R Kirk South Unit, up
2 to the time that the Application was filed. Exhibit 6 gives the approval of working
3 interest owners approving the Unit Plain; currently, that being Chesapeake as
4 owner of 82.132744% and ARU as owner of 17.062568%. The tracts in which
5 Chesapeake has a working interest are depicted in Exhibit 6-1.

6 **Q56. Does the Application contain a list of the fee interest owner and mineral**
7 **reservation holders who have not previously agreed to enter into any oil and**
8 **gas lease with respect to the tracts they own, or possibly own, within the R**
9 **Kirk South Unit?**

10 A56. Yes. Exhibit A-3(A) to the Unit Operating Agreement lists the “unitized parties,”
11 that is, the fee interest owner and mineral reservation holders who have not leased
12 their mineral interests to any party. For notice purposes, the proper addresses for
13 these unleased parties are listed on Exhibit A-3(A) as well. Exhibit A-3(B) lists the
14 proper address for notice purposes of the Tract or Tracts of the fee interest owner
15 whose current lease contains a pooling limitation that does not conform to the
16 development plan. It is important to emphasize that the party or parties listed on
17 Exhibit A-3(B) are already leased and are hence not unitized parties.

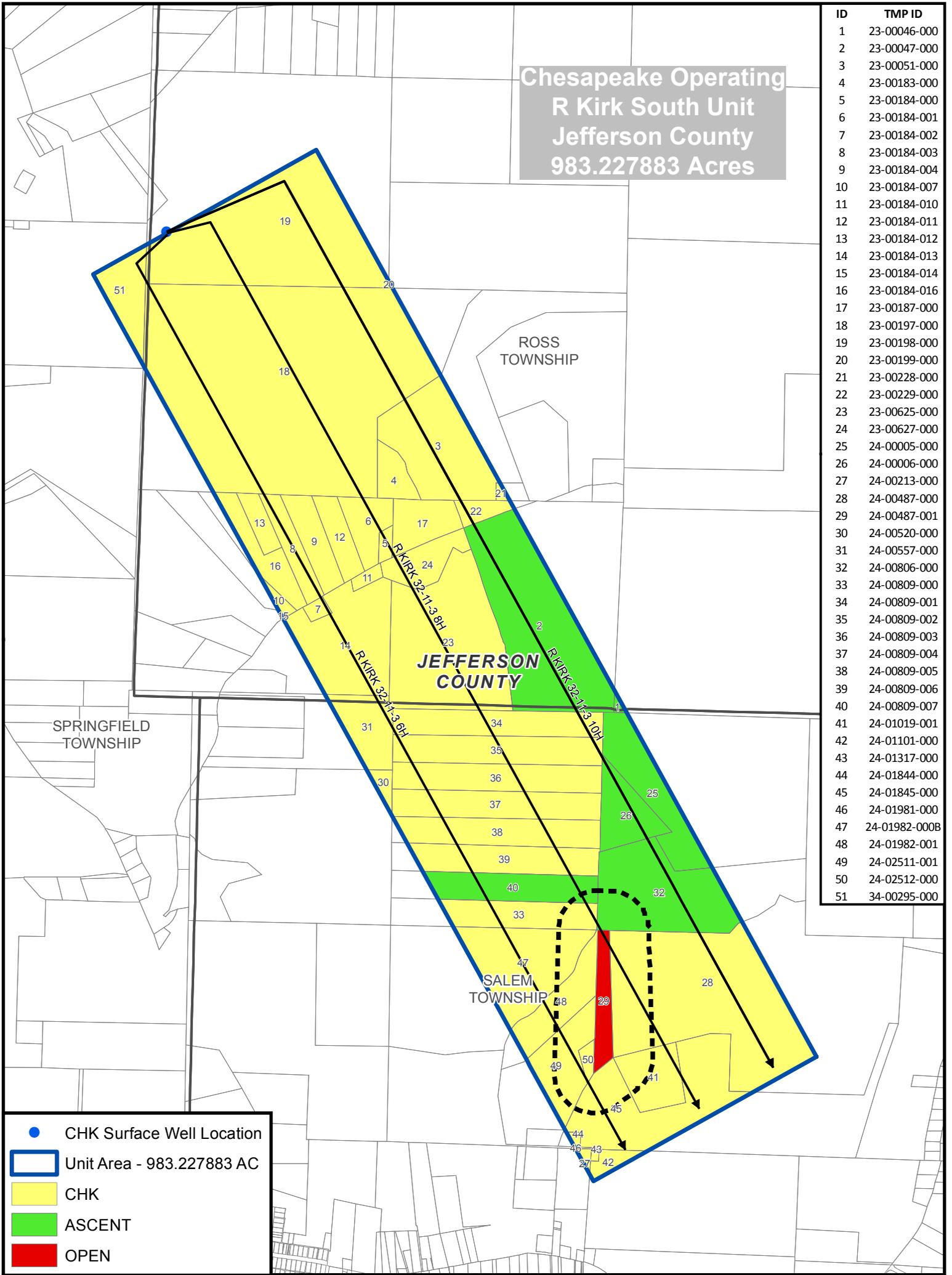
18 **Q57. In your professional opinion, given your education and experience, are unit**
19 **operations for the proposed R Kirk South Unit reasonably necessary to**
20 **increase substantially the ultimate recovery of oil and gas?**

21 A57. Yes. Unit operations for the proposed R Kirk South Unit are reasonably necessary
22 to increase substantially the ultimate recovery of oil and gas. As testified by my
23 colleagues Mr. Glauser and Mr. Hopson, unit operations will promote a rational
24 and efficient development of the Utica formation underlying the R Kirk South Unit.
25 In addition, as a land professional I am supportive of any efforts to reduce waste by
26 minimizing the number of wells and surface locations utilized for drilling
27 operations. I understand that land is a valuable commodity and that horizontal
28 drilling is an excellent way to accommodate both the rights of the mineral owner
29 and the rights of the surface owner to accomplish reasonable development.

30
31 **Q58. Does this conclude your testimony?**

1 A58. Yes.

Exhibit "RH-2"



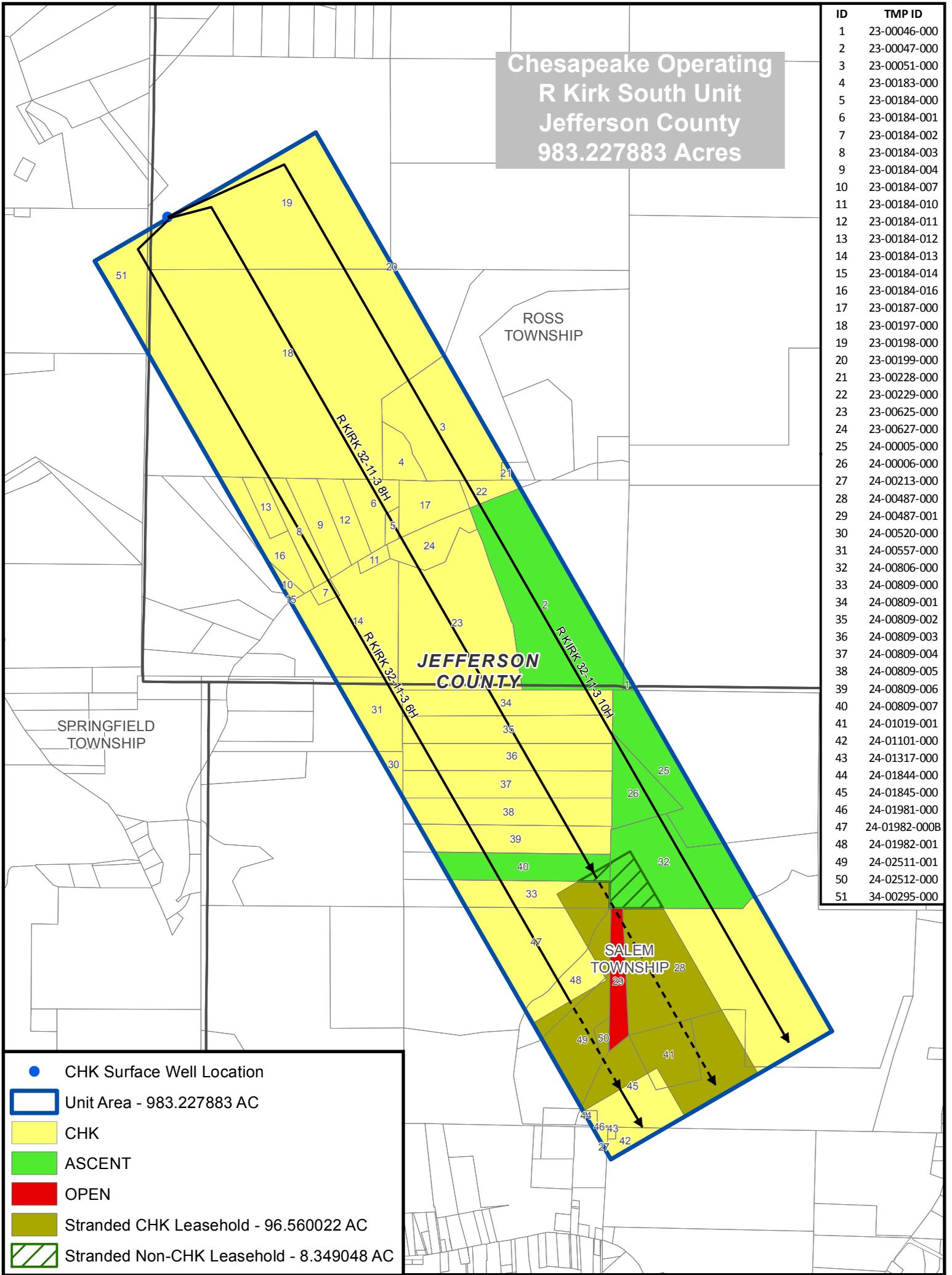
UNIT PLAT

R Kirk South Unit
 Ross, Salem, & Springfield Townships
 Jefferson Co., OH

1 inch = 1,500 feet



Exhibit "RH-3"



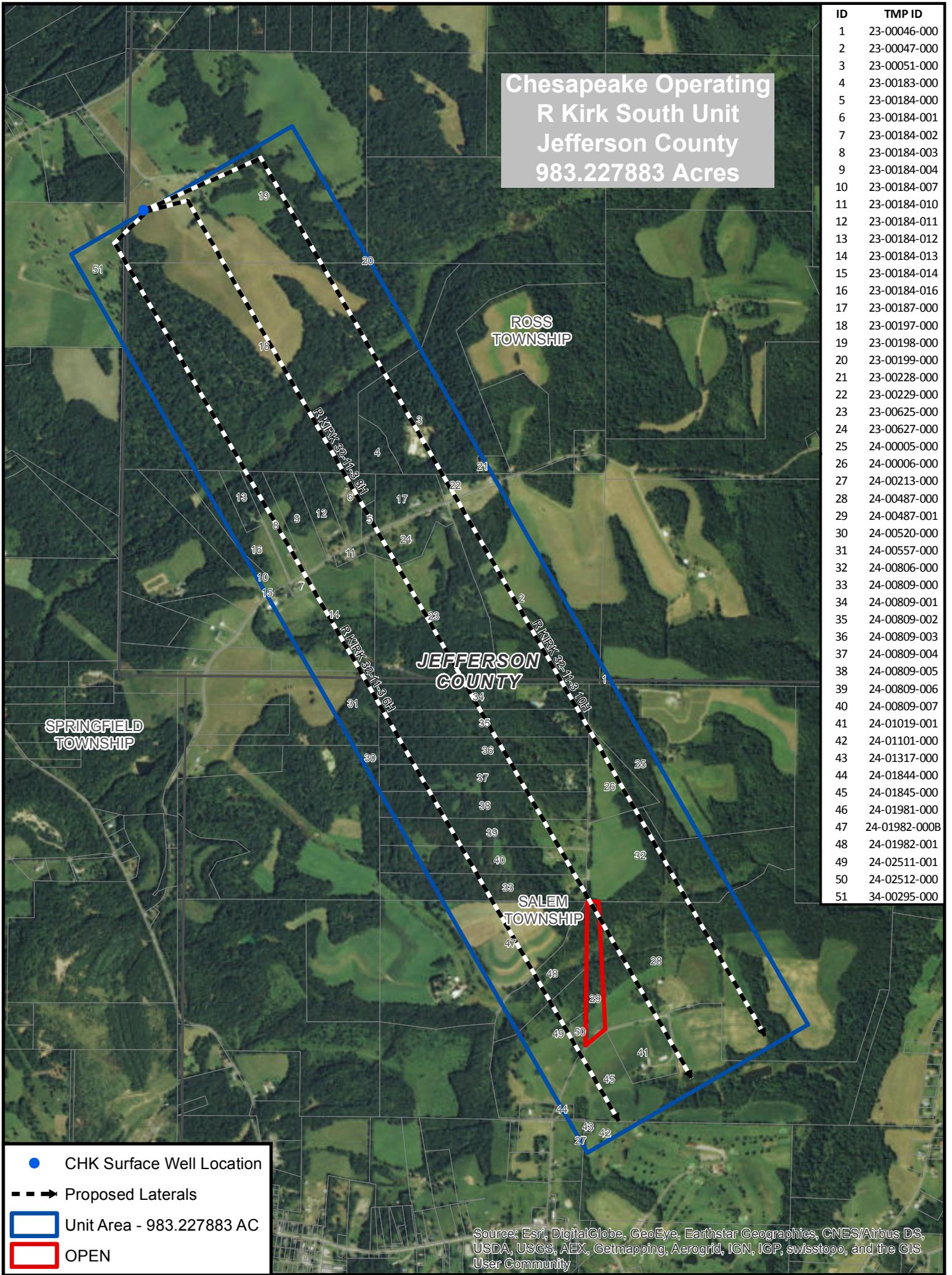
UNIT PLAT

**R Kirk South Unit
Ross, Salem, & Springfield Townships
Jefferson Co., OH**

1 inch = 1,500 feet



Exhibit "RH-4"



**Chesapeake Operating
R Kirk South Unit
Jefferson County
983.227883 Acres**

ID	TMP ID
1	23-00046-000
2	23-00047-000
3	23-00051-000
4	23-00183-000
5	23-00184-000
6	23-00184-001
7	23-00184-002
8	23-00184-003
9	23-00184-004
10	23-00184-007
11	23-00184-010
12	23-00184-011
13	23-00184-012
14	23-00184-013
15	23-00184-014
16	23-00184-016
17	23-00187-000
18	23-00197-000
19	23-00198-000
20	23-00199-000
21	23-00228-000
22	23-00229-000
23	23-00625-000
24	23-00627-000
25	24-00005-000
26	24-00006-000
27	24-00213-000
28	24-00487-000
29	24-00487-001
30	24-00520-000
31	24-00557-000
32	24-00806-000
33	24-00809-000
34	24-00809-001
35	24-00809-002
36	24-00809-003
37	24-00809-004
38	24-00809-005
39	24-00809-006
40	24-00809-007
41	24-01019-001
42	24-01101-000
43	24-01317-000
44	24-01844-000
45	24-01845-000
46	24-01981-000
47	24-01982-000B
48	24-01982-001
49	24-02511-001
50	24-02512-000
51	34-00295-000

- CHK Surface Well Location
- Proposed Laterals
- Unit Area - 983.227883 AC
- OPEN

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

UNIT PLAT

**R Kirk South Unit
Ross, Salem, & Springfield Townships
Jefferson Co., OH**

1 inch = 1,500 feet



WORKING INTEREST OWNER
APPROVAL OF
UNIT PLAN FOR THE
R KIRK SOUTH UNIT
Ross/Salem/Springfield Townships

Jefferson County, Ohio

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, a Unit Plan has been prepared for the testing, development, and operation of certain Tracts identified therein, which Plan consists of an agreement entitled, "Unit Agreement, The R Kirk South Unit, Ross/Salem/Springfield Townships, Jefferson County, Ohio," dated July 21, 2015 (the "Unit Agreement"); and an agreement entitled, "A.A.P.L. Form 610-1989 Model Form Operating Agreement," also regarding the R Kirk South Unit and of like date (the "Unit Operating Agreement"); and,

WHEREAS, the undersigned is the owner of a Working Interest in and to one or more of the Tracts identified in said Unit Plan, namely, the Tracts identified below (hereinafter, the "Owner").

NOW, THEREFORE, the Owner hereby approves* the Unit Plan and acknowledges receipt of full and true copies of both the Unit Agreement and the Unit Operating Agreement.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the date set forth opposite the signature of its representative.

WORKING INTEREST OWNER

TRACT NO. (see attached)

TRACT ACREAGE 807.552042

RELATED WORKING INTEREST PERCENTAGE 82.132744%

CHESAPEAKE EXPLORATION, L.L.C.
CHK UTICA, L.L.C.

Date

9/24/2015

By:



Robert Highsaw, Landman II – Appalachia South

**Per its Development Agreement and global Joint Operating Agreement with TOTAL E&P USA, Inc., Chesapeake Exploration, L.L.C., as Operator, is authorized to file this application on behalf of TOTAL E&P USA, Inc.*

Exhibit 6

WORKING INTEREST OWNER

APPROVAL OF

UNIT PLAN FOR THE

R KIRK SOUTH UNIT

Ross/Salem/Springfield Townships

Jefferson County, Ohio

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, a Unit Plan has been prepared for the testing, development, and operation of certain Tracts identified therein, which Plan consists of an agreement entitled, "Unit Agreement, The R Kirk South Unit, Ross/Salem/Springfield Townships, Jefferson County, Ohio," dated July 21, 2015 (the "Unit Agreement"); and an agreement entitled, "A.A.P.L. Form 610-1989 Model Form Operating Agreement," also regarding the R Kirk South Unit and of like date (the "Unit Operating Agreement"); and,

WHEREAS, the undersigned is the owner of a Working Interest in and to one or more of the Tracts identified in said Unit Plan, namely, the Tracts identified below (hereinafter, the "Owner").

NOW, THEREFORE, the Owner hereby approves* the Unit Plan and acknowledges receipt of full and true copies of both the Unit Agreement and the Unit Operating Agreement.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the date set forth opposite the signature of its representative.

WORKING INTEREST OWNER

TRACT NO. 1, 2, 25, 26, 32, 40, 47, & 48

TRACT ACREAGE 167.763926

RELATED WORKING INTEREST PERCENTAGE 17.062568%

Ascent Resources-Utica, LLC

Date 9/22/15

By: Kade Smith

Name: Kade Smith

Title: Land Manager

**Such approval to the Application, however, shall not be deemed as an election of any kind from ARU to participate in the above referenced unit as ARU's leasehold is contemplated in a Lease Exchange Agreement between ARU and CHK, dated 9/1/2015.*

Exhibit 6

Exhibit 1

Working Interest Owners

Attached to and made a part of that certain Unit Operating Agreement dated July 21, 2015 for the R Kirk South Unit.

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
3	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	33.548951	23-00051-000
4	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	0.000000	23-00183-000
4	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	5.113953	23-00183-000
4	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.022791	23-00183-000
5	MILDRED E. HUBER	0.000000	23-00184-000
5	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	1.337671	23-00184-000
5	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	0.267534	23-00184-000
6	JAMES P. MERIWETHER AND MARJORIE J. MERIWETHER	0.000000	23-00184-001

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
6	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	7.546695	23-00184-001
6	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.509339	23-00184-001
7	JENNIFER M. HALL	1.529934	23-00184-002
8	GEORGE A. POTKRAJAC	0.000000	23-00184-003
8	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	7.016426	23-00184-003
8	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.403285	23-00184-003
9	GEORGE A. POTKRAJAC	0.000000	23-00184-004

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
9	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	8.151022	23-00184-004
9	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.630204	23-00184-004
10	RONALD R. REASONER AND AMY D. REASONER	0.000000	23-00184-007
10	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	1.199459	23-00184-007
10	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	0.239892	23-00184-007
11	FREDERICK A. HUBER AND CYNTHIA A. HUBER	1.634924	23-00184-010
12	MARK A. KINCAID AND JILL A. KINCAID	0.000000	23-00184-011

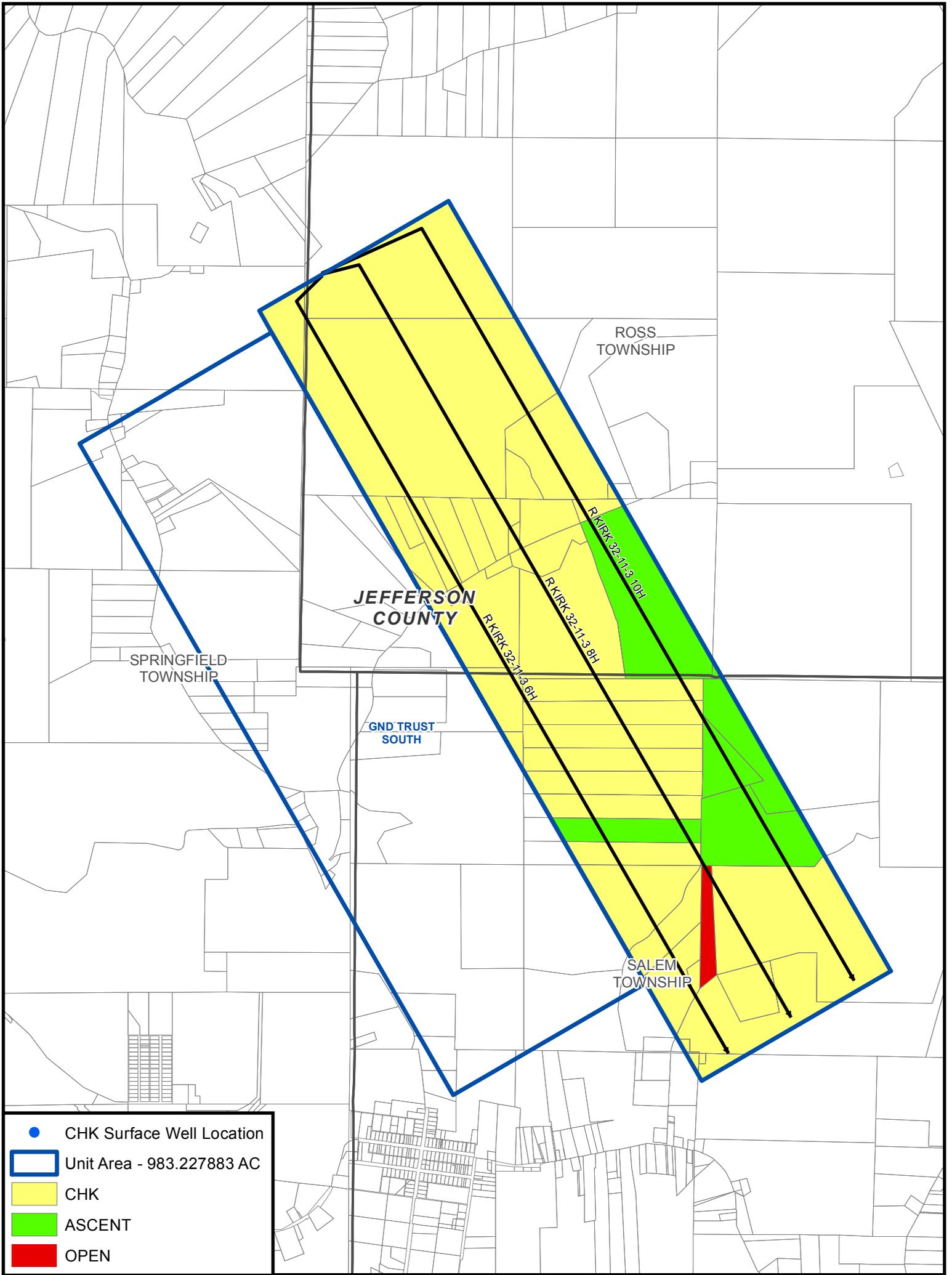
TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
12	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	6.270030	23-00184-011
12	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.254006	23-00184-011
13	KELLY M. BETHEL	0.000000	23-00184-012
13	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	3.837825	23-00184-012
13	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	0.767565	23-00184-012
14	CARYL A. TAYLOR AND FRANK PHILLIPS	33.101256	23-00184-013
15	RONALD R. REASONER AND AMY D. REASONER	0.000000	23-00184-014

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
15	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	0.046254	23-00184-014
15	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	0.009251	23-00184-014
16	KELLY M. BETHEL	0.000000	23-00184-016
16	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	8.681560	23-00184-016
16	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.736312	23-00184-016
17	ROBERT SENSIBAUGH AND CAROL SENSIBAUGH	0.000000	23-00187-000

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
17	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	8.841945	23-00187-000
17	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.768389	23-00187-000
18	ROBERT H. AND DARLA KAY KIRK	182.257790	23-00197-000
19	ROBERT H. AND DARLA KAY KIRK	74.801522	23-00198-000
20	ROBERT H. AND DARLA KAY KIRK	0.048111	23-00199-000
21	DAVID R. MCELWAIN AND EDWINNA MCELWAIN	0.585161	23-00228-000
22	DAVID R. MCELWAIN AND EDWINNA MCELWAIN	1.894627	23-00229-000
22	EDWARD MCLAIN AND PATRICIA MCLAIN	1.894627	23-00229-000
23	MILDRED E. HUBER	55.898293	23-00625-000
24	FREDERICK A. HUBER AND CYNTHIA A. HUBER	9.943148	23-00627-000
27	JACK C. CAGOT	0.746157	24-00213-000
28	CHARLES W. CORDER, SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	81.133917	24-00487-000
30	ELIZABETH L. BOGGESS	1.095477	24-00520-000
30	EDGAR L. HARMON AND GLORIA F. HARMON	1.095477	24-00520-000
31	CHARLES WILLIAM CORDER, SR. AND DIANE L. CORDER	6.402262	24-00557-000
31	GEORGE KNAPP, INDIVIDUALLY AND AS AUTHORIZED AGENT AND ATTORNEY-IN-FACT FOR MARTHA A. KNAPP, WIFE OF GEORGE W. KNAPP, GEORGE E. CORROCCI AND ROSARIE M. CORROCCI, HUSBAND AND WIFE, ROBERT G. LEWIS AND L. JANE LEWIS, HUSBAND AND WIFE, CARL L. GRIMM AND DEBRA A. GRIMM HUSBAND AND WIFE, WILLIAM H. WESTLAKE, A SINGLE MAN, LARRY P. CORROCCI, JR., A SINGLE MAN, DALE M. WESTLAKE AND DEMENICA M. WESTLAKE, HUSBAND AND WIFE, JAMES MICHAEL LEMAL, JR. AND RENEE LYNN LEMAL, HUSBAND AND WIFE, KENNETH LEE LEMAN AND THERESA RENFRO LEMAL, HUSBAND AND WIFE, ROBERT LEMAN AND MELISSA C. LEMAL, HUSBAND AND WIFE, MICHELLE LEMAL, A SINGLE WOMAN, JOHN FRANCIS LEMAL AND BUNNY LEE LEMAL, HUSBAND AND WIFE, CARRIE ANN MCCLELLAN AND JOHN RICHARD MCCLELLAN, WIFE AND HUSBAND, CAROLINE CHRISTINE CARDWELL AND JAMES DOUGLAS CARDWELL, WIFE AND HUSBAND, PAUL EDWARD LEMAN AND ELEANOR LEMAL, HUSBAND AND WIFE	5.335218	24-00557-001
31	MEGAN ANN PAUL FKA MEGAN ANN MORRISON AND KENNETH W. PAUL	1.067044	24-00557-002
33	PHILLIP B. JORDAN	15.061244	24-00809-000
34	ROBERT W. YEAGER AND BETH A. YEAGER	20.029212	24-00809-001
35	ROBERT H. AND LORI D. NEWLIN	21.602109	24-00809-002
36	ROBERT H. NEWLIN AND LORI D. NEWLIN	21.299934	24-00809-003
37	THOMAS E. MCGAUGHEY	21.054401	24-00809-004

TRACT NUMBER	LESSOR	SURFACE ACRES IN UNIT	TAX MAP PARCEL ID NUMBERS
38	ROBERT SERDAR AND JUDITH I. SERDAR	20.294780	24-00809-005
39	ROBERT SERDAR AND JUDITH I. SERDAR	19.043146	24-00809-006
41	CHARLES W. CORDER, JR. AND NANCY S. CORDER	12.523870	24-01019-001
42	SALINE OIL COMPANY DBA SPRING HILLS GOLF CLUB, CHARLES W. CORDER, SR., PRESIDENT	3.203635	24-01101-000
43	CHARLES W. CORDER SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	0.344141	24-01317-000
44	SHIRLEY A. MCCOURT AND LESTER P. MCCOURT	0.559169	24-01844-000
45	CHARLES W. CORDER SR. AKA CHARLIE CORDER AND DIANA L. CORDER AKA DIANE CORDER	37.942244	24-01845-000
46	MARIAN DECKER	0.088929	24-01981-000
47	MARY E. SCOTT FKA MARY E. SIMMONS	14.831869	24-01982-000B
47	RANDY J. TINNEY	0.000000	24-01982-000B
48	MARY E. SCOTT FKA MARY E. SIMMONS	6.919878	24-01982-001
48	JAMES MILLS	0.000000	24-01982-001
49	BETTY MAZUR AND ALFRED J. MAZUR, ACTING BY AND THROUGH HIS AGENT AND ATTORNEY-IN-FACT, FRANKLIN J. MAZUR	15.712642	24-02511-001
50	SCOTT M. RENFORTH AND CHRISTY M. RENFORTH	1.560973	24-02512-000
51	GEORGE N. DAVIS	11.814563	34-00295-000
807.552042			

Exhibit 7 to
R Kirk South
Unitization Application



- CHK Surface Well Location
- Unit Area - 983.227883 AC
- CHK
- ASCENT
- OPEN

UNIT PLAT

R Kirk South Unit
Ross, Salem, & Springfield Townships
Jefferson Co., OH

1 inch = 1,750 feet

